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**Testimony in Support of
LD 241, “An Act to Authorize the Public Utilities Commission to Approve
Rate Adjustments for Low-income Water Utility Ratepayers”**

Senator Lawrence, Representative Sachs, and distinguished members of the Joint Standing Committee on Energy, Utilities and Technology,

My name is Heather Sanborn, here today as Public Advocate, to testify in **strong support of LD 241**, “An Act to Authorize the Public Utilities Commission to Approve Rate Adjustments for Low-income Water Utility Ratepayers,” as modified by the amendment that was circulated to the interested parties last week and is attached here. The OPA would like to thank Senator Lawrence for sponsoring this bill.

Water is the only essential service for which there is no state or federal assistance program in Maine. The need for such a program is acute. A recent report, which we have provided to the Committee, estimates that approximately 53,000 of Maine households, or 17% of all residential accounts, spend more than 2% of their household income on water – the generally accepted national threshold for water affordability.¹ These results are consistent with the recently released “EPA Water Affordability Needs Assessment: Report to Congress – December 2024,” which found that in all counties in Maine between 10% and 20% of households had unaffordable water bills.²

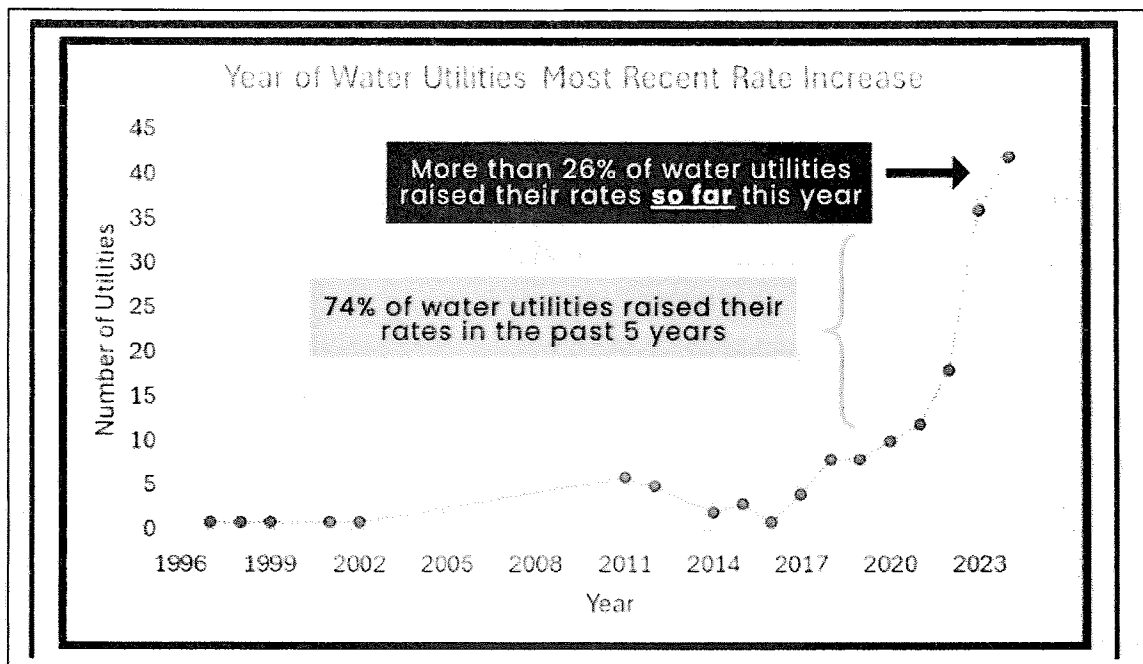
LD 241 would authorize the PUC to approve a low-income assistance program, allowing a qualifying, low-income residential water customer to receive a discount or credit on their water utility bill. This authorization for assistance programs for low-income water customers would join what is already in place for electric, gas, and telecommunication

¹ “State of Maine: An Overview of Statewide Water Affordability – December 13, 2024,” prepared by Raftelis Financial Consultants. Raftelis has performed research and supported the development of consumer assistance programs for water customers in several locations in the United States.

² “EPA Water Affordability Needs Assessment: Report to Congress – December 2024” at 37, <https://www.epa.gov/system/files/documents/2024-12/water-affordability-needs-assessment.pdf> (last accessed Jan. 23, 2025).

customers (Title 35-A M.R.S. § 3214 and § 4706-B). However, LD 241 would not compel any water utility to offer a low-income assistance program. The bill as amended would not give the PUC the authority to require a water utility to adopt a low-income program, nor would it obligate PUC to approve a water low-income program petition. LD 241 takes a first important step forward in simply authorizing the PUC to approve these programs when they are proposed if they are determined to be cost-effective.

The graph³ below further supports the mounting need for ratepayer assistance.



In this graph, the PUC highlighted the success of utilities coming in to update rates under 6104-A (2009) and 6104-B (2023) expedited rate cases. While this has helped keep these utilities solvent and able to make needed investments, individual ratepayers are feeling the impact – three quarters of water utilities in Maine have raised their rates in the past 5 years!

This bill and the amendment presented here today are the result of work of the Maine Water Ratepayer Assistance Project (WRAP) Committee, an informal working group of

³ PUC presentation at “Rate Setting for Capital Improvements” Seminar hosted by RCAP Solutions Maine on December 5, 2024 in Biddeford, Maine, slide deck page 130.

water utility representatives and representatives of the OPA and the PUC. Over the last 18 months, this group has reviewed and considered the need for a program to help low-income households struggling to afford their water utility bills and determined that the PUC should be granted the explicit legislative authority to approve such programs when they are proposed.

We note that the Portland Water District has had a low-income water program in place since 2007, and hope that if this bill is passed, other water utilities will step forward to address this serious and growing problem.

Thank you for your time, attention, and consideration of this testimony. The Office of the Public Advocate looks forward to working with the Committee on LD 241 and will be available for the work session to assist the Committee in its consideration of this bill.

Respectfully submitted,

Heather Sanborn
Public Advocate

January 22, 2025

**Public Advocate Proposed Committee Amendment to LD 241, An Act to
Authorize the Public Utilities Commission to Approve Rate Adjustments for Low-
Income Water Utility Ratepayers**

Amend the bill as follows:

Sec. 1. 35-A MRSA §6115 is enacted to read:

§6115. Low-income assistance

Notwithstanding any provision of law to the contrary, a water utility or group of water utilities may petition the commission for approval of a low-income assistance program to allow a qualifying low-income residential ratepayer to receive a discount or credit applying to the amount the residential ratepayer would otherwise owe to the water utility. The commission shall may approve the proposed discount or credit if it determines that the proposal is a cost-effective means of keeping water affordable for low-income residential ratepayers. Nothing in this section shall be construed to authorize the commission to require a water utility to initiate a low-income assistance program.

For the purposes of this section, "residential ratepayer" means a customer who is considered residential under the terms and conditions of the water utility.

SUMMARY

This amendment clarifies that the bill does not give the PUC authority to order a utility to adopt a low-income program and is not obligated to approve a low income program proposed by a utility.

STATE OF MAINE

An Overview of Statewide Water Affordability

FINAL REPORT / JANUARY 24, 2025

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Executive Summary

Affordability is rapidly becoming a significant issue in the water sector. Aging infrastructure and significant regulatory requirements, combined with decreased federal funding, have placed increasingly heavier cost burdens on utilities. In recent decades, utilities have raised rates on their customers well beyond the pace of inflation. The resulting cost burden on low-income customers has made many of their bills unaffordable, leading to missed payments and shutoffs.

Water is the only essential service for which there is no permanent federal assistance program and no state assistance program in Maine. During the COVID-19 pandemic, the federal government provided funding for direct water bill assistance and debt forgiveness for the first time. However, program funds expired in 2023. Though there has been discussion about making the program permanent, its future is highly uncertain. Additionally, pursuing such programs at the local utility level can be burdensome for many utilities. Maine is thus considering a statewide water bill assistance program.

This report is the culmination of work performed by Raftelis for the Office of the Public Advocate in Maine in consultation with the Water Ratepayer Assistance Project, an informal committee of Maine water utility managers. Raftelis was commissioned to explore the nature and extent of current water affordability issues in the State of Maine and to consider the desirability of a statewide assistance program to address them. This report provides the findings of our research and analysis as part of this project.

We first examine the current state of water affordability in Maine according to standard industry metrics and leading alternatives. We then compare Maine to its neighboring states and the nation on elements like average bill, average bill burden, income levels, rate structures, and drinking water infrastructure needs. We next focus on all communities within Maine that receive water service, comparing communities on affordability metrics, investigating the causes of high bill burdens, and comparing burdens across geographical areas. We rely on a mixture of Census data, data from the Maine Public Utilities Commission, and data from individual utilities to perform our analyses.

Our findings show that many communities in Maine face high or moderate water bill burdens based on a combination of bill burden analyses and federal poverty level data. Though there are relatively few communities with extremely unaffordable bills according to standard industry metrics, affordability is a problem for many consumers. Specifically, what may be affordable for one community is not necessarily manageable for another, as community economic conditions vary. Mainers face a generally high cost of living compared to their income levels, which may exacerbate water bill burdens that would be more manageable in lower cost of living areas.

After evaluating Maine against its neighbors and the nation, and Maine communities that receive water service against one another, we turn to developing a model to estimate the total amount of financial need that an assistance program should address. We provide a range of estimates using income level data, federal poverty level data, and local water rates for each community and setting acceptable bill burdens at a variety of thresholds for each income range. Our results provide the State with a range of total financial need and average award per household estimates to consider. Based on a widely accepted affordability standard that

water should not cost more than 2% of household income, low income customers need approximately \$5,800,000 of assistance.

We next consider the key elements of a successful assistance program, the benefits and challenges of pursuing such a program at the state level, and then provide a series of possible pathways for program structure, design, enrollment, administration, and award disbursement. We also examine ways to address water affordability issues via alternatives to an assistance program.

The following is a bulleted summary of our research and analyses:

- Maine water utilities serve approximately 307,000 households.
- Approximately 57,000 of those households (19%) have incomes below 150% of the poverty line.
- Approximately 53,000 of those households (17%) spend more than the generally accepted national maximum standard of 2% of their household income on water.
- The average annual bill for a typical residential customer in Maine is \$428. This bill is higher than the average bill for all but one other state in the Northeast.
- Maine also has the second highest bill burden in the Northeast at the 20% percentile of household income (AKA the Lowest Quintile Income, or LQI), which is commonly used as an indicator for low-income households within a community.
- Approximately 70% of Maine communities served by a water utility face either moderate or high water bill burdens, according to our analysis that combines LQI burdens with federal poverty level data.
- The amount of ratepayer assistance needed to reach the 2% affordability standard is approximately \$5,800,000 per year.
- In the future water rates in Maine are expected to increase faster than the rate of inflation. Maine's drinking water infrastructure needs for the next twenty years cost \$1,439 per person, according to the most recent *Drinking Water Infrastructure Needs Survey* conducted by the EPA.

Current Picture

According to industry-standard metrics like Median Household Income (MHI) burden, Lowest Quintile Income (LQ) burden, and annual water bill as hours worked at minimum wage, Maine does not have a large water affordability problem. For most communities that are served by a water utility in Maine, water costs are currently acceptable at these standards. However, these results do not mean that there are not households struggling with their water bills in the state. There are many communities across Maine that have significant numbers of households at extremely low annual incomes. Communities that are collectively home to about 23% percent of the households in Maine that receive water service from a utility face water burdens that are above the state average burden, often at levels that generate concern. These communities tend to have both higher-than-average water bills and lower than average household incomes. Many households in these communities, in addition to some number of households in almost every community, face high water cost burdens—as well as a generally high cost of living—and demonstrate genuine need for a statewide assistance program.

Though water burdens in Maine do not broach the affordability metric according to industry standards, what is or is not affordable is hard to standardize across the entire country. Several circumstances in Maine provide cause for concern. Maine has a very high cost of living when factoring in housing and other costs, meaning that water bills—even if theoretically “affordable”—may cause financial difficulty for many households. Many communities across the state have LQIs below the MIT Living Wage—a metric determined by the Massachusetts Institute of Technology as a proxy for cost of living across the country—that is needed to live comfortably in their county.¹ Further, Maine’s water burdens are generally higher than its regional neighbors across New England. This difference is at least partially a result of the fact that Maine has a much higher prevalence of declining block rates (where each tier of usage is progressively less expensive) compared to its neighbors, which tend to have a greater percentage of inclining block rates (where each tier of usage is progressively more expensive). Declining block rates, although often justifiable in terms of cost of service principles (where many costs can be considered fixed), tend to place a higher burden on residential customers, whose usage is rarely high enough to take advantage of lower costs in higher tiers. The higher relative water burden in Maine compared to other New England and Northeast states may also be a result of its low population density. Systems that provide service to a higher concentration of customers in the same area can take advantage of efficiencies of scale to provide the same service at a lower per-capita cost.

Additionally, water rates in Maine are expected to increase significantly in the near future, potentially at or exceeding the national average of 5-6% per year over the past two decades, which generally more than doubled inflation.² These expected increases are due to Maine’s large infrastructure needs over the coming decade, which were estimated in 2023 as part of the EPA’s nationwide Drinking Water Infrastructure Needs Survey at \$1.96 billion, as well as the decreasing amount of federal funding for water infrastructure.³ Through the 1980s, the federal government supported over 20% of total water utility infrastructure spending, compared

¹ MIT. “Counties and Metropolitan Statistical Areas in Maine.” <https://livingwage.mit.edu/states/23/locations>.

² Bluefield Research. “Household Water, Sewer Bills Outpace Inflation 3X.” [Household Water, Sewer Bills Outpace Inflation 3X - Bluefield Research](#). (June, 2017). Note: the 3X inflation factor does not account for the recent COVID-related increase in inflation, but rather reflects the historical trend before that period.

³ U.S. EPA. “Drinking Water Infrastructure Needs Survey and Assessment.” (September, 2023).

to less than 5% in 2014.⁴ We have forecast that bill burdens may rise significantly in many communities in Maine over the next five to ten years, based on historical income trends and expected rate increases. Though such forecasts contain high degrees of uncertainty, they, alongside the myriad of other factors looming over the water sector, point to increasing affordability-related concerns. Given the context of current water bill burdens, projected long-term income growth, rate increases, and infrastructure needs, there is plenty to justify taking a proactive approach toward addressing present and future affordability concerns now.

