



Evaluating Customer Assistance Programs:

Orange Water and Sewer Authority

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SCHOOL OF GOVERNMENT

Environmental Finance Center

The goal of this report is to provide the Orange Water and Sewer Authority (OWASA) with recommendations on how to potentially structure and administer a new customer assistance program (CAP) for their service area, which includes areas of Chapel Hill and Carrboro. The approach for conducting baseline research on CAPs consists of three main elements 1) an examination of national best practices in CAP design, 2) a gap analysis of local assistance programs in OWASA's service area, and 3) a quantification of necessary funds to support the segment of OWASA's service population most in need of assistance.

ABOUT THE ENVIRONMENTAL FINANCE CENTER

The Environmental Finance Center at the University of North Carolina at Chapel Hill (UNC EFC) is part of a network of university-based centers that work on environmental issues, including water resources, solid waste management, energy, and land conservation. The UNC EFC partners with organizations across the United States to assist communities, provide training and policy analysis services, and disseminate tools and research on a variety of environmental finance and policy topics.

The Environmental Finance Center at the University of North Carolina, Chapel Hill is dedicated to enhancing the ability of governments to provide environmental programs and services in fair, effective, and financially sustainable ways.

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INTRODUCTION

The goal of this report is to provide Orange Water and Sewer Authority (OWASA) with recommendations on how to structure and administer a new customer assistance program (CAP) for their service area, which includes the areas of Chapel Hill and Carrboro. OWASA approached the UNC EFC in late 2022 soliciting help with reassessing their CAP to improve its effectiveness in assisting low-income customers as well as its long-term sustainability. The UNC EFC's approach for conducting baseline research on CAPs consists of three main elements: 1) an examination of national best practices in CAP design, 2) a gap analysis of local assistance programs in OWASA's service area, and 3) a quantification of necessary funds to support the segment of OWASA's service population most in need of assistance. Please note that OWASA may not be able to adopt some recommendations in this report due to legal constraints.

1. NATIONAL BEST PRACTICES

The UNC EFC explored national best practices for customer assistance programs in the United States by conducting a web scour to learn about existing successful CAPs nationwide. This process resulted in five innovative CAPs currently administered by four public utilities. These programs use different methods of assistance but share the same goal of making water and wastewater bills more affordable for the most low-income customers in their service areas. The UNC EFC also attempted to contact key personnel at the water utilities in charge of administering these programs to learn more details. Unfortunately, none of the key personnel responded despite multiple attempts to make contact via phone and email. These findings are thus primarily based on information from utility websites, news articles, and scholarly articles. The programs are summarized in Table 1 below and are also described narratively as in-depth examples in this report.

Beyond these five customer assistance programs, the UNC EFC explored two non-traditional approaches that focused explicitly on affordability. The first, a study from the US Water Alliance, Stantec, and Greater Cincinnati Water Works, explores a new way to structure rates based on property characteristics. This rate structure has not been implemented in Cincinnati, but it offers an innovative model for affordability beyond the structure of a standard CAP. The second non-traditional approach from the City of Durham explores how user experience for customers of a water utility can be improved through human-centered design. While not focusing on offering direct financial assistance, Durham looked to reduce customer cutoffs by enhancing understanding of utility resources and processes. By centering their customers' billing experience, they repaired customer confusion, reduced water cutoffs, and improved affordability for customers most in need.

Table 1: The utility customer assistance programs (CAPs) described in this report.

Program Name	CAP Type	Assistance Provided	Eligibility
Philadelphia Water Department: Tiered Assistance Program (TAP)	Bill discount & flexible terms (arrearage forgiveness)	Bills are limited to 2-4% of household income. Penalty arrearage forgiveness is available after 24 full payments of TAP bills. Principal arrearage forgiveness is available where a credit of 1/24th of the pre-TAP arrears will be added to the account each month after a full TAP payment.	Household income must be less than 150% of Federal Poverty Level (FPL) ¹ OR have experienced a special hardship in the past 12 months. Recertify every 3 years.
Baltimore City Department of Public Works: Water4All	Bill discount	Bills are limited to 1-3% of household income. Tenants not named on water bills receive preloaded debit cards with the amount of their discount (nontaxed)	Household income must be below 200% of FPL. Recertify after 1 year.
Baltimore City Department of Public Works: Promise Pay	Flexible terms (arrearage forgiveness and payment plans)	Interest-free and fee-free payment plans for arrears. Some grants are available.	Must have past due debt of \$250 to \$5,000.
Seattle Public Utilities: Utility Discount Program (UDP)	Bill discount	60% discount on City Light bill. 50% discount on utility bill.	Household income must be at or below 70% of state median income. ² Recertify after 2 years (3 years for seniors).
Norman, OK: Low-Income Rate	Lifeline rate	Reduced rates for first 5,000 gal of drinking water and reduced sewer maintenance fee.	Unclear: “low-income households meeting federal guidelines.”

