

Water & Wastewater Residential Rates Affordability Assessment Tool

Developed by the Environmental Finance Center at the University of North Carolina, Chapel Hill

Assessment of Affordability of Residential Rates

There are many ways to assess affordability of rates, including rates for different customer types. This tool provides a few indicators that help a water/wastewater system assess the affordability of residential rates in particular. Although your customer base's socioeconomic information will likely be slightly different than that of the population within the municipality or county whose data you extracted from the U.S. Census Bureau website (because they are not exactly the same populations), they will usually be close enough that the results of this tool will provide a good *general* assessment of affordability of your rates, but *not a precise* assessment.

A) Affordability for the Average Residential Customer (Percent MHI)

The most commonly used indicator of affordability of rates is "% MHI", or "percent of median household income" spent on average bills. It is calculated as the ratio of annual water/wastewater bills at the average consumption level to the median household income of the community. Half of the households in the community make at least the "median household income" annually, and the other half make less than the MHI.
Formula: % MHI = A year's worth of water bills (at the average consumption level) / Median Household Income

There is no national standard for what an affordable % MHI value is or isn't. This is a subjective assessment, based on what the utility's board, staff and customers feel is appropriate for their community. Always consider the financial sustainability and financial performance of the utility while considering affordability of rates - setting artificially low rates may produce financial constraints to reinvesting in the system and eventually harm public health through poor water quality and service.

[Click here to read a short blog post about using the MHI data from the Census Bureau to calculate % MHI indicators.](#)

	Current rates	Alternative rates
Monthly water bill at 3800 gallons/month	\$84.31	\$184.26
Annual bills at same level of use	\$1,011.72	\$2,211.12
Median Household Income in 2019 for merrimack county, New Hampshire		\$76,128
Water % MHI	1.33%	2.90%

It is estimated that half of the households would be paying more than 1.33% of their annual income on water under the current rates if everyone used 3800 gallons/month throughout the year.

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B) Affordability for Low-Income Customers

Although % MHI is commonly used as an affordability indicator, many utilities will note that a substantial portion of their customers make less than the Median Household Income of their community. There are almost always a number of households that make less than \$25,000/year, for example. A larger portion of their income will be spent to pay the same monthly charges for water/wastewater assessed above.

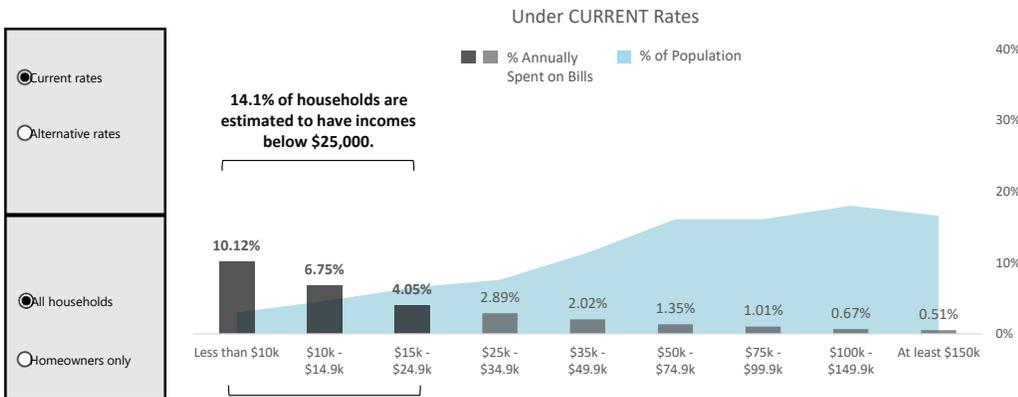
While utilities often use % MHI to assess overall affordability of their rates, some utilities focus attention and assistance to low-income customers specifically.

[Click here to download a tool that helps utilities estimate how much it would cost them to establish a Customer Assistance Program to help low-income customers pay their bills.](#)

Income Bracket (All Households)	% of service population in 2019, assuming service population's income distribution mirrors that of all households in merrimack county, New Hampshire	% of homeowners in 2019, assuming service population's homeowners' income distribution mirrors that of all owner-occupied households in merrimack county, New Hampshire	Minimum portion of household income spent by these customers annually on water bills at the CURRENT RATES if they are consistently charged for 3800 gallons/month	Minimum portion of household income spent by these customers annually on water bills at the ALTERNATIVE RATES if they are consistently charged for 3800 gallons/month
	Hampshire	Hampshire		
Less than \$10,000	3.0%	1.7%	10.12%	22.11%
\$10,000 to \$14,999	4.6%	2.2%	6.75%	14.74%
\$15,000 to \$24,999	6.5%	3.6%	4.05%	8.84%
\$25,000 to \$34,999	7.6%	6.2%	2.89%	6.32%
\$35,000 to \$49,999	11.4%	10.8%	2.02%	4.42%
\$50,000 to \$74,999	16.1%	16.3%	1.35%	2.95%
\$75,000 to \$99,999	16.1%	14.6%	1.01%	2.21%
\$100,000 to \$149,999	18.0%	22.5%	0.67%	1.47%
\$150,000 or more	16.6%	22.1%	0.51%	1.11%

Note, the customers in each income bracket are spending more than the % of income listed in these columns.