Maine's lowest income households are not alone in facing high water cost burdens. According to a 2022 survey of over 1,800 utilities that was conducted for the Low Income Household Water Assistance Program (LIHWAP), 20% of households that receive water service are in debt to their water utility, with an average debt of \$285. Additionally, households at 75% of the federal poverty level spend up to 40% of their monthly income on water and sewer bills.⁵ While such numbers are stunning, the report also found that water assistance programs benefit utilities in addition to customers. The primary reason for that benefit is that enrolling customers in programs that offer them arrearage forgiveness, lower bills, or both, lowers their cost burden to the point that they can make meaningful payments that can bring them back into good standing. Whereas some households may feel that their high debt is hopeless and thus avoid making any payment, a smaller bill may be more approachable. As a result of instituting assistance programs that relieve arrears or lower bills, many utilities have been able to receive at least some payments from households that previously were making none, which has been beneficial for both customers and utilities.⁶ Customers can find a path out of debt and get their service restored, while utilities can improve their cash flow.

Another reason to address customer affordability issues is that their consequences are not confined to the financial relationship between utility and customer. The results of missed payments and shutoffs can have health consequences. A study from Detroit, which shut off water service to approximately 80,000 households between 2014-2016, found that residents who lived in areas with a high concentration of shutoffs were 1.55 times more likely to be diagnosed with a water-related illness.⁷ Some of these include dehydration, poor hygiene that can lead to MRSA and various GI issues, and contagious water-borne diseases. Water shutoffs can also lead to impacts on consumer credit scores, which can affect residents in a variety of downstream ways.

⁴ Congressional Budget Office. "Public Spending on Transportation and Water Infrastructure, 1956-2014." (March, 2015). [Public Spending on Transportation and Water Infrastructure, 1956 to 2014](#).

⁵ Office of Community Services. "Understanding Water Affordability Across Contexts: LIHWAP Water Utility Affordability Survey Report." (February, 2024).

⁶ *Ibid.*

⁷ Gross, Allie. "Experts see public health crisis in Detroit water shutoffs." (July, 2017). [Experts see public health crisis in Detroit water shutoffs](#).

Program Structure, Enrollment, Administration

While developing a statewide customer assistance program is a powerful option for addressing water affordability in Maine, it is not the only option. There are many elements to making water as affordable as possible for those struggling to pay their water bills. A wise approach will take as many elements as feasible into account. These include maintaining existing and constructing new infrastructure to maintain high quality service and customer trust, evaluating the impact of rate structures on affordability, and being proactive about public communication. Let us address the importance of each before considering in detail the options for structure, implementation, and administration of a customer assistance program.

In the face of affordability challenges, it is often tempting for utilities to limit rate increases regardless of infrastructure, operation, and maintenance needs. This approach is unwise. Delaying needed maintenance, repairs, or new infrastructure runs the risk of compromising system reliability and safety. Additionally, repairs needed today will still be needed tomorrow, when costs are likely to be higher. Though it is always prudent to be as efficient as possible regarding infrastructure design, infrastructure maintenance is needed for a reason. Should a system suffer serious main breaks or other issues that lead to service interruptions or boil notices, public trust will likely suffer. And if public trust decreases, consumers are likely to shift more of their purchasing to bottled water, which is extremely expensive relative to utility-provided water, thus defeating the idea of saving the customer's bill from rising by delaying rate increases. Additionally, emergency repairs are almost always more expensive than routine renewal and replacement of aging infrastructure. The least desirable way to address affordability concerns is to compromise the reliability of the utility. Consumer trust in the safety and reliability of tap water is one of the fundamental tenets of affordability.

Another crucial component of affordability is rate structure. Generally, each type of rate structure benefits certain customer classes while burdening others. In Maine, almost 60% of utilities employ declining block rate structures, which disadvantage residential customers. There are cost of service based justifications for these structures in many circumstances; it is generally much more expensive to deliver the first gallon of water than the thousandth. However, those general rules do not hold true in every circumstance. Geography, for example, might make it much easier to serve a cluster of homes located near the plant than a business located above a hill on the outskirts of the city, even if the overall cost of producing water declines as more water is produced. Ultimately, rate structure is always a matter of both cost of service and policy goals. Just because it may be marginally cheaper on a cost of service basis for a water plant to provide the millionth gallon of water to a golf course during the summer than to provide the first gallon of drinking water to a home, does not mean that it is in the best interest of the utility or the community to price water accordingly. Many states allow a great deal of discretion to utilities in determining their rate structure, including Maine, although several utilities require Maine Public Utilities Commission (Maine PUC) approval of their rates, and rate structures. It is reasonable to price water with conservation, affordability, and other factors in mind. Whereas a customer affordability program could be considered a reactionary response to the problem of water affordability, rate redesign is preventative. If shifting the cost burden to higher volume and commercial customers makes water significantly more affordable for residential users, a customer assistance program—which comes with administrative burdens and costs—may be less necessary, or less households may need its assistance. It is also possible, and even likely, that affordability issues may persist after rate structure changes.

However, given that reevaluating rates is likely to be easier than instituting a statewide assistance program, doing so is worthy of consideration.

An under-utilized component of water affordability is public communication. The prime example of this issue is water quality. Consumers often believe that private, bottled water is of higher quality and safer to drink than what comes out of the tap. Not only is that sentiment generally untrue—tap water is tested far more frequently and for more potential contaminants than bottled water—it is also disastrous for affordability.⁸ Every time someone buys a bottle of water instead of filling up a glass from the tap, their true cost of water increases significantly. Tap water in New England, including in Maine, tends to average at about \$0.01/gallon. A 16.9 fl. oz bottle of water in Maine, purchased at the store, costs \$1.45 on average.⁹ That's equal to \$10.98 per gallon, almost 1100 times the price at the tap. Given that bottled water is so much more expensive without any reliable improvement in quality, utilities could potentially lower their customers' true water costs by improving their messaging. Public water in Maine is subject to significant treatment and testing; there is every reason for customers to preference tap water over what can be purchased from the store. Public water utilities are generally quiet about marketing the value of what they provide; it is worthwhile to consider a change.

Even if utilities do all the above to address affordability, a customer assistance program may still be desirable to fill in the gaps and provide support to highly burdened customers. Such a program, when implemented efficiently, can help those in need afford a crucial service. However, it is imperative to ensure that such a program avoids some common pitfalls that can prevent customer assistance programs from being successful. When designed or implemented poorly, even the best-intentioned program can end up making affordability worse, rather than better. This problem results from the fact that affordability programs are not easy, or necessarily inexpensive, to design and operate. These administrative costs, in addition to foregone revenue from program participants, result in non-participants needing to pay more, unless program funding can be secured from an outside source. If those in need are enrolled, they will benefit; if they aren't, their bill will increase. Additionally, utilities implementing assistance programs face the uphill struggle that accompanies all new programs: initial inefficiencies, challenges with marketing the program and enrolling participants, and the need for flexibility when it comes to evaluating what is working and what is not.

The best programs are straightforward and streamlined from both the perspective of the customer and the utility. They make requirements clear and applications easy. They provide extensive assistance to hard-to-reach communities. They maximize the use of existing data and data-gathering processes to avoid the cumbersome process of creating new ones. They build on top of existing assistance programs, like SNAP, rather than trying to reinvent an entirely new approach. They maximize the ratio of dollars spent administering the program to dollars imburshed to participants. They do not let the perfect be the enemy of the good. Though no statewide water affordability programs currently exist in the US, that does not mean one cannot be successful. Through successful cooperation and coordination between utilities and the State of Maine, the creation of an effective customer assistance program is possible. The ultimate decisions on program design and implementation are the State's to make. This report will provide some recommendations that will hopefully make those decisions easier.

⁸ NRDC. "Bottled Water vs Tap Water." <https://www.nrdc.org/stories/bottled-water-vs-tap-water>.

⁹ Water Filter Guru. "Which States Have the Most Expensive Bottled Water." <https://waterfilterguru.com/price-of-water-on-the-go/>

Before advancing further, it is important to note that Maine is not the only state considering a statewide affordability program. In 2012, the State of California recognized the right to clean water through Assembly Bill 685, which has since been adopted as part of its Water Code.¹⁰ A bill shortly afterwards called for the consideration of a statewide low-income water bill assistance program in the face of stagnating incomes for low- and middle-income households compared to quickly rising water bills. Researchers involved in that process found a variety of reasons to support a statewide program compared to the status quo of allowing individual utilities to adopt local programs. A locality-by-locality approach, they argue, suffers from a lack of technical capacity, an insufficient economic base from which to raise revenue, and the potential for program failure.¹¹ They noted that utilities with very high rates may require exceptional assistance to their low-income customers, and may not be able to raise the necessary revenue from ineligible customers without levying a heavy burden on them. A state program, on the other hand, can draw from a much larger pool of ineligible customers from which to support those most in need.

It is also worth noting that the state of Massachusetts has previously employed a statewide assistance program, even before LIHWAP led to the adoption of various state programs (under the umbrella of the federal department of Health and Human Services) nationwide during the pandemic. Between the early 2000s to 2014, the Massachusetts Department of Housing and Community Development operated a low-income water and sewer assistance program. It offered up to a 25% discount on annual bills using the same eligibility criteria as the federal heating assistance program LIHEAP.¹² Unfortunately, very little information about the program is available publicly and it was never evaluated.

¹⁰ California State Water Resources Control Board. "Human Right to Water Portal."

https://www.waterboards.ca.gov/water_issues/programs/hr2w/#:~:text=Human%20Right%20to%20Water%20%7C%20California%20State%20Water%20Resources%20Control%20Board&text=On%20September%2025%2C%202012%2C%20Governor,the%20human%20right%20to%20water.

¹¹ Pierce, G., Chow, N., DeShazo, J.R. "The case for state-level drinking water affordability programs: Conceptual and empirical evidence from California." *Utilities Policy*, Vol 63. (April, 2020). [The case for state-level drinking water affordability programs: Conceptual and empirical evidence from California - ScienceDirect](#).

¹² *Ibid*.

Data Sourcing and Methodology

The analysis in this report relies upon data from a variety of sources. We gathered data on utility rates from the Maine Public Utilities Commission (PUC) website and via direct correspondence with PUC staff. For the vast majority of the 148 utilities that we've included in our analysis, we found the most recent rate adjustment filing for each and populated our model with the results. For the very small number of utilities for which public rate information was not readily available, we gathered rate data by corresponding with PUC staff. Rate data for other states was gathered both from the most recent AWWA/Raftelis nationwide rate survey as well as utility websites. We generated residential bill comparisons based on a standard usage of 15 hundred cubic feet (CCF) per quarter.

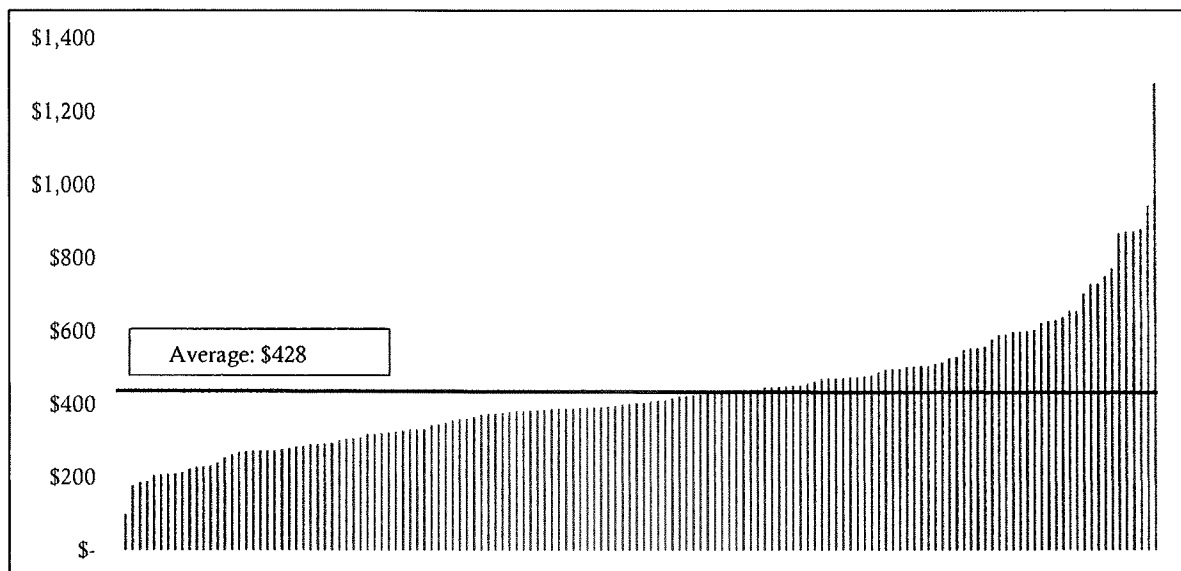
We gathered a wide variety of data from the US Census, including Median Household Income (MHI), Upper Limits of Income Quintiles, Income Level Ranges, Poverty Levels, Population, Households, and the Percentage of Households Receiving SNAP Benefits, among others. We used the geographic subset of Town/County Subdivisions, which allowed the best matching with publicly available data on Maine water utility service areas. All the data was from the most recent 5-year estimates of the American Community Survey, which was available for 2022. (5-year estimates are available for a wider-range of geographies).