¹ See the Federal Poverty Level household income amounts in the Appendix (page 57).

² See the Washington State Median Income amounts in the Appendix.

Key Findings for National Best Practices

- **CAP Types:** Bill discount and flexible terms are the most common types of CAPs for water and wastewater utilities in the US.³
- **Bill Discount CAPs:** Philadelphia’s and Baltimore’s income-based billing CAPs are the most innovative in making water and wastewater affordable for low-income customers. However, this method has not been widely tested in the US and has not been implemented by any small or mid-sized utilities that have a smaller revenue base and less flexibility in spending. Providing a percentage discount, like in Seattle’s Utility Discount Program CAP, is one of the most common forms of customer assistance and may be more predictable to fund based on prior consumption data.
- **Eligibility:** Of the traditional CAPs reviewed by the UNC EFC, applicants are usually deemed eligible if their income falls below a certain threshold of the Federal Poverty Level (FPL) or other statistically established income level, such as State Median Income for Seattle. These thresholds can be found in the Appendix (page 57).
 - The FPL, or Federal Poverty Guideline, is calculated and published yearly by the United States (US) Department of Health and Human services and serves as a threshold for determining financial eligibility for certain federal programs.⁴ This figure considers household size and the cost of goods in the Consumer Price Index to determine the minimum income needed to cover basic needs.⁵ FPL figures can be viewed in the Appendix.
- **Applications:** Of the reviewed programs, most require customers to provide proof of income to establish that they are eligible for the CAP. They also require resubmission of income and other application documents every 1-3 years to recertify eligibility for the program.
- **Funding Strategies:** The legality of different CAP funding strategies varies from state to state. Among states where it is legal, utilities like Philadelphia and Seattle have chosen to fund their CAPs through incremental rate increases for all customers. To learn more about rate-funded CAPs and the overall CAP funding landscape in the US, see the UNC EFC’s 2017 report “Navigating Legal

³ Cook, Randriamaro, and Kraabel, “Water Assistance Programs.”

⁴ Office of the Assistant Secretary for Planning and Evaluation, “Frequently Asked Questions Related to the Poverty Guidelines and Poverty.”

⁵ Institute for Research on Poverty, “How Is Poverty Measured?”

Pathways to Rate-Funded Customer Assistance Programs” linked on page 20 in this report.

- **Metrics of Success:** There are few studies that empirically evaluate the success of specific CAPs in the US.⁶ Therefore, there are no standardized metrics for evaluating the success of CAPs across water and wastewater utilities. Further, without the qualitative input from key personnel operating the CAPs at the utilities the UNC EFC reached out to, it is difficult to determine the effectiveness of the different aspects of the CAPs studied. From the publicly available metrics online, these CAPs usually report on number of enrollees and changes in enrollment from year to year.

Recommendations Based on National Best Practices

Before implementation of a new CAP, OWASA must decide on the primary goal of their CAP. Namely, they must decide who to target and what type of assistance to provide. In part 2 of this report, local assistance providers indicated that a long-term CAP (i.e., beyond emergency assistance) targeting low-income customers would be most helpful for the local area. Recommendations in this section are based on how to best implement this type of long-term CAP for low-income customers. However, if OWASA stakeholders decide to narrow the scope of the CAP to a more specific population, such as seniors, this would of course impact the appropriate structure of the CAP.

The UNC EFC recommends that OWASA considers these factors in the implementation of a new CAP based on the best practices identified in nationwide CAPs:

- **CAP Type:** OWASA should consider the benefits of a long-term bill discount program for low-income customers. The discount should either be based on a percentage of the enrollee’s income (e.g., not more than 2% of the customer’s income) or should be a percentage of their regular bill amount (e.g., 50% off their regular bill based on consumption). Currently, this type of CAP based on customer characteristics is not allowed by state law in North Carolina.
 - OWASA already has an emergency assistance program called Care to Share and has offered payment plans for debt accrued during the COVID-19 pandemic.⁷ ⁸ Additionally, OWASA offers payment plans up to 18 months for customers who reach out to Customer Service.⁹ The UNC

⁶ Pierce et al., “Solutions to the Problem of Drinking Water Service Affordability: A Review of the Evidence,” 1.