Affordability of Water Rates Assessed at 3800 Gallons/Month and the 2019 Income Levels



14.1% of residential customers are estimated to have had less than \$25,000 in annual income. These households will have spent more than 4.05% of their income under the current rates for water bills at 3800 gallons/month. 3% of households will have spent more than 10.12% of their income. However, a substantial number of low-income households may be living in rental homes and apartments and do not pay water bills, which may be included in their rent.

C) Range of Percent of Household Incomes Spent on Water

What proportion of residential customers would be paying certain amounts of their income on water bills if everyone consumed 3800 gallons/month year-round?

Percent of household income spent on bills	Minimum percent of households paying that amount, assuming residential customer income distribution mirrored that of ALL HOUSEHOLDS		Minimum percent of homeowners paying that amount, assuming residential customer income distribution mirrored that of HOMEOWNERS ONLY	
	Current rates	Alternative rates	Current rates	Alternative rates
	2%	33.1%	65.3%	24.5%
3%	14.1%	33.1%	7.4%	24.5%
4%	14.1%	33.1%	7.4%	24.5%
5%	7.6%	21.7%	3.9%	13.7%
10%	3.0%	7.6%	1.7%	3.9%

For example, more than 33.1% of residential customers would be paying at least 2% of their income, under current rates for 3800 gallons/month, assuming that residential customers in the service area have the same income distribution as all households in merrimack county, New Hampshire.

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D) Consider Other Socioeconomic Factors for your Community

Even without considering your rates, it is important to have a basic understanding of the economic conditions of your customer base. Are there many customers living on Social Security? Is there high unemployment in your area? Do households in your community make less than the state average? Is there a high rate of poverty?

Many of these statistics can be found directly on the U.S. Census Bureau's website. Compare your community's socioeconomic statistics with those of your state and the U.S. for a comparative assessment.

[Click here to read more about using Census Bureau data while assessing affordability of rates.](#)

Key Socioeconomic Indicators

	merrimack county, New Hampshire in 2019	New Hampshire in 2018	United States in 2018
Median Household Income	\$76,128	\$74,057	\$60,293
% Unemployment	1.6%	2.7%	3.7%
% Not in the labor force	33.9%	32.2%	36.7%
% of all people with income below poverty	5.4%	7.9%	14.1%
% with Social Security income	32.9%	33.1%	30.9%
% with Supplemental Security income	3.7%	4.8%	5.4%
% with cash public assistance income	3.6%	2.5%	2.5%
% with Food Stamp/SNAP benefits	6.9%	7.2%	12.2%

Key:
If any value for merrimack county, New Hampshire is shown in red, its value is 'more stressed' than the state and national averages.

Source: U.S. Census Bureau's American Community Survey, DP03: Selected Economic Characteristics table

Addressing Affordability of Rates

As rates continue to rise, there is a growing need to address affordability concerns of customers who are unable to pay their bills for basic levels of water/wastewater service. This sometimes puts pressure on the utility to set low rates in general, which may negatively affect the long-term financial sustainability and quality of service provided to all customers.

While affordability of rates is important, it should not be the only objective when setting rates. Rates must always reflect the full cost of water service provision to ensure that revenues will cover all costs (operations and capital), and be fair and equitable across different customers. Several other factors affect revenue requirements and rates beyond the income-related factors shown above that influence affordability assessments. Growth rate of customers, changes to water demands, trends in financial performance, upcoming capital costs, changing regulations requiring additional treatment, droughts and weather patterns, etc. can all influence how you set rates.

Utilities can design rate structures to ensure full cost recovery while being affordable to the lowest income customers by setting lifeline rates. Another approach would be to provide customer assistance programs that help low income customers pay their bills when they are unable to.

[Click here to access free EFC resources designed to help communities address water and wastewater affordability challenges.](#)

[Click here to read related blog posts on water and wastewater residential rates affordability](#)

[Click here to download EPA's 2016 compendium on "Drinking Water and Wastewater Utility Customer Assistance Programs"](#)