We retrieved minimum wage data from the Maine Department of Labor website. We sourced inflation data from the Bureau of Labor Statistics. We sourced the MIT Living Wage data from the project's website. Their formulas rely upon data from a wide variety of sources, including: The National Database of Childcare Prices from the US Department of Labor; the USDA Food Plans: Cost of Food Reports; the U.S. Bureau of Labor Statistics Consumer Expenditure Survey for out-of-pocket medical expenses; the Medical Expenditure Panel Survey Health Insurance Component Analytical Tool for health insurance premiums; the U.S. Department of Housing and Urban Development Fair Market Rents for housing costs; the BroadbandNow United States County Broadband Statistics for internet; the U.S. Bureau of Labor Statistics Consumer Expenditure Survey for cell phone service, transportation costs, recreation, and other necessities; and the National Bureau of Economic Research for income and payroll tax information.¹³

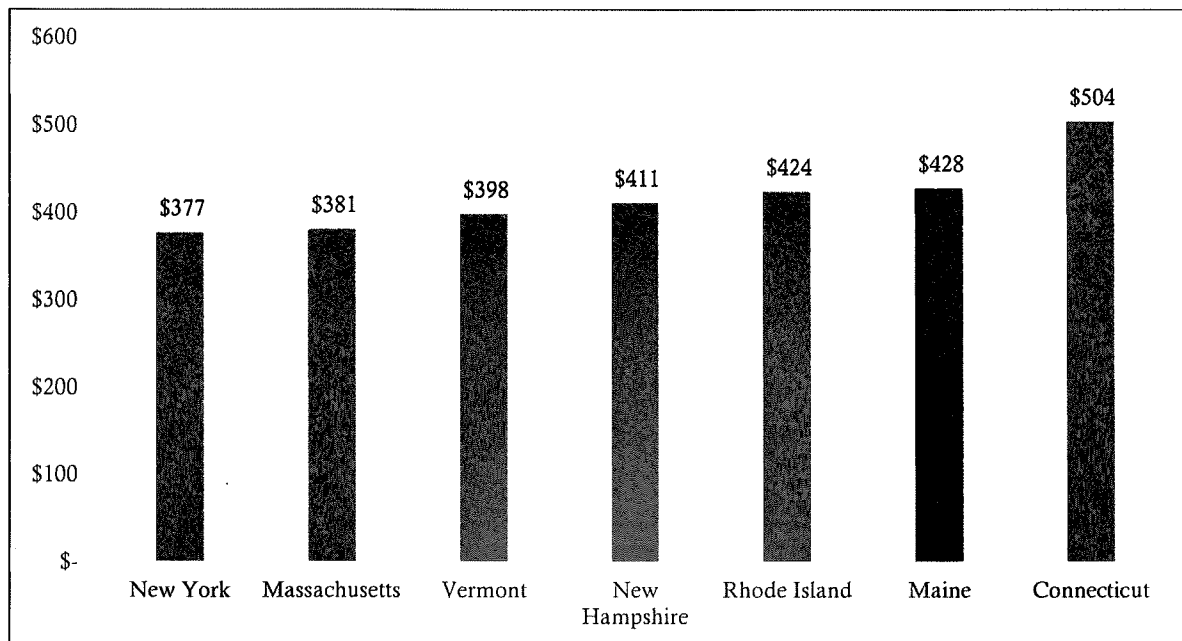
Regional and National Water Utility Comparison

One of our initial steps was to examine water utilities within Maine. We wanted to determine their pricing, their rate structures, and how they compared to other states in the region and to the nation at large. After developing a bill comparison that was based on residential customer characteristics—60 CCF/yr or 15 CCF/quarter with a 5/8" meter—we saw a wide range of rates across Maine. An annual water bill ranged from as low as \$86—although this relied upon some degree of subsidization from the statewide department of environmental protection fund that was granted because of prior contamination—to \$1,279. Both of these bills were significant outliers and both were small utilities with low numbers of customers. The average bill across all 148 utilities in the sample was \$428. All annual utility water bills can be seen below in Figure 1.

¹³ MIT Living Wage Calculator. "What is a living wage and how is it estimated?"
<https://livingwage.mit.edu/pages/methodology>.

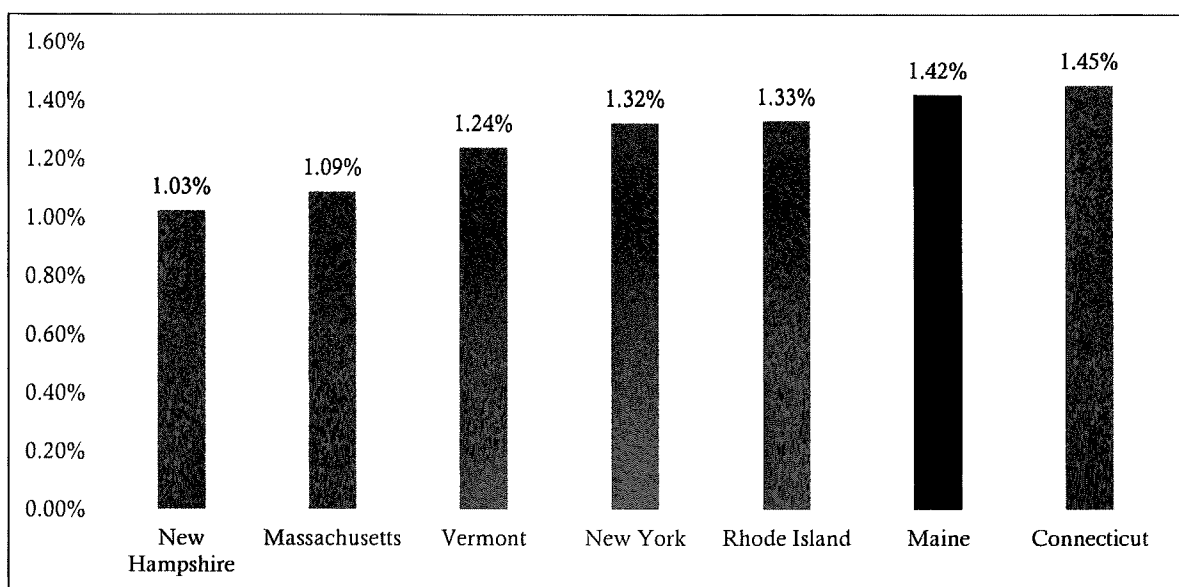
Figure 1: Annual Water Bill for Residential Customers by Utility (60 CCF / year; 5/8" meter)

Compared to bills in other states in the Northeast, the average bill in Maine was higher. Only Connecticut, with a bill average of \$504, had a higher average bill than Maine. Annual bill averages for other states in the Northeast can be seen below in Figure 2. It is worth noting that the averages for states other than Maine are not built on as large of a dataset. Though we made sure to gather a geographically diverse set of utilities for all states, it was not feasible to gather rate data for every single utility in every state. Additionally, these averages are not weighted based on population in the service area of each utility. As a result, these figures should be seen not as the amount that a customer in each state is most likely to pay, but as averages of water utility bills across the geography of each state. While most bill averages (including Maine) are within \$50 of each other, Maine is still at the higher end of that range.

Figure 2: Annual Water Bill – Statewide Averages (60 CCF / year; 5/8" meter)

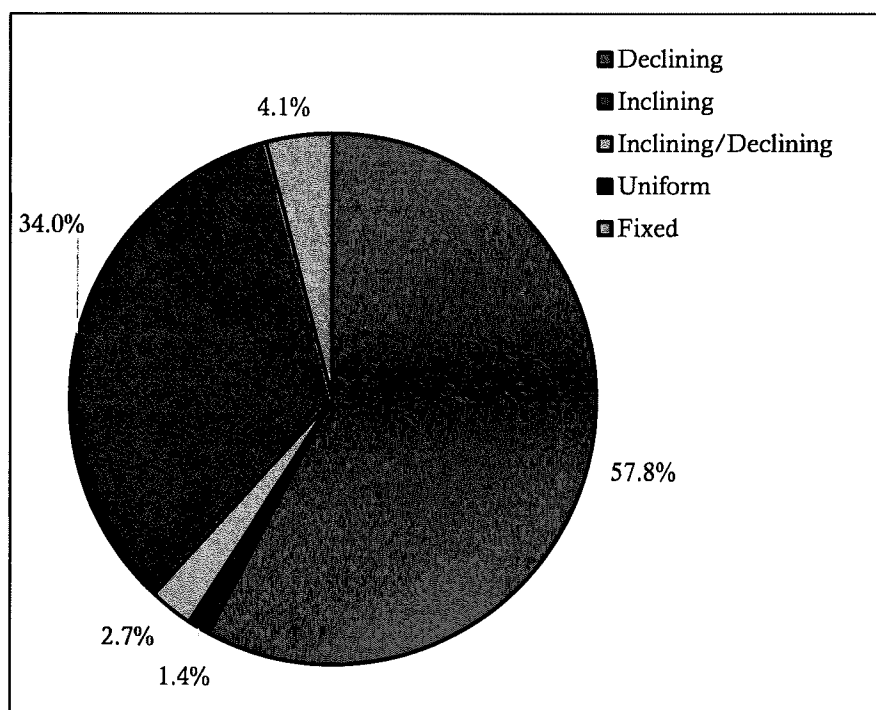
A metric that has been increasingly used in recent years to measure water affordability is the LQI Burden, or the water bill burden at the upper limit of the lowest quintile of income in an area. To calculate this metric, we took the average bill in each of the above states and divided it by the statewide LQI, or the 20th percentile income. The results can be seen in Figure 3. While New York and New Hampshire swap places, every other state stays in the same place as in the average bill ranking. However, the LQI Burden in Maine is very close to the LQI Burden in Connecticut, since Connecticut has a substantially higher LQI.

Figure 3: Statewide LQI Burden – Northeast (60 CCF / year; 5/8" meter)



Since there are a wide range of factors that determine water rates—including supply transport costs, treatment costs, transmission & distribution costs, the size of the utility's customer base, their level of efficiencies of scale, recent capital investment, contamination remediation, and many others—it would be unwise to try to pin the differences in bills between states on any particular factor. However, it is worth comparing rate structures across the states, as Maine differs substantially from both the regional and national norm.

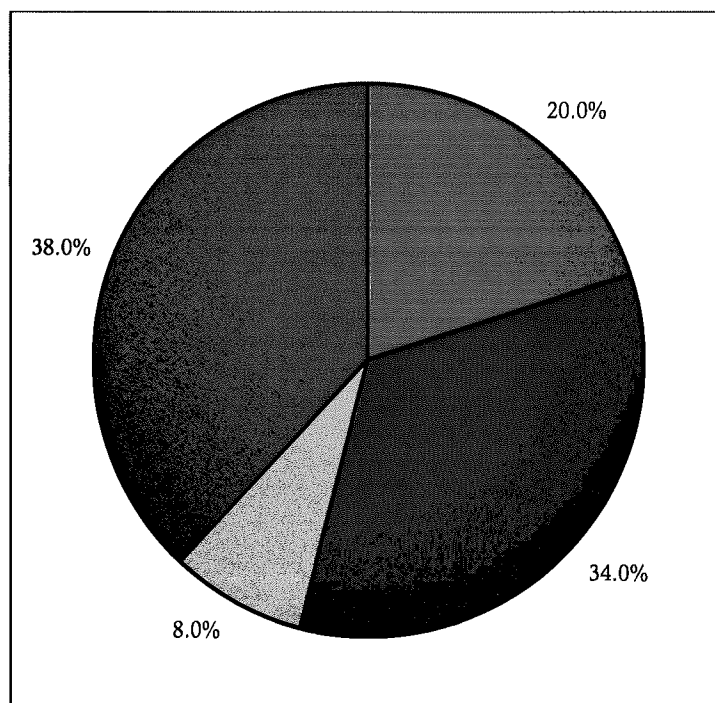
Figure 4: Maine Water Utilities Rate Structures



As can be seen in Figure 4, a strong majority of water utilities in Maine utilize declining block rate structures, in which the marginal price of water declines in each successive block of use. When the price of each unit of water declines as the customer buys more, the system will favor customers who use high quantities of water. Since residential customers rarely use enough water to bring their usage beyond the lower tiers, they tend to pay more on a marginal basis than large users. This is the case in almost 60% of the water utilities in Maine. An additional 34% of Maine utilities employ uniform rates, in which no customer is favored over any other, depending on how the fixed rate charges are differentiated.

Compared to Maine, other states in the Northeast have comparatively few utilities that employ declining block rates. As can be seen in Figure 5, only 20% of utilities in the other Northeast states use declining block rates, whereas 34% use inclining block rates, which tend to favor residential users since the marginal price of water declines as usage increases.

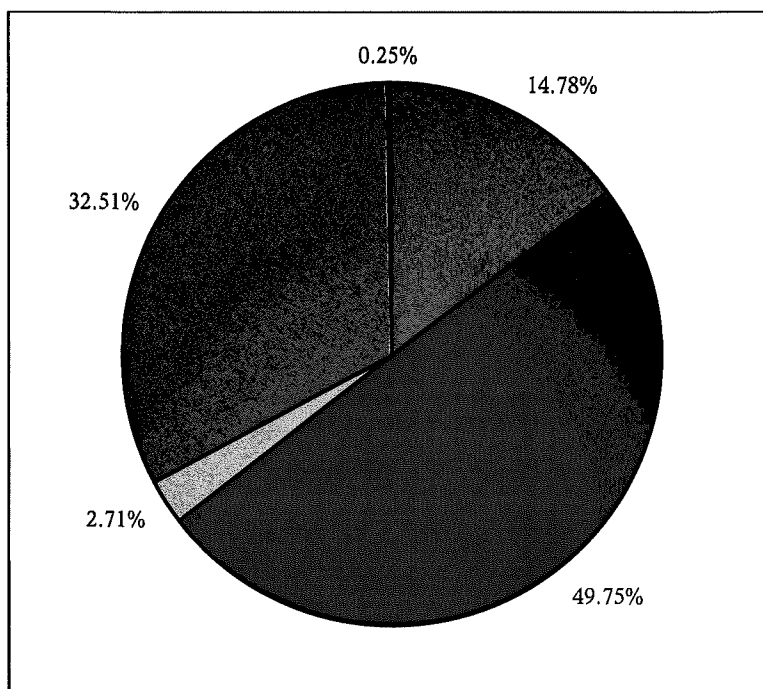
Figure 5: Northeast Water Utilities Rate Structures



Imagine a scenario involving two theoretically identical utilities, Utility A and Utility B, in which the total revenue requirement and the total size and makeup of the customer base are the same. If you assign Utility A an inclining block rate structure and Utility B a declining block rate structure, residential customers in Utility A are practically guaranteed to have lower bills, even though the utilities will recover the same amount of revenue. There are many justifiable reasons to use a declining block rate structure. As we wrote in the summary, declining block rate structures can match the cost of service. They can also provide benefits to large businesses that employ substantial portions of a community. However, it is important to note that these structures will almost certainly lead to residential customers paying comparatively more per gallon than high usage commercial and industrial customers.

The contrast is even more stark when compared to rate structures nationwide. As can be seen in Figure 6, almost 50% of water utilities nationwide operate with an inclining block rate structure, compared to less than 2% in Maine.