⁷ “Help My Neighbor: Care to Share.”

⁸ “COVID-19 OWASA Bill Assistance, Extended Payment Plans.”

⁹ “Policies.”

EFC recommends that OWASA continue to operate these customer assistance programs as long-term bill discount programs are not legally allowed.

- **Eligibility:** OWASA should consider using statistical measures like Federal Poverty Level or median household income to determine a customer's eligibility for a CAP. They are the most widely accepted method of determining income eligibility. After enrolling in the program, customers should be eligible for assistance for at least one year and up to three years to reduce administrative and application burden.
- **Applications:** OWASA should continue offering an online application with mobile access so more customers are able to access the application and complete it. OWASA should also continue making paper copies of applications easily accessible for eligible households that are not able to access online applications because of lack of web access or other challenges.
- **Funding Strategies:** Currently, OWASA is not permitted under North Carolina state law and OWASA's Bond Order to create a rate-funded CAP.¹⁰ However, if it were legal, a rate-funded CAP would allow OWASA a potentially flexible and responsive structure, as seen in Seattle and Philadelphia.
- **Metrics of Success:** OWASA should establish key metrics of success before implementation of the new CAP and regularly measure the program's success against these metrics. Continuous reevaluation should inform strategic decisions for the CAP.
- **Human-Centered Design:** Restructuring the water cutoff process to address the specific needs and abilities of customers is a relatively riskless strategy that OWASA could adopt to help reduce cutoffs. Though this may not involve providing direct financial assistance as with a bill discount CAP, these types of intervention can reduce the confusion and stress that a customer may experience when facing financial hardship. OWASA has already eliminated the large cutoff fee, but the UNC EFC recommends that OWASA consider how they could redesign the cutoff process and any related materials to provide clear directions to customers on a regular basis. OWASA should also consider the accessibility of any policies related to the implementation of a new CAP.

¹⁰ US EPA, "Drinking Water and Wastewater Utility Customer Assistance Programs."

Background: Introduction to Customer Assistance Programs

What are CAPs?

Water affordability is a growing issue of concern in the US, as a lack of water and wastewater services has been shown to result in both short- and long-term health and economic consequences for affected households.¹¹ The US Environmental Protection Agency (EPA) suggests an affordability threshold for drinking water at 4.5% of median household income, however this threshold has been critiqued as an insufficient and misapplied descriptor.¹² In practice, many households end up paying a much higher percentage of their income for basic utility services. Customer assistance programs, or CAPs, are designed to combat this issue, making water and wastewater payments more affordable for low-income customers.¹³

Washington State University's Water Assistance Programs site identified over 350 CAPs from 246 utilities across the United States.¹⁴ They surveyed the 225 US cities with populations over 100,000 as well as additional cities identified in the US EPA's 2016 compendium on CAPs.¹⁵ Of the 383 utilities surveyed, almost 65% had CAPs. A breakdown of the CAP types identified in their survey is shown on the next page in Figure 1.

¹¹ Swain et al. as cited in Pierce et al., "Solutions to the Problem of Drinking Water Service Affordability."

¹² Teodoro, "Measuring Household Affordability for Water and Sewer Utilities."

¹³ UNC Environmental Finance Center, "Navigating Legal Pathways to Rate Funded Customer Assistance Programs."

¹⁴ Cook, Randriamaro, and Kraabel, "Water Assistance Programs."

¹⁵ US EPA, "Drinking Water and Wastewater Utility Customer Assistance Programs."