Figure 6: Nationwide Water Utilities Rate Structures

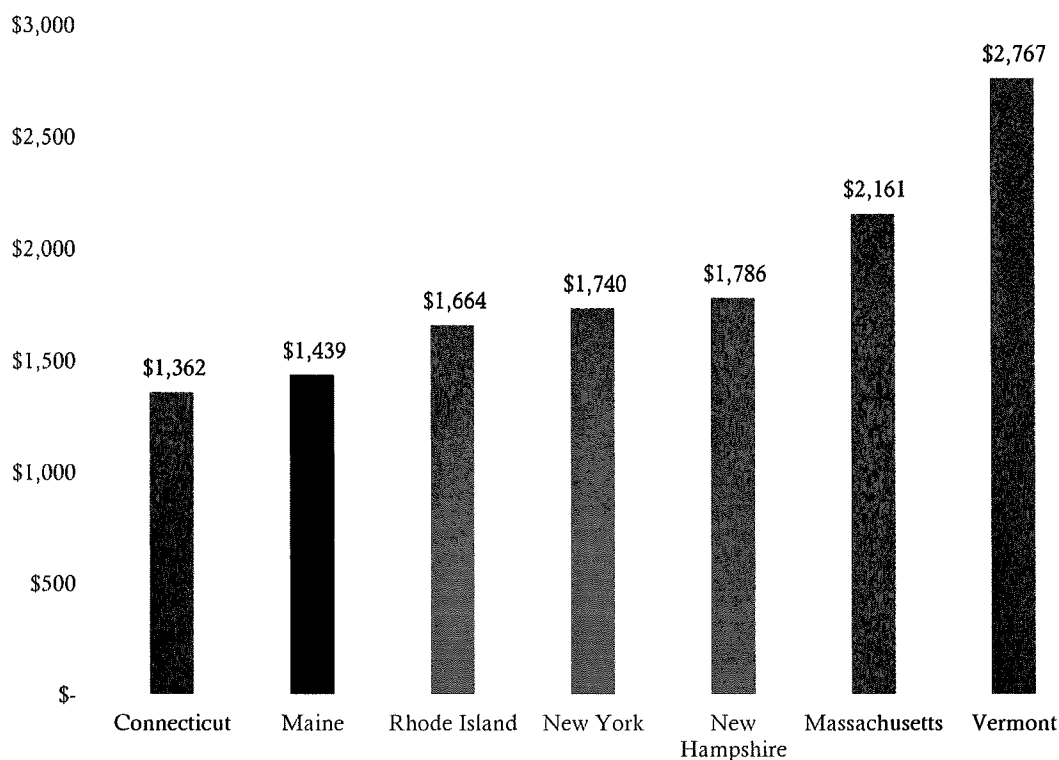


Infrastructure Needs:

Another important factor to consider when evaluating affordability needs is the amount of required future investment in water infrastructure to maintain system safety, reliability, and comply with regulations. According to the most recent *Drinking Water Infrastructure Needs Survey and Assessment* conducted by the EPA, nationwide infrastructure needs stood at \$625 billion over the next twenty years as of 2021. This amount represents a 113% increase since 1995 (the first year the survey was conducted), after adjusting for inflation. The overall number is massive, although it does not consider projects funded via the Bipartisan Infrastructure Law (which likely lowered outstanding financial need) or the new regulatory requirements related to lead service lines and PFAS (which likely increased it). Given the evolving regulatory environment, the abundance of aging infrastructure, and the inflation of construction costs, it is reasonable to expect these numbers to continue to rise.

According to the report, Maine has drinking water infrastructure needs of \$1.961 billion. This amount is equivalent to \$1,439 dollars per person. Although that number is significant, it places Maine on the lower end of per-person infrastructure needs compared to the rest of the Northeast region. As can be seen in Figure 7 on the next page, Maine has less \$/capita need than all other states save for Connecticut. And Maine has substantially less \$/capita need than other rural states like Vermont and New Hampshire.

Figure 7: Northeast Drinking Water Infrastructure Needs (\$/person)



There is a great deal of uncertainty as to how these differing levels of need will play out in the near future. It is possible that lower per-capita needs in Maine will lead to less costly infrastructure investment compared to other states and a resulting shift over time in residential water burdens. Still, the results of the infrastructure survey are the results of a *survey*; they do not represent capital improvement plans. We don't know how much money will actually be invested, whether additional federal money will be provided, or whether additional needs will arise.

Overall, residents in Maine generally face larger bills and larger bill burdens relative to their incomes when compared with other states in the Northeast. Though correlation does not imply causation, Maine has a much higher proportion of utilities that employ declining block rate structures than other states in the Northeast and the country as a whole. Since declining block rates disfavor residential customers, their presence in Maine may be impacting the relatively higher water bills such customers pay in Maine compared to other states. It is hard to know how bill averages and burden in the region will evolve in the future. Most utilities and others in the industry expect rates to continue increasing well beyond the rate of inflation. Whether rates in Maine will increase at larger or smaller rates than other states is very difficult to predict. Given their relatively lower per-capita infrastructure needs, per the EPA survey, it is possible that Maine rates will not need to increase as fast as other states. But there are many other factors involved, including federally available funding and local construction costs, that make it unwise to set expectations on any particular outcome.

Communities within Maine

After comparing Maine to the rest of the Northeast, we analyzed communities within Maine in comparison to one another. We gathered census data for all the communities that are served by water utilities, matched each community to a utility, and then performed various analyses. (One note: some utilities serve multiple communities). One of our initial comparisons was to calculate the water bill burden at the Median Household Income (MHI) for each community. We sourced MHI for each community from the 2022 American Community Survey 5-year estimates hosted at the US Census and then divided the MHI for each community by their typical residential water bill.

MHI burden is a commonly used statistic across the industry. It was originally developed in the 1990s by the EPA as an indicator to determine the amount of additional investment a community could afford.¹⁴ A burden above 2% was considered to be unaffordable.¹⁵ Figure 8 shows that all but one community in Maine has an MHI burden below 2%. According to traditional metrics, we could thus say that Maine does not have a water affordability problem. However, the 2% figure has come under significant criticism in recent years. Various sources have argued that 2% of MHI

underestimates highly burdened individuals at lower income levels and thus can easily hide a problem that impacts lower income households.¹⁶¹⁷ The MHI, by definition, does not provide information about the lower income households in a community. And it is very possible that a community could have very low income levels at the lowest percentiles while having a robust MHI. This could lead to water service appearing affordable for communities that in fact have significant numbers of households that are struggling to pay their bills. Additionally, a community's water bill would have to be extremely high, compared to the average bill, to exceed 2% of MHI in most communities in both Maine and nationwide. It is a very high standard to meet.

¹⁴ U.S. EPA. *Financial Capability Guidebook*.

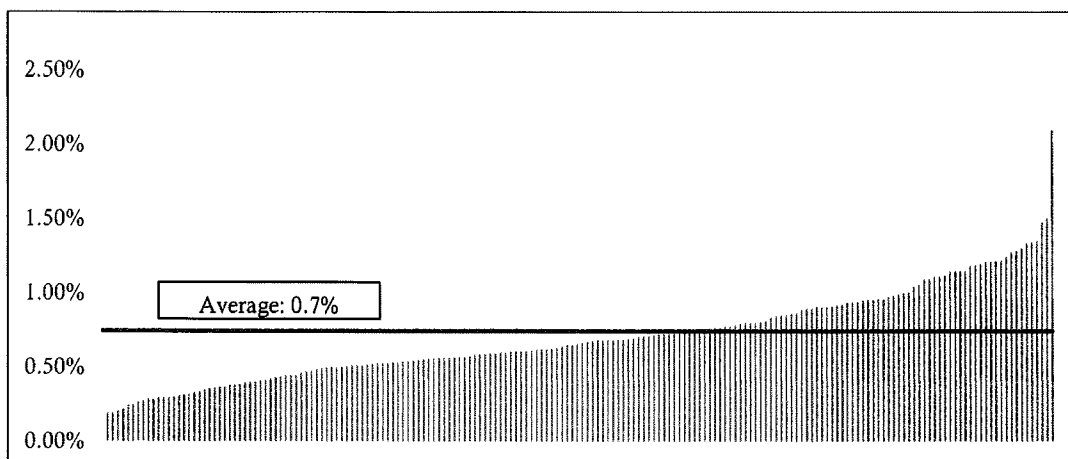
¹⁵ Teodoro, Manuel. "Measuring Households Affordability for Water and Sewer Utilities." *Journal AWWA*. (February, 2018). [Measuring Household Affordability for Water and Sewer Utilities - Teodoro - 2018 - Journal AWWA - Wiley Online Library](#). Note: the water threshold of 2% is most likely from the 1995 guidelines on water quality standards.

¹⁶ *Ibid.*

¹⁷ Schneemann, Margaret. "Defining & Measuring Water Affordability: A Literature Review." *University of Illinois Extension*. [DMWA_FINAL.pdf](#).

¹⁸ Raucher, R. et al. "Developing a New Framework for Household Affordability and Financial Capacity Assessment in the Water Sector." (April, 2019). [DevelopingNewFrameworkForAffordability.pdf](#).

Figure 8: Median Household Income Water Bill Burden by Community



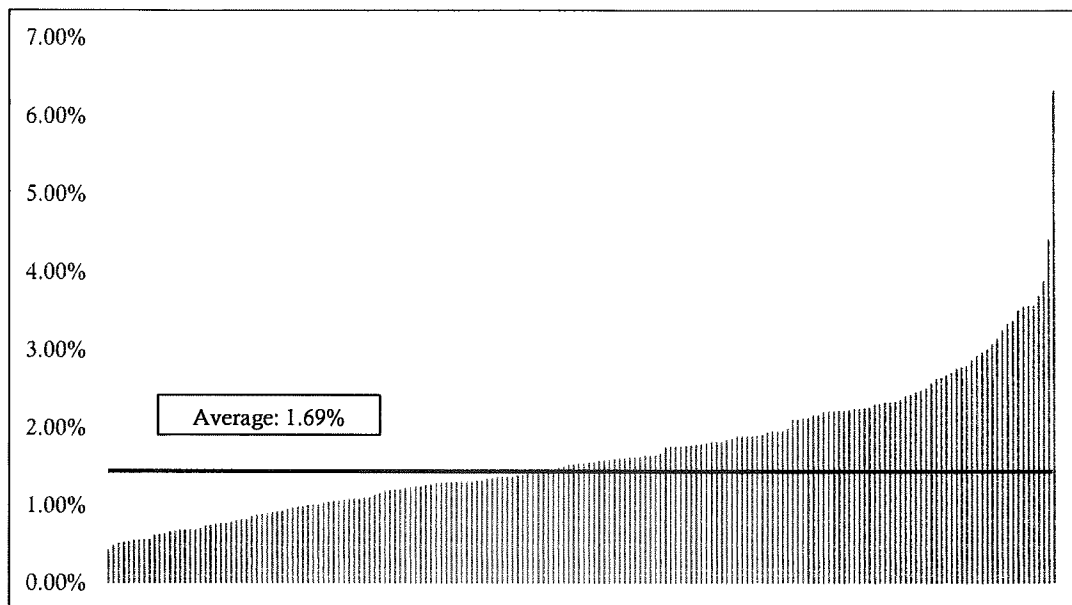
Criticism of MHI burden as a metric has led to the adoption of additional metrics to more accurately measure the burden faced by low-income households. Some of these metrics focus exclusively on water costs in comparison to community income, such as the Lowest Quintile Income Burden, which is similar to MHI Burden except that it substitutes the 20th percentile of income in place of the 50th.^{19,20} Another metric, AR20, takes into account additional living costs that a household faces on top of their water bill, such as housing and energy.²¹ A metric like Bill at Hours of Minimum Wage tries to place the bill in a local context using a straightforward term that most everyone is familiar with – the minimum wage.

For the purposes of this report, we want to focus on the analysis we ran according to the LQI Burden, which can be seen in Figure 9. While the average LQI Burden is still below 2%, there are a substantial number of communities with burdens above 2%. Given the many other cost burdens facing low-income households in Maine—something that we will revisit in a later section—it is concerning to see higher burdens here. Still, this metric certainly does not indicate the presence of an affordability crisis. Additionally, the average burden of 1.69% is unweighted for population. The population-weighted average is a lower 1.33%. This discrepancy led us to believe that the affordability situation was likely worse outside of urban areas. Such a scenario would not be particularly surprising; a greater density in the customer base can lead to economies of scale that favor cheaper service. Additionally, incomes are often higher in urban areas. Overall, 41% of communities had LQI burdens above the average, showing that the average is not overly impacted by outliers. (Note that this figure is different than the roughly 23% of the statewide population that reside in such communities; generally, the more affected communities had lower populations).

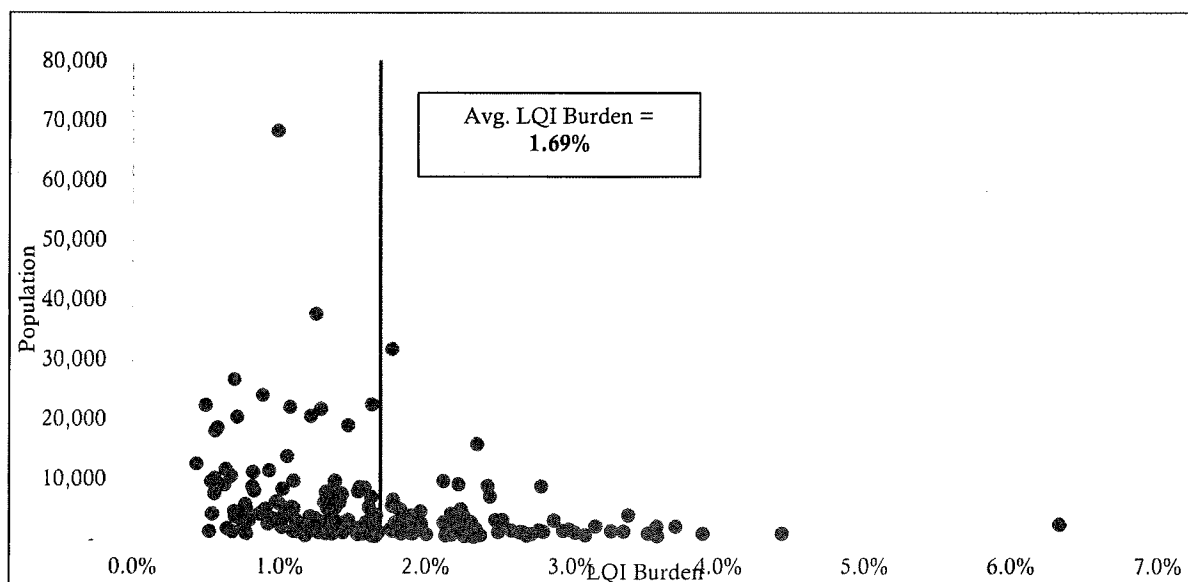
¹⁹Schneemann, Margaret. "Defining & Measuring Water Affordability: A Literature Review."

²⁰ Raucher, R. et al. "Developing a New Framework for Household Affordability and Financial Capacity Assessment in the Water Sector."

²¹ Teodoro, Manuel. "Measuring Households Affordability for Water and Sewer Utilities."