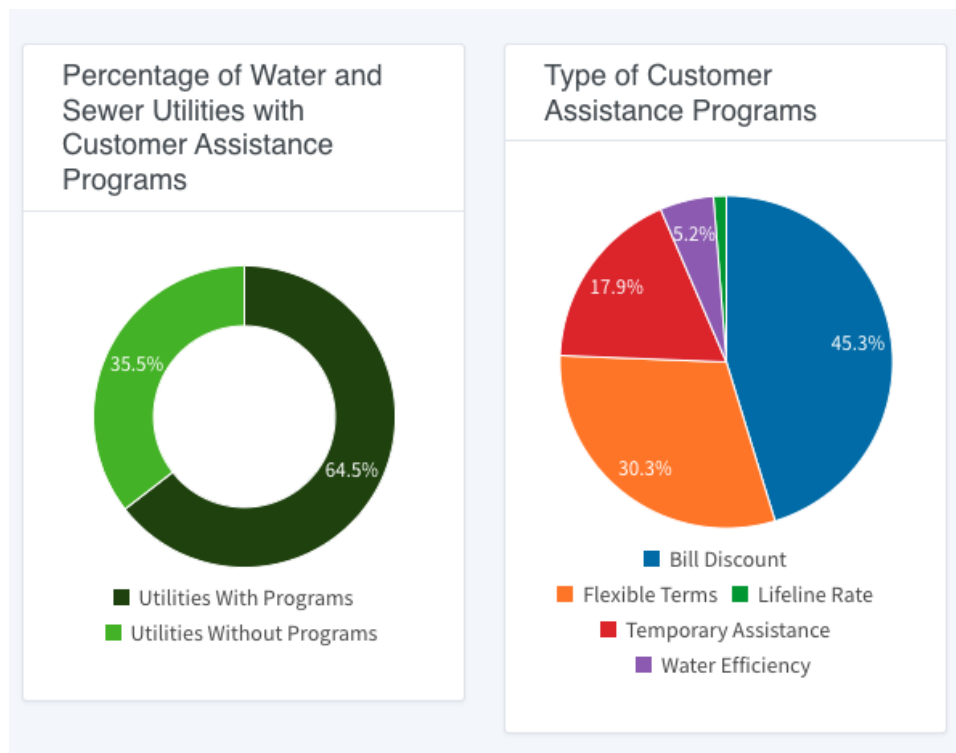


Figure 1: Breakdown of water assistance programs in the US from Washington State University’s Water Assistance Programs site.¹⁶ Most utilities surveyed have CAPs, and most of these CAPs are bill discount or flexible terms programs.

The US EPA defines five CAP types: bill discount, flexible terms, temporary assistance, water efficiency, and lifeline rate:¹⁷

- A **bill discount** CAP is a long-term program that discounts any part of the rate structure.
- **Flexible terms** (also known as arrearage forgiveness, payment plans, or levelized billing) help customers create a plan to pay off past or future payments, create predictable monthly bill amounts by dividing annual anticipated water usage by 12, or provide arrearage forgiveness for past debts.
- **Temporary assistance** includes short-term or emergency assistance used to prevent water cutoffs or restore service due after hardships.
- **Water efficiency** programs lower water consumption by providing money for leak repairs or efficient fixtures.

¹⁶ Cook, Randriamaro, and Kraabel, “Water Assistance Programs.”

¹⁷ US EPA, “Drinking Water and Wastewater Utility Customer Assistance Programs.”

- **Lifeline rates** subsidize rates for the amount of water expected to cover a customer’s basic needs, while still charging typical amounts for higher levels of consumption.

As seen in Figure 1 above, bill discounts are the most common type of CAP identified by the Water Assistance Programs Site, followed by flexible terms. Many bill discount programs are targeted towards fixed-income customers, such as seniors or individuals with disabilities, rather than low-income customers more generally. For example, Lexington West Hickman, KY has a Social Security/Disability Rate Adjustment which “provides a 30% discount on billing amount or the amount of the rate for the first unit of usage, whichever is greater.”¹⁸

Beyond the five main types of CAPs discussed above, utilities can also use other non-traditional approaches to provide customer support. For instance, utilities could revise policies and fees to incorporate human-centered design practices, as mentioned regarding the City of Durham, North Carolina in the introduction of this report. Placing customers at the center of the development process, considering their specific needs and how to meet them may involve the usage of plain language and clear directions, as well as eliminating burdensome fees. A new pricing model, such as the one described by the U.S. Water Alliance and Stantec,¹⁹ applies charges based on factors other than consumption. This type of restructured pricing model automatically enrolls all customers in the program, eliminating issues with customer outreach and applications faced by more traditional programs.