Figure 9: Lowest Quintile Income Water Bill Burden by Community

Given our concern over a potential divide in affordability between urban and rural communities in Maine, we next searched for a relationship between community population and LQI Burden. The visual relationship between the two variables can be seen in Figure 10.

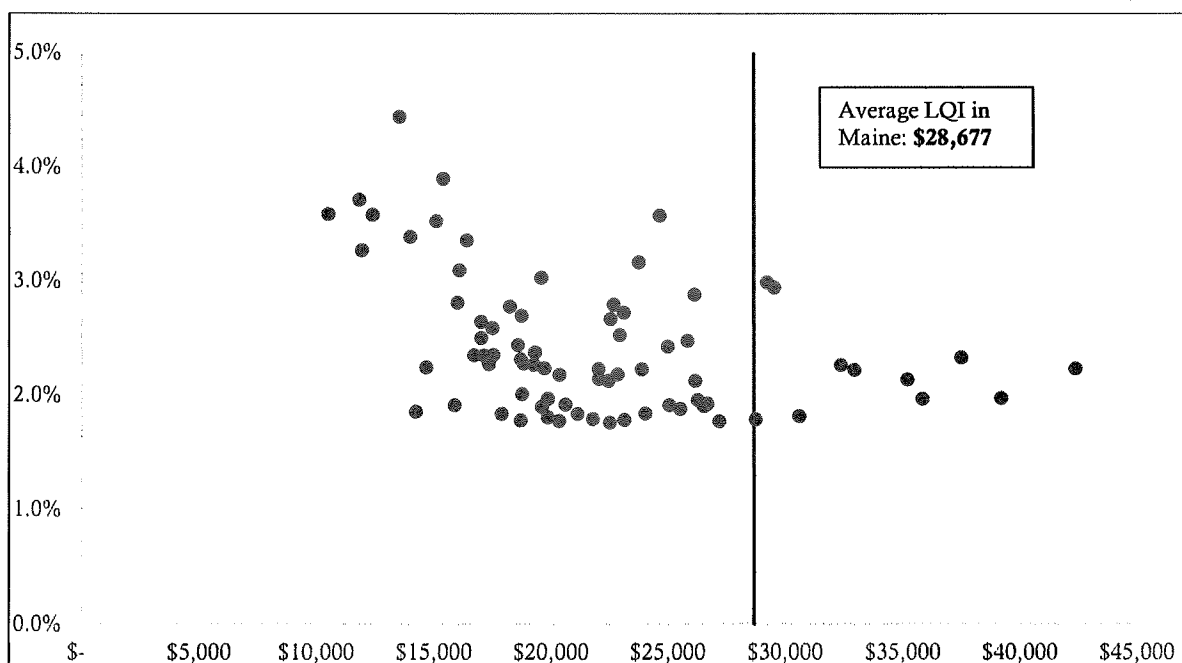
Figure 10: Population vs LQI Burden – All Communities with Water Service

Though there is not a statistically significant relationship between the two variables ($R^2 = 0.09$), there is some correlation ($R=0.3$) and there are still some patterns worth considering. While having a low population is certainly no guarantor of having a higher-than-average LQI burden, there are very few larger communities

that have LQI burdens greater than the average. In fact, only two (9%) communities with populations greater than 10,000 have an LQI burden above the average, while 87% of communities with LQI burdens above the average have populations below 5,000. This result, while not definitively proving a relationship, is consistent with the idea that greater populations in a service area lead to efficiencies of scale in water service provision. Of course, population does not trend neatly with income, which is the other important variable here.

To better understand the affordability situation for highly burdened communities, we then focused on the communities with LQI burdens above the unweighted average. We were particularly curious about those communities' relationships to the average bill and lowest quintile income across all Maine communities. As can be seen in Figure 11, on the top of the next page, the vast majority (86%) of highly burdened communities had LQIs that were below the Maine average LQI of \$28,677. If we compare that to the population-weighted average LQI of \$31,612, the percentage of highly burdened communities with LQIs less than the average is even greater, at 91%. The average LQI for highly burdened communities is \$21,885 without weighting for population and \$22,077 when doing so.

Figure 11: Lowest Quintile Income vs LQI Burden - Above Average LQI Communities

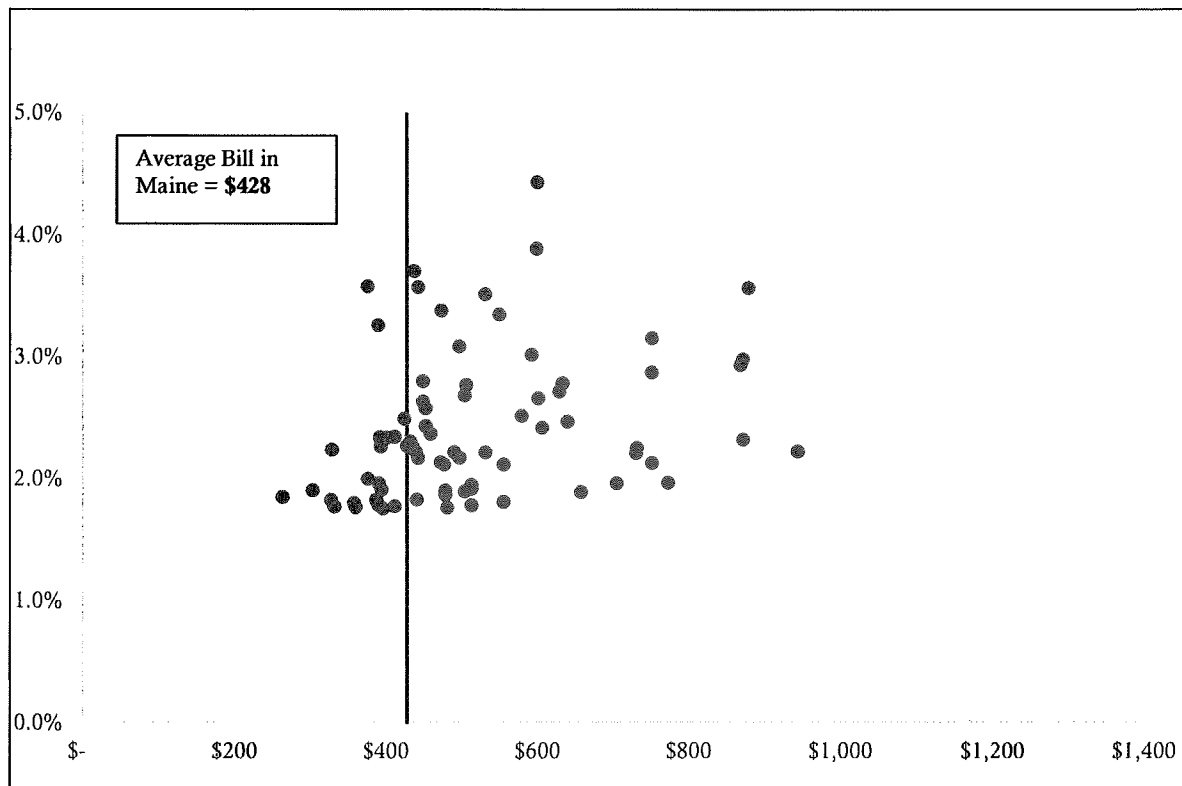


Another lens to look at these numbers through is population. Though 41% of communities have LQI burdens above the average, only 23.3% (231,654) of the water-service receiving population live in those towns. This supports the notion that water-bill burdens are higher and of more concern for less dense communities, which are more likely to fall outside of urban areas and less likely to be able to take advantage of efficiencies of scale when providing service.

It is also very common for highly LQI-burdened communities to have bills that are above the state average of \$428. As can be seen in Figure 12, on the following page, a strong majority (71%) of such communities have above-average bills. Overall, 57% of highly burdened communities have both above average-average bills and

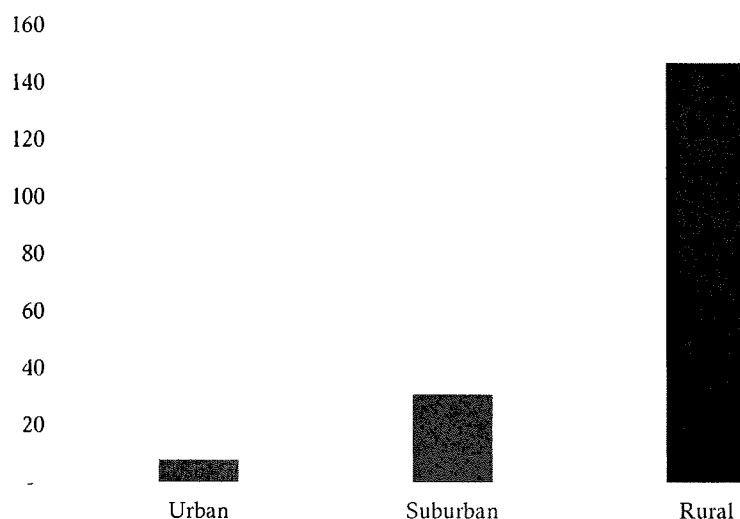
below-average LQIs. This result suggests that the issue is composite; communities struggling with high bill burden are not due to only low incomes or high bills, but both. If we adjust the results to focus on population-weighted averages, the results are even starker. 91% of high burden communities have a LQI lower than the population-weighted average, 91% have a bill higher than the population-weighted average bill, and 82% have both.

Figure 12: Communities with High LQI Burden vs Annual Bill - Above Average LQI Communities

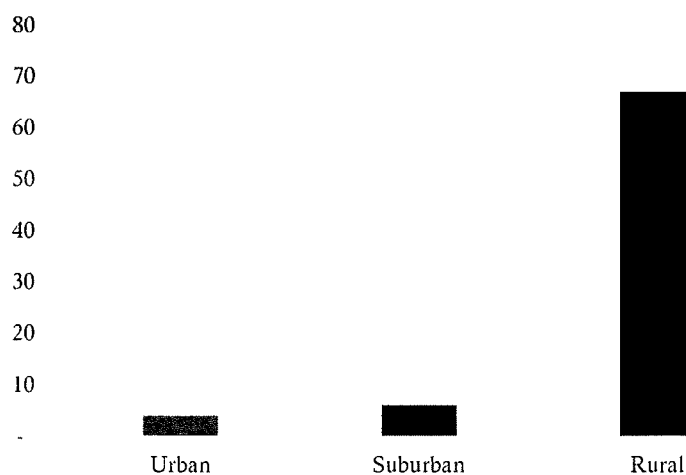


We were also curious about how population density would factor into the results. We first categorized all the communities in Maine that receive water service as either urban, suburban, or rural based on their population density. We determined this by dividing population by land area, both of which are provided by the Census. Though there are many methods by which to classify communities—including direct surveying, proximity to a large urban metro core, and additional county characteristics, we ultimately chose a straightforward approach. Due to the data available to us and the number of communities we were evaluating, we decided to categorize solely by population density. We assigned communities with less than 250 people per square mile as rural, communities with greater than 250 but less than 750 people per square mile as suburban, and all communities with greater density as urban.

Most communities that receive water service in Maine classify as rural according to this metric. In the entire sample of 186 communities—as can be seen below in Figure 13—79% are rural, while 17% are suburban and 4% are urban.

Figure 13: Community Type Classification – All Communities

Compared to all communities, communities with higher-than-average LQI burdens are much less likely to be suburban, although they are just about as likely to be urban. Out of 77 highly burdened communities, 87% are rural, 8% are suburban (about half as likely as the full sample), and 5% are urban. This can also be seen in Figure 14.

Figure 14: Community Type Classification – Highly-Burdened Communities

Though this analysis once again provides no proof of causation, it does show a trend. Not only are highly burdened communities less likely to have high populations, they are also more likely to have low population densities. It is noteworthy, however, that though there is a decrease in the likelihood of a highly burdened community being suburban, there is no corresponding decrease when it comes to urban communities.

We ran one additional comparative affordability analysis based on the recommendations provided in a 2019 report commissioned by the American Water Works Association (AWWA), the National Association of Clean Water Agencies (NACWA), and the Water Environment Federation (WEF).²² Given the criticism around existing affordability metrics such as MHI, the report aimed to develop new benchmarks for household affordability and utility financial capacity. It discussed several different approaches to measuring affordability, one of which we thought was applicable here and could yield interesting results. The authors argue that comparing combined water costs (water, sewer, and stormwater) to the percent of households below 200% of the FPL provides for a more holistic approach toward measuring water bill stress, acknowledging that service may still be unaffordable in communities where the bill burden is relatively low if the percent of households at the 200% FPL marker is high. This approach is fairly new and we do not argue that its measurements are exact, but it does provide another lens through which to evaluate affordability. The burden levels of the various combinations are outlined below.

Figure 15: Matrix of Household Burden vs Percent of Households Below 200% FPL

HBI – Water Costs as a Percent of Income at LQI	PPI – Percent of Households Below 200% OF FPL		
	>= 35%	20-35%	<20%
>=10%	Very High Burden	High Burden	Moderate-High Burden
7% to 10%	High Burden	Moderate-High Burden	Moderate-Low Burden
<7%	Moderate-High Burden	Moderate-Low Burden	Low Burden

Given that we are only focusing on water in this study, we adjusted the table to consider only water LQI-burden and thus shifted the corresponding thresholds downward. Table 1 shows our adjusted matrix thresholds for water only burdens and Table 2 shows the results.

²² Raucher, R. et al. "Developing a New Framework for Household Affordability and Financial Capacity Assessment in the Water Sector."

Table 1: Water Matrix Thresholds

LQI Burden	% of Households Below 200% FPL		
	>35%	20-35%	<20%
>3%	Very High Burden	High Burden	Moderate-High Burden
2-3%	High Burden	Moderate-High Burden	Moderate-Low Burden
1-2%	Moderate-High Burden	Moderate Burden	Moderate-Low Burden
0-1%	Moderate Burden	Moderate-Low Burden	Low Burden

Table 2: Water Matrix Thresholds Results

LQI Burden	% of Households Below 200% FPL		
	>35%	20-35%	<20%
>3%	4.3%	3.8%	0.0%
2-3%	12.4%	7.5%	1.1%
1-2%	19.4%	21.5%	7.5%
0-1%	2.7%	10.2%	9.7%

These results indicate that most Maine communities fall in the moderate burden range. 70% fall in the moderate ranges, whereas just under 10% have a low burden and about 20% have a high burden. These results generally fit with our prior analysis, which shows that many communities in Maine may be facing challenges with their water bill burdens but relatively few are facing high burdens. Of the high burden communities, only 21% (or 4.3% of total communities) are in the highest burden category. Still, this shows that there are many communities in Maine that are struggling generally, with their water bills adding to other financial burdens. Over 40% of communities have LQI burdens between 1-2% and greater than 20% of their households at 200% or below of the FPL.

Needs Assessment

After analyzing affordability on a community-by-community level across the State, we turned toward developing a model to estimate the total financial need necessary to make water affordable for those currently burdened by their bills. To do so, we gathered as much income-related data for Maine households as we could, drafted several approaches, and then performed analysis for the approaches we decided were most relevant. Most of the data—including those related to income, number of households, poverty, and federal benefit participation—were sourced from the 2022 5-year American Community Survey (ACS) conducted by the US Census.

Regardless of what data we decided to use to measure income, we needed to settle on an affordability threshold. As discussed in the executive summary, this process is tricky, as there is no absolute measure of affordability that is unanimously used across the industry. Affordability is ultimately a local, household-by-household issue; what is affordable for a family of four in Los Angeles, CA, may be very different from what is affordable for a similar household in Portland, ME, which may be quite different from what is affordable for a similar household in Howland, ME. Communities vary tremendously in their financial contexts. Where households in a community with very low electricity and heating costs may be able to afford higher water bills, households in high-energy cost environments may not. The same situation holds true for food, healthcare, childcare, and housing. Due to the complicated nature of affordability and the difficult decision of whether to account for cost-burdens outside of water bills, we chose to perform our analysis based on a range of thresholds. Doing so allows Maine the ultimate decision over what is or is not affordable for their own communities.

Though we ran affordability scenarios using Federal Poverty Level data, LQI, and bill-as-hours-worked-at-minimum-wage, we performed our primary analysis using income level ranges. The income level ranges data provided from the ACS track the percentage of households within a community that fall between a given annual income range. The lowest range for each community is households with income lower than \$10,000 per year. Generally, each following section has a slightly larger range (e.g. \$10,000-14,999, \$15,000-24,999, and so on). The final category is \$200,000 and above. To determine the financial need necessary to make water bills affordable for households, we first determined the bill-burden for households in these ranges by comparing the bill to the midpoint level of each income range (using the assumption that the midpoint level best captures the average of those within the range). We then assigned affordability thresholds to each range (e.g. 2% of annual income), determined the difference between the bill-burden and the affordability threshold, determined what overage there was, if any, and multiplied that overage by the household income for that range to determine the amount of assistance necessary for each household. We then multiplied that by the number of households in the community and then adjusted for the number of households that receive water service. Doing this for each community separately and combining the results provided an overall estimate for the State. We ran a variety of scenarios using the same method but different thresholds. We used the midpoint level of income between the ranges because the ranges neither provide individualized income data nor the average of all household incomes within the reported range.

We ran six different scenarios that were meant to reflect various approaches to affordability. The progressive inclining scenario maintains bill burdens at the lowest level for the lowest income households and allows higher income households to have a slightly higher bill burden. Its structure follows the argument that the

lowest income households are the least able to afford their bills, especially when faced with many other competing financial demands, and should therefore receive the most support. The conservative declining scenario argues allows lower income level households to have higher bill burdens than higher income households. The logic behind this scenario is that the cost of providing water service to households is generally very similar, regardless of their income level, and that lower-income households should not receive additional benefit. Instead, burden should be adjusted in a way that limits the amount of cross-class subsidization from higher-income households to lower ones. The “MOTR Inclining” scenario is similar to the progressive inclining scenario, although permits a higher bill-burden floor for the lowest income range and increases permitted bill-burden by a greater rate as it scales into higher income tiers.

The two “uniform” approaches all follow the same general method and only differ based on the amount of support they provide. The logic underlying these approaches is that affordability for all households should be the same in percentage terms. If the affordability limit is set at 2% of the midpoint income for the lowest income range, then it should also be 2% for the highest income range, and so on. The thresholds that were used for each scenario and income level can be seen below in Table 3.

Table 3: Affordability Thresholds for Different Need Scenarios

Affordability Thresholds					
Midpoint of Census Income Ranges	<i>Progressive Inclining</i>	<i>Conservative Declining</i>	<i>MOTR Inclining</i>	<i>Uniform Low</i>	<i>Uniform Medium</i>
\$5,000	1.00%	4.00%	1.50%	2.00%	4.00%
\$12,500	1.25%	3.50%	2.00%	2.00%	4.00%
\$20,000	1.50%	3.00%	2.50%	2.00%	4.00%
\$30,000	1.75%	2.50%	3.00%	2.00%	4.00%
\$42,500	2.00%	2.00%	3.50%	2.00%	4.00%
\$62,500	2.25%	1.50%	4.00%	2.00%	4.00%

Results

Based on the summation of financial need by community, the model returns a total figure for the State. We then adjusted those numbers to account for the percentage of Maine households that receive water service. According to the most recent data from the Census Public Use Microdata Sample (PUMS), 51% of Maine households pay for water service either directly or through their rent.²³ Based on the different scenarios, we found a financial need range of between \$2.3-9 million per year. As a midpoint explanation, based on a widely accepted affordability standard that water should not cost more than 2% of household income, low income customers would need approximately \$5,800,000 of assistance to ensure no household pays more than 2% of their annual income on water bills. However, the most efficient and well-run customer assistance programs struggle to reach and sign-up the vast majority of those who are eligible for assistance. As a result, we adjusted those figures down to 20% of eligible customers based on prevailing rates in early years of similar programs. After making that adjustment, we added on a 10% administration cost, which is a common figure in the industry for the amount that a utility must generally spend to set up and market the program, sign up and verify customers, and administer disbursement of funds. After those adjustments, we reached a range of \$500,000-\$2,000,000 in total annual need, with a per household award range of \$71-\$200.

It is important to note a few data-related nuances. The most recent income data available is from 2022. Though income has tended to increase in Maine in recent years, it has not increased consistently across communities. We therefore felt uncomfortable making income projections for each community to 2024. However, the water bills in the model are all up to date. Though many communities have not raised rates since 2022, some have. Due to this relationship, the model result may be slightly high; using current incomes may lower estimated need.

We also ran similar analyses using federal poverty level information. We developed scenarios at the 50%, 100%, 125%, 150%, and 200% markers. For each community that receives water service, we used the average household size to develop an income level at each FPL marker based on the FPL data from the Department of Health and Human Services that differs according to household size.²⁴ If a community had an average household size of 2.13, for example, we would assign it a weighted average between the income thresholds for households of 2 and 3. We then followed a similar approach to the income levels approach. We assigned a variety of affordability thresholds to each FPL marker, ranging from 1.00%-3.00%, calculated the bill burden for each community, and found the difference between the bill burden and the allowable threshold. We then multiplied the difference between the two (if it surpassed the set threshold) by the number of households in that community at that FPL marker, and then adjusted for participation rates and administrative costs (assumed at 20% and 10%, respectively).

The resulting demonstrated need ranged from slightly over \$20,000-\$1,400,000. The reason for the large range, and particularly for the lower limit, is that the number of households that face a bill burden of more than 3.0% at the 200% FPL is quite low. The per household award ranged from \$82-\$261. It is important to note that this approach is different from the income level ranges approach because the FPL markers are

²³ U.S. Census Bureau. Public Use Microdata Sample. (2022). "Water cost flag variable." [MDAT](#).

²⁴ Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. "Federal Poverty Guidelines." (2024). <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>.

cumulative, in that each additional FPL boundary also includes those at the lower boundary (e.g. the number of households at 100% of the FPL also includes those at 50% of the FPL). We only ran scenarios based on each specific instance (e.g. a threshold of 1-3% at 200% FPL, which only provides a household at 50% of the FPL with the amount of benefit needed to bring their bill to 1-3% of the 200% FPL income), rather than across a range (e.g. 1% at 50% FPL for those households, 1% at the 100% FPL for those households, and so on), since doing so would count certain households multiple times, given that the FPL stats are cumulative. It would be possible to use a range-based approach using FPL markers if one were to remove the number of households at each additional marker that are present in the preceding markers, although we did not use that approach in this report, as it would ultimately lead to a very similar analysis as the income level ranges approach from the previous section.

It is also noteworthy that the other methods we used led to lower need estimates. Focusing on water-bill-as-percentage-of-LQI led to lower need estimates across the board (in both progressive and conservative scenarios). This result may have been impacted by the affordability thresholds we chose. Although we tried to maintain as much consistency as possible, the LQI analysis was based on the 20th percentile income while the income level ranges focused on percentages of households at different incomes. It was thus an apples to oranges situation, which makes comparison difficult. But what is potentially explanatory is that the LQI calculation ignores households below the 20th percentile income. And the income level range financial need results primarily come from households below that percentile. That is one of the foundational reasons we chose the income level ranges approach. Doing so allows us to consider each community as holistically as possible, especially households at the lowest income levels.

Similarly, the water-bill-in-hours-at-minimum-wage approach also undercounts the struggles faced by very low-income households. While providing results that are straightforward and easy to understand (e.g. setting the limit a household should have to pay at 8 hours of minimum wage work per month), using hours at minimum wage entirely ignores people who may be unable to work or unable to find work, which can occur for a wide range of reasons, including health, caregiving work, or a lack of local job opportunities.

Overall, the need model results build on the analysis of communities using traditional affordability metrics like MHI-burden and LQI-burden that show a moderate level of water cost-burden in Maine. While supporting the case that the amount of financial need is generally moderate across the state, the need model results show that much of the burden and need are concentrated in the lowest income households across communities, which the LQI-burden and MHI-burden can obscure, since they do not factor in any household incomes below the 20th percentile.

Program Design and Implementation

The purpose of this section is not to tell Maine what kind of program to use, how to implement it, or even whether to ultimately adopt any program at all. Rather, it is to lay out the options inherent to program design and explain some of the benefits and drawbacks of each. We will group these options into a series of general categories, including level of need, level of funding, funding mechanisms, disbursement mechanisms, and administration. Finally, we will present a few possible pathways that include some recommendations for how to approach each pathway. While these pathways are not meant to be definitive, they will hopefully provide some helpful guidance as Maine thinks about the what, why, and how of assistance programs.

Level of Need

Before Maine begins to conceptualize a program, design funding and disbursement mechanisms, and develop the administrative capacity necessary to run a program, they should decide very clearly, in financial terms, what they are trying to do. Water affordability programs, though often complex in terms of administration, have a simple fundamental goal: to get more money to highly burdened households so that they can afford water service. Whether this goal is achieved by decreasing bills or by direct cash transfers, the desired outcome is the same. But there is a key choice—and it is ultimately a choice—that underlies the whole process. What is affordable? Is an affordable bill the same for everyone? Does it depend on household income level? The amount of the bill? The bill-to-income ratio? All of the above? Should any external factors be considered, like the localized cost of living? Additionally, these are all factors that focus on the present. What about the future? Given that affordability concerns are unlikely to decrease in the near term, should the program consider future need in addition to present need? If so, how should that be calculated? These are difficult questions to answer. But they must be addressed before moving on to other work. Before you talk about how to raise and spend money, you need to know how much you need. And before you can decide how much you need, you must define the size of the problem. We believe that the approach we have modeled in the prior section, which utilizes a range of liberal and conservative methods to define need at different thresholds of affordability, provides a solid framework. But it is ultimately the State of Maine that must decide what is affordable for Mainers.

Level of Funding

Statewide affordability need does not necessarily equate to funding needed for the program. For many reasons, Maine may wish to avoid developing a program that addresses the full scope of financial need. They may wish to start with a smaller amount to test the effectiveness of their program design. Or they may decide that the full amount of need is simply beyond the feasibility of a program to address. Regardless, once they have determined the scope of the problem, they need to determine the scope of the solution. What is reasonable to raise? Most importantly, what is reasonable to disburse? There is not necessarily a wrong answer here. It would be justified to try and address the entire problem immediately, rather than piecemeal. It would also be justified to tackle a smaller portion. It is better to do a small thing well than to gamble on something without adequate resources or capacity.

It would also be reasonable to start the program at a small level with the plan to expand its distribution by greater amounts in following years. Such an approach would give the program time to grow, reflect on initial performance, and hopefully improve its efficiency. This method could lead to some frustration among some

customers if they feel that they are not able to join as quickly as others. But it may be beneficial to the success of the program long-term. Additionally, if Maine were to choose a gradual ramp-up of the program, we believe that it is better to address affordability meaningfully for some than in a toothless way for many. In that case, it may make sense to test a pilot program, in which the program is rolled out to a few service areas and then evaluated before deciding whether to expand it statewide.

Funding Mechanisms

Once Maine has chosen the desired and realistic funding for the program, it needs to determine how to achieve those funding levels. There are a variety of methods available, with and without outside support. Generally, it is challenging to receive permanent outside funding, and thus advisable to develop a sustainable and long-term funding mechanism. With some exceptions, most affordability programs are designed to increase rates very slightly on non-eligible customers to subsidize those who receive benefits. However, there is no requirement that Maine follow this approach. It could be possible, for instance, to partially or entirely fund the program through the general tax base of the State. Still, since most water affordability programs are funded via the utilities themselves, we will focus this section on funding mechanisms that rely on utilities.

Since Maine is considering a statewide program, there are many funding choices that would not be available to a single-utility program. These include how to treat utilities in relation to one another. Should all utilities contribute the same amount on a per-customer basis? Should they all receive the same amount? Should utilities with more financial capacity and less affordability issues in their customer base contribute more? These are political questions. Decisions should be made carefully between the State and the utilities that would participate in the program. However, we believe it is valuable to outline various possibilities here, including the advantages and disadvantages of each.

The most straightforward option is to have all utilities contribute a fixed and proportionally equal amount to a statewide pool. The contribution could be a percentage of their total water sales or it could be a fee per customer. It could also be assessed as a flat fee based on the size of their customer base or system. The State would then pool the funds together and redistribute them based on how the disbursement mechanism is designed (which we will cover in the following section). The fee could be levied either annually, quarterly, or monthly. To maintain healthy cash flows, it would likely be preferable to have payments be as steady as possible. Most water utilities bill customers in Maine on a quarterly basis; it may be easiest to incorporate program payments along the same frequency.

Additionally, all utilities in Maine already pay a small fee to the State to fund and administer the Public Utility Commission. The fee for the affordability program could be levied via a similar pathway. Whether levying a fee based on utility revenue would require new legislation to be authorized is not entirely clear. If it is necessary, it could be authorized in the legislation that establishes the affordability program.