Current OWASA CAPs: Care to Share and Payment Plans

OWASA operates a temporary assistance CAP called Care to Share. Currently, North Carolina state law and OWASA’s Bond Order prevent North Carolina utilities from discounting rates for customers. Accordingly, the funds for Care to Share are raised through donations, rather than from utility revenue.²⁰ A local nonprofit, the Inter-Faith Council for Social Service (IFC), distributes Care to Share funds to customers through their Emergency Assistance Program. The IFC Emergency Assistance Program is discussed in part 2 of this report (page 21). OWASA also offers payment plans for customers struggling to pay their bills. Customers must call OWASA customer service to discuss their eligibility for Care to Share or payment plans. OWASA also reaches out to customers proactively to discuss Care to Share, payment plans and other forms of financial assistance.

¹⁸ Cook, Randriamaro, and Kraabel, “Water Assistance Programs.”

¹⁹ US Water Alliance and Stantec, “A Promising Water Pricing Model for Equity and Financial Resilience.”

²⁰ US EPA, “Drinking Water and Wastewater Utility Customer Assistance Programs.”

Narrative Examples: Customer Assistance Programs in Practice

Philadelphia, PA: Tiered Assistance Program

Launched in 2017, Philadelphia Water Department's Tiered Assistance Program (TAP) is the **first income-based water billing program** in the country and is an exemplary innovative customer assistance program.²¹ TAP limits monthly bills for enrolled customers to between **2-4% of their monthly household income**. The minimum monthly bill a customer can pay while enrolled in TAP is \$12. Further, customers who continually make their TAP payments on time will receive **penalty and principal arrearage forgiveness**. After 24 full TAP monthly payments, a customer will receive penalty arrearage forgiveness for any penalty fees accrued from the Philadelphia Water Department prior to participating in TAP. Further, customers can receive monthly principal arrearage forgiveness where a credit of 1/24th of pre-TAP arrears (past-due debt) are added to the account after each full TAP payment.²²

Customers are eligible for TAP if their gross monthly income is **less than 150% of the Federal Poverty Level** or if they have experienced a special hardship in the last 12 months, such as an increase in household size or domestic violence. Since Philadelphia also offers several other CAPs with different levels of assistance and eligibility requirements, customers in need of assistance **submit one application**, and utility employees will categorize the customer within the program they are eligible for and that provides them with the most benefit. Necessary documents include proof of residency, names, and dates of birth for all household members, proof of income, and, if applicable, proof of special hardship. Customers must recertify for TAP after three years.

The Philadelphia Water Department is required to give regular updates on TAP metrics, originally yearly, and most recently in monthly reports. The most recent monthly TAP report from November 2022 stated there were 314 new first-time TAP enrollees and 297 application denials (mostly for missing or incomplete documentation).²³ The TAP rider annual rate adjustment determination for 2023 projected approximately 17,289 active TAP participants for 2023, with an **average bill discount of \$50.31**.²⁴ Between August 2021 (when arrearage forgiveness was first available to TAP enrollees) and November 2022, total penalty arrearage forgiven was \$657,567, and total principal arrearage forgiven was \$16,823,328. The program also conducted an outreach, promotion, and advertising campaign

²¹ Mack et al., "An Experiment in Making Water Affordable."

²² Philadelphia Water Department, "Monthly Report to the Rate Board as Required By the FY2022-2023 Rate Determination."

²³ Philadelphia Water Department.

²⁴ Hayman, "TAP-R Reconciliation Proceeding Advance Notice," January 24, 2023, 8.

from February to November 2022 which saw an increase in web traffic to the TAP site by 124%. A 2020 survey of TAP enrollees found that **88% of respondents felt the program helped their monthly budget**, and that only 1% of respondents felt that they were using more water while enrolled in the program.²⁵

Philadelphia's TAP is an innovative program that seeks to ensure water remains affordable for the most disadvantaged residents. By using a percentage of household income to establish a customer's monthly bill, the utility can ensure that bills for these customers stay below EPA's affordability threshold. The TAP program is funded through a **rate surcharge for non-TAP customers**, which is currently \$1.03 per thousand cubic feet (MCF) for volumetric water rates and \$1.63 per MCF for volumetric sewer rates.²⁶ This surcharge is expected to decrease to \$0.21 for water and \$0.34 for sewer in 2023, decreasing typical residential customer bills by \$0.95 or 1.4% as compared to 2022 bills.²⁷ With a total service population of over two million people in the greater Philadelphia area, the Philadelphia Water Department has more customers enrolled in TAP (16,433 in Dec. 2020) than the total number of residential accounts served by OWASA (14,392 in February 2023).²⁸ ²⁹ This large service population supports Philadelphia's ability to provide huge cost savings for customers in need through a modest rate increase. More in-depth financial analysis would be necessary to determine expected costs and feasibility for a similar program for a smaller utility such as OWASA.

Baltimore, MD: Water4All and Promise Pay

Baltimore has recently implemented an **income-based bill discount CAP** as well. With a service population of approximately 1.8 million people, Baltimore City Water serves a similar-sized population to the Philadelphia Water Department.³⁰ Water4All replaces previous Baltimore CAPs and limits eligible households' water bills to **1-3% of their household income**.³¹ Residential households whose income is **below 200% of the Federal Poverty Level** can apply to the program, and if accepted, they will be asked to re-apply yearly. The program can also **provide funding to rental customers** whose name may not be on the water bill but are still responsible for payments. These payments are provided through prepaid cards that offset water costs paid to landlords. Recently, it was determined by the US Treasury Department that these prepaid cards would not count as taxable income, removing a significant barrier to participation.³²

²⁵ Mack et al., "An Experiment in Making Water Affordable."

²⁶ Hayman, "TAP-R Reconciliation Proceeding Advance Notice," January 24, 2023.

²⁷ Ibid. p. 12

²⁸ "Philadelphia Water Department | Homepage."

²⁹ Winters, "OWASA Residential Water Accounts," February 22, 2023.

³⁰ Baltimore Department of Public Works, "DPW Water and Waste Water Overview."

³¹ Baltimore City, "Water4All Frequently Asked Questions."

³² Hart, "Baltimore's Water4All Affordability Credits Are Excluded from Income, Treasury Dept Finds."

Baltimore has also recently launched the PromisePay platform, which is a flexible terms program providing **arrears forgiveness and payment plans** for eligible customers.³³ Customers are eligible for PromisePay if they have past-due debts between \$250-\$5,000. The plans are **interest- and fee-free**. Some customers may also be eligible for grants to pay off part of their balance.

Water4All was created through the passing of Baltimore City Council's Water Accountability and Equity Act (WAEA) in November 2019.³⁴ WAEA also implemented water rights and protections for tenants, requiring that landlords express in the lease whether they require a tenant to be responsible for water and wastewater payments, along with other protections. The Office of the Water Consumer Advocate was also created by the WAEA, serving as an intermediary for customers dealing with problems in water billing. However, the implementation of the WAEA has presented issues for Baltimore Public Works. Partially due to the COVID-19 pandemic, the implementation of Water4All was delayed with a 2020 bill modification and the program was finally launched in February 2022.³⁵ The Water Consumer Advocate portion of the bill has yet to be implemented, to harsh criticism from advocates and councilmembers.³⁶

Due to the recent implementation and the lack of transparent metrics of program performance online, it is unclear whether the Water4All and PromisePay programs have been successful in providing affordable water for low-income Baltimore water customers.

Seattle, WA: Utility Discount Program

Washington State differs from most other states in the US because its **statutory language explicitly allows government-owned utilities to fund low-income CAPs through rate revenues**.³⁷ This language has allowed Seattle Public Utilities to make several types of customer assistance available programs to the approximately 700,000 people in its service area.³⁸ As of 2017, Seattle's various CAPs served approximately 32,000 households.³⁹ Though it is not explicitly stated that the CAP is funded via rates revenues, Seattle's municipal codes state that "the costs of utility services will be provided by the City" for participating members.⁴⁰

³³ Baltimore Department of Public Works, "PromisePay Frequently Asked Questions."

³⁴ Poor, "Water Accountability and Equity Act – A Summary."

³⁵ Galt, "Baltimore Water Advocates Applaud Water for All Program Launch."

³⁶ Galt, "Baltimore Advocates Demand Answers on Shoddy Implementation of Water Accountability & Equity Act."

³⁷ UNC Environmental Finance Center, "Navigating Legal Pathways to Rate Funded Customer Assistance Programs."

³⁸ Ibid.

³⁹ Ibid.

⁴⁰ City of Seattle, Utility Discount Program And Emergency Assistance For Qualified Low-Income Utility Customers.