If Maine were to base the fee on total water sales and aim to raise the amount of revenue needed to meet 100% of demonstrated need as calculated in this report, we estimate that such a fee would range from 0.3-1.5% of utility water sales. This estimate is very conservative; we suspect that the fee would very likely be lower.

More complicated contributions structures could levy fees according to capacity. One option would be to have the financially healthiest utilities contribute a larger amount. It may be very challenging, for example, for

utilities with minimal reserve balances that run neutral budgets (or even deficits) to find the funds to contribute to a statewide program. Utilities with reserve balances that go beyond what is needed to be considered healthy (e.g. 3-6 months of operating expenses), could contribute more. The advantage of this approach is that it would redistribute funds from the utilities who need it least to those who need it the most. The noteworthy downside is that this could be seen as punishing utilities that have been proactive in their financial planning. Additionally, there is no guarantee that utilities with healthy reserve balances have less affordability issues in their communities than less financially healthy utilities.

Another option would be to have utilities contribute based on the affordability characteristics of their community. Utilities that operate in communities with low LQI burdens or low per-capita need levels according to the previously discussed need model could contribute higher per-capita amounts to the fund to support communities with high LQI burdens and levels of need. These payment levels could be assessed exclusively according to water affordability levels, or they could incorporate additional metrics that reflect the cost of living at large. Some of the available options include the MIT Living Wage, which considers housing, childcare, food, heating, internet/phone, and other expenses on a county-by-county basis; and the ALICE (asset limited, income constrained, and employed) index, which incorporates housing, child care, food, transportation, and health care costs in each county to assess the number of households who earn enough income to put them above the federal poverty line but not enough to meet basic needs. Payments could also be weighted according to future need. Such an approach could forecast the affordability burden in communities at a five or ten-year time scale and scale contributions accordingly. Given the uncertainty inherent in forecasting, it would be prudent to avoid weighting too heavily based on forecasts, but some consideration may be valuable. The program could also consider the future infrastructure needs of each system. Utilities that have significant capital needs compared to their current size and value could contribute less, while utilities with lower capital needs could contribute more.

Any contribution methodology that is not weighted perfectly equally requires great care. Though a progressive approach may have significant advantages for addressing affordability effectively on a statewide level, it could risk breeding frustration among utilities that make higher per-capita contributions than others. A strong amount of social capital would be necessary. Utilities would need to trust the State and other utilities. They would need to cooperate and share a belief in the same mission. While adopting this approach may be difficult, that does not mean it is unworthy of consideration. A statewide effort could be pioneering and helpful for other states that are considering programs of their own in the absence of sustained federal efforts.

Disbursement of Funds

The funding discussion is relevant for disbursement. How to disburse funds faces many of the same questions. Should utilities receive funds that correspond closely to their contributions? Or should they receive funds according to their demonstrated need? Should additional components of the cost-of-living be considered? What about their systems' capital needs? While following an approach that incorporates demonstrated need would likely be more effective in addressing affordability statewide, it would be more political and thus require more cooperation and very careful management and communication.

Outside Funding

It is always wise to make use of any outside funds that are available for programs, regardless of the nature of the program. However, the ongoing nature of an affordability program makes it challenging to rely entirely on outside funding. Outside funding, via grants or other mechanisms, can be very effective for financing large capital projects primarily because such projects only require a one-time disbursement. It is much more difficult to find outside funding that is sustainable year after year. This difficulty does not mean that such a pursuit is not worthwhile; grants and other funding could be quite meaningful for offsetting start-up costs or providing a ramp-up over a period of years so that the program does not have to be self-sufficient immediately. But it is unlikely that Maine will be able to secure permanent outside funding that provides 100% of the assistance program's budget.

One of the more likely sources of potential outside funding is the Low-Income Household Water Assistance Program (LIHWAP) that was administered by the U.S. Department of Health and Human Services through March 2024. Created by the Consolidated Appropriations Act and the American Rescue Plan Act of 2021, LIHWAP was designed to alleviate household water burdens during the COVID-19 pandemic. It was modeled after the LIHEAP program, which has provided financial support to low-income households heating costs since 1981. In total, Congress authorized \$1.1 billion for the program. Over the course of the program, 1.4 million households received assistance. Maine received just over \$3 million dollars in total support. (This amount is roughly double many of the higher end annual need estimates generated by this study).

LIHWAP was only authorized as a temporary program. It has since expired. Whether the program will continue is uncertain. However, there is substantial discussion at the national level about household water affordability concerns. Senator Alex Padilla from California has introduced a bill that would make LIHWAP permanent.²⁵ Though the program may not be likely to be renewed in the immediate future, there is significant and growing national support for such an effort. The degree of flexibility that Maine would have to utilize such funds as part of its own state-administered program is unclear. But it is worth keeping an eye on. If Maine were to pursue a statewide program, it would only benefit from an influx of federal funds. It would also likely be able to make use of those funds more efficiently than other states that have not pursued program infrastructure.

²⁵ US Water Alliance. "Water Leaders Discuss the Future of Federal Funding for Water Assistance." <https://uswateralliance.org/water-leaders-discuss-the-future-of-federal-funding-for-water-assistance/>.

Program Administration

The next issue is the most fundamental: how to structure the program. There are many ways to do so and not necessarily a single correct answer. There are, however, tradeoffs to each possible approach. Below, we will outline what we consider to be the most prominent possibilities. The key questions for each approach concern who will enroll and verify customers and who will handle and disburse money.

Centralized State Approach

One possibility is to centralize program administration under the State. Under this approach, the program would either be run by the Office of the Public Advocate or another related agency (perhaps even the PUC). The agency would be responsible for enrolling customers, verifying them, collecting funds from utilities, and then disbursing the funds. The state agency would still partner with utilities to market the program and potentially to disburse the funds. The agency could either provide funds to customers directly via cash transfer, rebate, or tax credit, or provide funds to the utility, which would then pass them along to customers via lowered rates, debt forgiveness, or account credits.

There may be significant startup costs to this approach. The State may need to hire additional staff or redirect staff from other positions to find the resources needed to administer the program. And there are many new processes that will need to be developed, from developing enrollment and verification procedures, to staff training, to creating pathways and accounts for deposit and disbursement of funds. Additionally, this will require trust between utilities and the State, for the utilities will be surrendering revenue without a guarantee of recovering it, especially if the State opts to directly reimburse customers itself. This approach could appeal to small utilities that have minimal resources and lack confidence in their own capacity to administer a program. But it could risk alienating larger utilities that trust their own capacity and want to maintain control over how funds are allocated, collected, and disbursed.

A variation of this approach could involve the State partnering with community organizations. If there are existing organizations within each community that have experience coordinating aid disbursements, the State could partner with them to avoid the challenge of building a new administration and connecting with customers themselves. Community organizations could leverage existing relationships to reach more eligible customers. They may also already have experience enrolling applicants in various state and federal programs, which would eliminate the need for the State to develop the capacity to do so. As for disbursement, the State could either provide the community organizations with funds that the organizations disburse, or they could allow the organizations to enroll and verify customers and then connect them to the relevant state office, which could disburse the amount they are eligible for. The State could potentially partner with community organizations that have experience connecting residents with federal programs like LIHEAP, SNAP, or unemployment, or with state programs like General Assistance.

Utility-led Approach

A more decentralized approach would place most of the responsibility on the utilities themselves. Under this method, the State's primary role would be to collect and redistribute revenue between utilities based on demonstrated capacity and need. Utilities would pay their determined portion to the state and receive their allotment in return. They would be responsible for enrolling customers, verifying their eligibility, and providing them with either discounted bills or rebates. They could potentially also partner with state agencies to market and popularize the program, but the need to cooperate with the state would be minimized.

This approach would lessen the burden on the State and avoid the need to create either a new agency or significantly expand an existing one. It would also require little cooperation between the State and utilities. However, by placing the burden on the utilities themselves, it would risk creating as many different versions of the program as there are utilities participating. Since utilities have such varying degrees of capacity, there would very likely be vastly different qualities of program administration. Even if a disadvantaged utility were to receive substantial benefits in terms of total dollars to award their customers, they may struggle to create the processes necessary to disburse them, which could lead to funds not being used or appropriated for other utility needs.

Hybrid Approach

Designing an approach which involves both utilities, the State, and potentially community partners could leverage the strengths of each participant to create the most efficient program possible. However, such an approach would require the greatest degree of cooperation between all actors, which could also lead to delays and other unanticipated issues. The effectiveness of the approach would likely depend upon the current degree of trust between utilities and the State and the possibility of deepening existing social capital between them.

One method for this approach would be to have the State gather and disburse revenue to and from the utilities, while the State helps utilities leverage existing community organizations or partners to enroll and verify their customers, which the utilities then provide discounts to. The State would connect all utilities via the common fund, while also working to connect existing community organizations that have experience working with federal and/or state assistance programs with local water utilities so that utilities do not need to spend excessive time and resources searching for partners. The State would also likely have knowledge of which organizations have worked with these kinds of programs before, which utilities may be less likely to know. Once connected, community organizations and utilities would then work together on program administration. Such an approach could hopefully lead to no program partner having to take on too onerous of a burden or needing to develop capacities for things that they have no experience with. For example, the portion of state government that interacts with water utilities may not have experience administering assistance programs, but it may be able to locate organizations within each community who have done so. Utilities have experience with customer billing and are the most likely partner to be able to provide discounts or rebates without setting up new account databases, opening new financial accounts from which to receive and disburse funds, or adopting new billing software. However, utilities may not be able to easily adopt the processes required to verify and enroll new customers, which requires working with tax returns and other paperwork. Other organizations likely already have experience helping community members enroll in programs and may be able to leverage this capacity, so long as they are provided with the financial resources to do so, to provide utilities with the names and account information of enrolled customers. Theoretically,

such an approach could remove the most challenging and unfamiliar processes for all partners, leading to a smoother transition and easier program implementation.

Sign-up and Marketing Efforts

Some of the most challenging parts of building a successful customer assistance program are making people aware that it exists, convincing them that it will benefit them, and getting them to enroll. People live busy lives and do not necessarily follow local news closely. Even if a program is written up in a local paper, posted on the utility's website, and highlighted on government social media accounts, many people, perhaps most, will not see it. And even if people are made aware of the program, there is no guarantee that they will sign up for it, as many can be hesitant to ask for or trust government support. If participants do sign up and are successfully enrolled in a timely manner, it can be challenging to keep them enrolled year after year.

Assistance programs, regardless of whether they operate at the state, federal, or local level, have had notorious difficulty marketing to customers and keeping them enrolled. LIHEAP, despite being around for more than forty years, only reached a participation rate of about 15% of eligible households in 2021 (eligibility is set at either 150% of the FPL or 60% of state median income, whichever is greater),²⁶ although some households do not receive assistance due to funding limits. Many other assistance programs see similar levels of participation. Perhaps the most successful assistance program is the Supplemental Nutrition Assistance Program, or SNAP, which provides customers with direct cash assistance to purchase food in the form of a pre-loaded debit card that is recharged every month. Transfers are made via EBT, or Electronic Benefits Transfer. The program reached about 78% of eligible participants in 2020 (pre-pandemic numbers), although some states have much higher rates than others. Illinois, Oregon, Rhode Island, New Mexico, Pennsylvania, and Massachusetts had 100% participation rates.²⁷ This success has been built over decades via extensive marketing and community outreach. Its application requires information such as income and household size and requires that enrollees maintain up-to-date income data to remain eligible.

To be truly successful, an affordability program needs to achieve critical things: 1) spread awareness of the program to eligible households and 2) create a simple enough application process that people can easily fill out and submit an application. People obviously cannot apply to something they don't know about, but they are also very unlikely to apply to something that appears complicated or obtuse or requires them to gather large amounts of personal and financial information that they may not have readily available.

To spread awareness of the program, it is important to leverage as many sources of media and communication as possible. Some households may still get their news from local media, others social media, others from podcasts, radio shows, Youtube, or community organizations. Information about the program should of course be made clearly available on official websites, but officials should also partner with as many other organizations as possible. The question should not be which to choose between local newspapers, libraries, churches, community centers, food banks, or radio shows; the more partners, the better.

²⁶ Berahzer, I et al. "Low-Income Water Customer Assistance Program Assessment." (April, 2023).

<https://www.amwa.net/system/files/linked-files/liwcap-final-report-4-24-23.pdf>

²⁷ "SNAP Participation Rates by State, 2020." US Department of Agriculture – Food and Nutrition Service. <https://fns-prod.azureedge.us/sites/default/files/resource-files/snap-participation-rates-2020summary.pdf>

It is also important to address people using research-supported messaging. A recent study for the US Water Alliance showed that attempts to build support for water assistance programs varied in their success based on the messaging used. They tested messages that revolved around the financial benefits of clean water access for society, the urgency of the issue (e.g. households affected), benefits for future generations, public health outcomes, and social pressure. Social pressure-related messages ended up having the most powerful effect. The specific message, “72 percent of voters are in favor of programs and policies that support universal water access,” had a significantly greater impact than other messages. The researchers also highlighted that tangible data points and stats can show urgency and increase the impact. Messages like, “17 percent of US households struggle to afford basic water services,” based on research from Duke University, had a noticeable impact, as did mentioning that 30% of Americans now describe their water bill as unaffordable (according to the 2024 Value of Water Index).²⁸ They also found that engaging the participants via questions was more effective than simple stating information. For example, asking whether members of their community were struggling with their water bills was more impactful than generally stating that some people struggle with their bills.

The same researchers also found that several kinds of messaging were much less effective. These included the appeal to public health, the focus on financial benefits to the community (such as job creation via the assistance program), and any description of the benefits of the program in vague terms. These results show the importance of making information tangible and giving people a way to feel part of the consensus. When marketing the program, the organization doing so may want to consider how to make people feel like they are a part of something that other members of their community are participating in or planning to participate in, and be prepared to present the benefits of the program in very concrete terms. Rather than suggest that the program will lead to bill savings, it may be more effective to say some variation of, “the program may save you X number of dollars per month/year. Many members of this community are already enrolled and seeing benefits.”

The importance of making information tangible and benefits clear is supported by another recent working paper from the EPA. Partnering with Trenton Water Works, researchers conducted a study designed to see what incentives could lead to residents conducting self-inspections of lead service lines or capturing and sending photos for professionals to evaluate.²⁹ They placed door hangers on some residences and door hangers with \$100 cash incentives on others. Ultimately, neither incentivized responses. Door hangers, which are commonly used in the utility industry, failed to move residents to participate, even when accompanied by cash incentives, where researchers estimated that participants would have been able to earn \$100 in 10 minutes of work. This study was conducted in a lower-income area, where residents may have less trust in government services. But it highlights the importance of making sure that information is clear, not abstract, and that residents need to trust where information is coming from to consider it seriously.

To make applying easy, the application itself should be simple and made available in different forms. For those who prefer to apply online, there should be an easy-to-follow process posted on the state website. For those who prefer to work with a physical medium, it should be easy for them to print out an application or acquire one from a local source, fill it out, and drop it off or mail it to the relevant location. It would also be

²⁸ U.S. Water Alliance. “Messaging for Results – Critical Water Issues.” (September, 2024). <https://uswateralliance.org/wp-content/uploads/2024/09/Messaging-for-Results%E2%80%9494Communicating-Critical-Water-Issues.pdf#page=3>.

²⁹ U.S. EPA. “Door Hanger Outreach and Incentives Did Not Induce Water System Customers to Participate in Lead Water Pipe Inspections.” <https://www.epa.gov/system/files/documents/2024-10/2024-09.pdf>.

hugely beneficial for potential participants to have application support from sources that they trust, including members of local community organizations. The state could also choose to automatically enroll households that already qualify for existing programs, like SNAP, LIHEAP, or Medicaid. Doing so would likely decrease the administrative burden for both program participants and operators.

Administrative Burden

Bureaucracy is a word beloved by few. It can plague or compromise any program, no matter how well-intended. Additionally, it tends to become enmeshed in programs as they become more complicated. This makes bureaucracy especially devilish for programs that aim for perfection, roughly defined in assistance programs as giving exactly how much is needed to exactly who needs it. Ensuring that no one receives too much or too little from an assistance program (and that there are no freeloaders) is very popular with policymakers and politicians. But it can be deadly for the effectiveness of the program. The key metric to keep in mind with programs is the money disbursed for the money spent. The aim is to keep that ratio as low as possible. The best method for doing so is relentlessly approaching each potential bureaucratic and administrative step with a critical eye. Key questions are: is this step absolutely necessary? Do we really need it? Can we simplify it? Or combine it with another step? The simpler the pathway for collecting and disbursing funds, the better. The phrase, “don’t let the perfect be the enemy of the good” has rarely been as true as it is for assistance programs.

This dilemma is well-exemplified by the case of the Philadelphia Tiered Assistance Program (TAP). TAP was initiated in 2017 using the idea of “income-based” rates. It caps monthly water and sewer bills at 2-4% of eligible customer’s income. Discounts are awarded based on the participant’s income compared to Federal Poverty Levels. Awards are also varied based on household size. Participants must pay their adjusted bills on time and notify the utility of any changes in their household income. The program is subsidized by those who do not qualify for aid, who pay a surcharge in the volumetric portion of their bill.

Despite spending significant money to market the program, TAP has been unable to enroll more than 25-30% of eligible customers. TAP has managed to accrue significant numbers of applications, but not necessarily successful ones; almost half are rejected. Additionally, many participants do not renew their eligibility each year. Some researchers have pointed the blame for such issues at administrative burden, arguing that TAP applicants have to provide burdensome levels of detail and documents for themselves and all members of their households.³⁰ They also face possible penalties for delinquencies or applications that are determined to be fraudulent. Additionally, if their application is successful, they receive an average of only \$53 dollars per month, which does not provide a massive incentive to go through the trouble (which may take hours) of gathering all documentation and carefully applying.

Given the daunting sums that the city paid to design, develop, and implement the program—in addition to the increases in total staff in the customer service department to oversee the program, market, enroll, and verify customers—it is hard to argue that program has been a complete success, despite attracting significant media attention. It has even faced criticism that the costs required to run the program may be punishing poor customers more than they are helping them, given that program costs must be recovered by increasing rates on other customers, including the many poor households that live in apartment buildings with single master

³⁰ Teodoro, Manny. “Lessons from six years of income-based water assistance in Philadelphia.” (July, 2023). <https://mannyteodoro.com/?p=4148>.

meters that are ineligible to participate in the program. It is important to note that the City has responded to criticism by lowering the rate at which customers must reverify their income and household data. But the experience of TAP also shows that program implementation is much more important than program design.³¹ What works in theory may not be effective in reality, especially when tens (or in the case of a state program, potentially hundreds) of thousands of households are involved. As Maine considers an assistance program, it is important to state clearly that there is no reason to make things complicated if it isn't absolutely necessary. In fact, it may be easier not to verify or field applications at all. Maine already has data on which households are members of LIHEAP, SNAP, and other federal and state assistance programs. It could enroll them all automatically and help any potentially eligible households who are not already enrolled in existing assistance programs on a case-by-case basis. This approach could also cut down on marketing costs.

Hard to Reach Customers

When developing a customer assistance program, it is important to account for the fact that not all customers are easy to reach or enroll. This category includes not just customers who may be unlikely to apply or follow news sources that share information about the program, but also customers who face structural challenges that may prevent them from enrolling, the most notable of which are those who receive water service without having an account. Generally, although not always, these are customers who live in multifamily housing with a master meter. In these settings, usage for all units within the building flows through a single meter, which is generally linked with only one account – which is paid by the owner or manager of the building. If the units are not sub-metered, the water bill will generally be passed along to tenants as part of the rent, giving individual units no awareness of their usage or water bill. And since the occupants of those units don't have registered accounts with the utility, there is no easy way to give them a discount or rebate, even if the utility wanted to offer them something outside of the typical bill discount format.

Much of the time, the utility that provides these users with service has zero information about these users, aside from the total volume of water that is used by the building. Indeed, it is challenging to imagine a way to design a program that could reach these customers if the program is operated by the utility. Unable to provide them with a discount or rebate that could lessen their bill burden, the utility would have little choice other than providing direct cash transfers, which would likely be administratively burdensome. This approach would also likely have to involve some measure of estimating their bill based on the total bill of the building, which may ultimately be inaccurate based on differing usage amounts. Given the challenge of enrolling and providing benefits to these customers, most utility assistance programs limit eligibility to single-family residences that have utility accounts. It seems more feasible that a state-led program, in which a state agency disburses rebates, could provide benefits to those who have no direct relationship with their water utility.

This problem does not affect all multifamily housing in the same way. Some buildings have submeters for each unit, which allows the manager to track usage and bill accordingly based on the master bill that they receive. Though most of the apartments still receive a single bill from the utility, it is easier to imagine a utility passing along a discount for program-eligible households to the building manager, who could pass that along via the occupant's bill. Still, this would require an additional layer of administration, cooperation, and potentially oversight (to ensure that the bill discounts are passed along to their intended recipients). Some utilities that opt for this approach, including DC Water, allow for the building manager/owner to keep a small portion of the discount/rebate as an incentive to pass it along to their eligible tenants.

³¹ *Ibid.*

Other utilities have opted to circumvent the water payment system entirely to provide water discounts. The city of Seattle, which owns both the water and electric utility that most of its residents receive service from, passes along water discounts as rebates through the electric bill. This method was chosen because all households, even those with no water submeter, have metered power usage that gives them a relationship with the city.

Extensive research has been conducted on this difficult issue from a variety of groups in the water sector, including The Water Research Foundation, The Natural Resources Defense Council, and The American Water Works Association. Unfortunately, there is no easy and one-size-fits-all solution. While most research and reporting highlights innovative approaches taken by various utilities around the country, no consensus approach has been formed. Additionally, most of the unique approaches that have been tried have been tested by large utilities, primarily in urban areas, that have significant customer service resources. It is very likely to be too burdensome to ask small utilities that are already burdened with cost recovery issues to address a complicated issue that may only affect a small number of customers.

There are two factors that may ameliorate the impact of this problem in Maine. The first is that, given its rural nature and low-density statewide, Maine is likely to have fewer households that live in multifamily housing and receive water service without having an account with their utility. It is outside of the scope of this report to investigate that likelihood, which would require retrieving class and parcel data from all utilities, but it is worth noting. Second, in many states, households living in multifamily housing with a single master meter often face an additional cost burden because of inclining block (or progressive) rate structures, which are typically designed around usage tiers for single family residences. The more units in a multifamily structure, the more quickly they pass through the lower tiers, which tends to result in these customers paying much higher marginal rates for their water usage. In our work with other utilities, we have seen situations where this premium rises above 30% or even 100%. (The difference is fully dependent on the differentials between tiers, for which there is no fixed standard). However, given that Maine has relatively few inclining block rate structures and a high proportion of declining block rate (or regressive) structures, this problem does not apply and may even be reversed. Due to the highest tier prices being in some cases substantially lower than the lowest tier prices, units in multifamily buildings in Maine are likely paying a marginal price substantially lower than a single family residence in many scenarios.

Given the complexity of administering affordability assistance to units that receive water service but have no direct account with the utility, as well as the factors that suggest the affordability issue for those units may not be as significant in Maine as in other states, it may be wise to prioritize the core elements of the program before expanding to address this issue, if it is to be addressed at all.

Further Considerations

Pilot Program

One approach toward establishing a permanent future program could be to develop a pilot program. This approach would likely be most effective if developed among a cluster of regional utilities that have existing relationships with one another. It could help both the state and utility and/or community partners to cooperate on a smaller scale. This would allow program partners to see what components of the program work effectively and which components run into problems. Reviewing and revising the program on a smaller scale would allow the state to make changes and improve efficiency before rolling out the program on a statewide scale, after which it may be more challenging to make significant changes. This would also allow the program to test marketing, recruitment, and enrollment strategies.

Non-Program Methods to Address Affordability

Developing a new statewide program is a major undertaking. It will require substantial time and effort to design and implement. The burdens to creating a successful program do not mean that the State should not move forward with one, but it is worth considering what can be done to address affordability outside of a program.

Earlier in this report, we analyzed the rate structures of Maine compared to other nearby states and the nation. Maine has a very high proportion of declining block rate structures compared to both its neighbors and the nation, which generally result in higher bills for residential customers than for large businesses, irrigators, and industrial users. Maine has justified cost of service-based reasons for utilizing declining block rates, but there are also valid reasons for moving to a more progressive rate structure. These include improving affordability for residential customers by shifting a portion of cost recovery from the residential class to the commercial classes and irrigators and increasing incentives for conservation (which is becoming more of an issue as the northeast region sees increasing seasonal droughts due to more erratic weather patterns).

Changing rate structures is not as complicated or time-intensive as implementing a new affordability program, but it does require effort. The state could provide encouragement and established methods for utilities interested in doing so. For utilities that are unable to redesign their rates on their own due to limited resources or other factors, the state could step in and help those utilities directly with rate design. This help could come through the Public Utility Commission, which already oversees most filings for rate increases in the State. If the PUC already has the resources to help utilities redesign their rates, it could help utilities do so during their rate filings. Alternatively, it could hire new staff (with support from the State) to do so or provide funding to utilities to hire outside help to do so.³²

Changing rate structures and implementing an assistance program are not mutually exclusive. The State could do both. To make a meaningful difference at a statewide level, both efforts would require substantial work to be efficient and effective, but that does not mean they aren't worthwhile. Providing safe and affordable water

³² Disclosure: Raftelis is a firm with extensive experience in rate consulting.

service to residents is fundamental to a healthy and successful society; anything that can improve the safety, efficiency, and affordability of such service is worth exploring.

There are also other elements to affordability that are worth exploring, although evaluating them in detail is outside of the scope of this report. For example, water affordability is not just about the cost of water service from a utility, although that is all a utility can directly control. Considered more broadly, it is about the total cost of water for a household. If a household were to pay both water bills to their utility and purchase extensive amounts of bottled water for personal consumption, their true water bill impact would be higher than it would officially appear. Utilities can address this problem in two ways: investing in the quality of their service and marketing the effectiveness of that service. The first part is paramount; service being compromised leads to breaches of trust that can be quite difficult to restore. Breaches in areas even far away can lead to what one researcher has called “defensive spending,” where consumer trust in tap water declines and leads to increased purchases of bottled water.³³ After an e-coli outbreak in Walkerton, Ontario in 2000 led to thousands getting sick and seven deaths, bottled water sales surged across Canada, even thousands of miles away, leading to more than a third of Canadians relying on bottled water for drinking water.³⁴ A similar shift occurred in the United States after the lead crisis in Flint, MI. Research found that while children were increasingly drinking tap water between 2007-2014, the trend reversed after the Flint water crisis. They also found that drinking bottled water is more common among minority and poor children.³⁵

The second issue, marketing, is also crucial, although often overlooked. Many individuals and households in the United States believe that bottled water is safer than tap water, even though that is rarely true. (Tap water has tested at higher quality levels than bottled water in a range of studies).^{36,37} However, while public utilities rarely promote the safety of their water outside of reports to meet regulatory requirements, bottled water companies frequently do. If the public knew how much effort and testing go into keeping the public water supply safe, they may be less likely to turn to alternatives. It may be difficult for individual utilities to take on this effort themselves, which is where the State could help. Running a campaign that focuses on all the regulations, testing, and treatment that accompanies the production of public drinking water, especially in poorer areas, could boost belief in the safety and quality of the system and decrease the total water burden for many households, even if that may be challenging to measure outside of tracking bottled water purchases.

Another approach that could improve affordability is related to scale. The more a utility can take advantage of the economies of scale, the more efficiently it can deliver quality water service at affordable prices. There is a good reason why water service is less expensive in most major urban areas than in suburban or rural ones, even when those urban areas have an otherwise higher cost of living. That reason is the efficiencies of scale

³³ Teodoro, Manny. “Defensive Spending – The first pillar of affordability is Quality.”

<https://mannyteodoro.com/?p=3030>.

³⁴ Mostyn, Richard. *Yukon News*. “The taps are turning.” <https://www.yukon-news.com/editorial/the-taps-are-turning-6974422>.

³⁵ Rosinger, A., Young, S. (2020). In-Home Tap Water Consumption Trends Changed Among U.S. Children, but Not Adults, Between 2007 and 2016. *Water Resources Research*.

³⁶ Natural Resources Defense Council. 1999. “Bottled water. Pure drink or pure hype?” National Research Defense Council, Inc.

³⁷ Victory, K. R., Cabrera, N. L., Larson, D., Reynolds, K. A., Latura, J., Thomson, C. A., & Beamer, P. I. (2017). Comparison of fluoride levels in tap and bottled water and reported use of fluoride supplementation in a United States–Mexico border community. *Frontiers in Public Health*, 5(87).

that they can achieve. Though doing so may be challenging in parts of Maine, evaluating regionalization possibilities may be valuable. If utilities can combine, they can cut down significantly on the overhead that is required to run each of them separately. Such analysis is outside the scope of this report, but worth evaluating further.