Seattle Public Utilities' Utility Discount Program (UDP) is a bill discount CAP, offering a standard percentage discount for eligible customers.⁴¹ To be eligible, a customer must have a household income of **at or below 70% of the state median income**. Customers can apply to the program through an online portal, and they must provide proof of identification (e.g., state driver's license) and financial documentation (e.g., SSN if already receiving SNAP benefits or income information for all household members).⁴² ⁴³ If accepted into the program, the customer will receive a 60% discount on their Seattle City Light bill (electric) and a **50% discount on their Seattle Public Utilities bill** (water, sewer, stormwater, and solid waste). Non-senior households will receive the discount for two years until re-certification is necessary, while senior-only households only re-certify every three years.

Unfortunately, specific program success metrics for the UDP are not publicly available online. The UNC EFC requested more information about the program directly from Seattle Public Utilities but was redirected back to the utility's website. The utility's 2021-2026 Strategic Business Plan indicates that they continue to work to expand the program, using "customer data to target marketing, sign-up, and assistance to those in need" and testing a self-certification pilot to increase UDP enrollment.⁴⁴ Reporting from their Affordability and Accountability 2019-2021 Strategic Plan indicated that the self-certification pilot increased UDP enrollments by 9,000 customers, although the baseline level of enrollments is unclear.⁴⁵ Beyond the UDP, Seattle Public Utilities also provides leak assistance, payment plans, and an Emergency Assistance Program, which provide different forms of assistance to customers depending on their circumstances. More research and direct input from Seattle Public Utilities is necessary to assess the success of the Utility Discount Program and other Seattle CAPs, as well as their applicability to other utilities looking to provide customer assistance.

Norman, OK: Low-Income Lifeline Rate

Norman, a college town in Oklahoma, is similarly sized as OWASA's service area with a 2021 estimated population of 128,097.⁴⁶ Norman differs from the more popular bill discount CAPs in offering a lifeline rate for low-income households. While many utilities may structure in a "lifeline" rate into their standard rate structure for all customers as a consumption allowance, Norman offers a **separate, lower lifeline rate for "low-income households meeting federal guidelines."**⁴⁷

⁴¹ Seattle Public Utilities, "Utility Discount Program."

⁴² City of Seattle, SPU Discount Utility Program ORD.

⁴³ Seattle Public Utilities, "Quick Start Guide: How to Apply for Utility Bill Assistance and/or Bill Discount."

⁴⁴ Seattle Public Utilities, "2021-2026 Strategic Business Plan," 20.

⁴⁵ Seattle Public Utilities, "Affordability and Accountability Strategic Plan Accomplishments Report 2019-2021."

⁴⁶ US Census Bureau, "U.S. Census Bureau QuickFacts."

⁴⁷ "Utility Rates and Information."

For enrolled customers, Norman’s low-income lifeline rate **reduces the water base rate, first volumetric block of water consumption, and the sewer maintenance fee** while keeping **prices the same for higher levels of consumption**. While the eligibility requirements, application process, program funding, and program success metrics remain unclear (Norman has not responded to UNC EFC requests for more program information), their lifeline rate structure does offer a method for **improving affordability while still promoting water conservation**. Norman’s lifeline rate structure pricing is shown below in Table 2.

Table 2: Norman, OK water and sewer rates for CAP and Non-CAP customers

	Low-Income Lifeline Rate	Normal Rate
Fixed drinking water base rate	\$4.50 per household	\$6.00 per household
Drinking water up to 5,000 gal	\$2.5125 per 1,000 gal	\$3.35 per 1,000 gal
Sewer maintenance fee	\$2.50 per household	\$5.00 per household

Drinking water rates are structured as increasing block rates and are the same for all customers beyond 5,000 gallons. Sewer base fees and increasing block rates are the same for all customers. At 5,000 gallons, an eligible low-income water and sewer customer will pay about \$38 while a non-eligible customer will pay about \$46. A similar program with greater volumetric or base rate discounts could offer even greater cost savings for low-income customers while still promoting water conservation for higher levels of consumption.

Narrative Examples: Other Affordability Approaches

US Water Alliance, Stantec, and Greater Cincinnati Water Works: “A Promising Water Pricing Model for Equity and Financial Resilience”

While not a traditional CAP, a study from the US Water Alliance, Stantec, and Greater Cincinnati Water Works offers a new way to make rates more affordable for low-income customers by structuring rates based on property characteristics.⁴⁸ Though this rate structure was modeled for **exploratory analysis only** and has not been implemented in Cincinnati, the method used to create the price structure could be replicated or modified for another utility. A major benefit of this type of rate restructuring over a typical CAP is that it requires **no application or documentation** directly from customers and uses publicly available data automatically enrolling even hard-to-reach customers into the program. It also requires **less administrative resources** than a traditional CAP since customers do not need to submit applications.

⁴⁸ US Water Alliance and Stantec, “A Promising Water Pricing Model for Equity and Financial Resilience.”

Instead of charging utility costs as usage-based rates, the study compared the **costs of service when weighted by available property characteristics**: frontage feet, parcel area, building footprint, property value, and number of bedrooms. The authors of the report first separated costs of service for different customer classes and charges to narrow down to the distribution costs for single-family inside residential customers. They then determined what a monthly bill would be for different customers when weighed by the property characteristics above, and compared these monthly bills to the typical usage bills that these customers pay. As seen in Figure 2 below, affordability results varied based on the characteristic and neighborhood, but overall, the property characteristic rate structure shifts **improved water affordability (green) without lowering system revenue.**

Neighborhood income characteristics and typical bill impacts under evolved pricing model options

■ Decrease ■ Increase

Neighborhood	MHI	LQI	% Acct Shutoffs	Typical Bill	Bill Impacts				
					Frontage Feet	Parcel Area	Building Area	Property Value	No. of Bedrooms
Neighborhood A	\$13,706	\$7,235	13.0%	\$24.11	(\$1.25)	(\$0.49)	(\$0.69)	(\$7.56)	(\$1.06)
Neighborhood B	\$15,271	\$6,956	0.0%	\$20.84	\$14.74	\$36.38	\$4.17	(\$2.13)	\$0.94
Neighborhood C	\$28,905	\$13,351	5.9%	\$24.01	\$2.22	\$6.04	\$2.09	(\$2.65)	\$0.02
Neighborhood D	\$32,047	\$13,431	8.2%	\$26.35	(\$2.70)	(\$3.39)	(\$2.36)	(\$7.33)	(\$1.42)
Citywide LQI		\$14,284							
Neighborhood E	\$39,562	\$19,476	5.6%	\$24.41	(\$1.53)	(\$1.64)	(\$1.38)	(\$5.40)	\$1.02
Citywide MHI	\$40,640								
Neighborhood F	\$41,081	\$16,168	3.6%	\$24.07	(\$1.32)	(\$2.89)	(\$0.50)	(\$3.42)	\$1.08
Neighborhood G	\$49,139	\$17,927	0.5%	\$26.37	\$1.88	\$3.75	\$1.53	\$6.34	(\$1.41)
Neighborhood H	\$57,806	\$24,680	0.7%	\$21.36	\$2.68	\$5.84	\$2.10	\$0.76	\$1.29
Neighborhood I	\$84,973	\$34,147	0.6%	\$22.41	(\$1.09)	(\$6.22)	\$0.17	\$19.39	(\$1.03)
Neighborhood J	\$97,631	\$40,553	0.5%	\$27.95	\$0.47	\$1.70	\$0.89	\$18.49	(\$0.13)
Neighborhood K	\$131,083	\$64,363	0.6%	\$26.33	\$0.81	\$1.12	\$0.04	\$17.82	\$1.98

Figure 2: Comparison of bill impacts (increases from usage-based bills in red, decreased in green) weighting by property characteristics for different Cincinnati neighborhoods. Table created by the US Water Alliance and Stantec.⁴⁹

Though no existing utilities structure their rates in this way, simulated study results for Cincinnati show that the program would make water more affordable for many of the residents that need it most. Exceptions in the program could be

⁴⁹ US Water Alliance and Stantec, 20.

made via an appeals process for low-income individuals who need assistance but who still have high bills due to property characteristics. Unlike other CAPs, this rate restructuring eliminates many of the administrative and customer outreach burdens. However, there are many implementation issues to consider, as seen in Figure 3 below. Such an innovative program may be met with legal or political backlash from customers, and so implementation would require a proactive communications strategy.

Pricing strategy advantages and disadvantages

Pricing Strategy	Advantages	Disadvantages
Frontage Feet	<ul style="list-style-type: none"> Relationship between frontage and distribution pipeline length and associated costs 	<ul style="list-style-type: none"> Not always included in existing parcel data Generating precise frontage measurements could be a challenge
Parcel Area	<ul style="list-style-type: none"> Relationship between parcel size and distribution pipeline length and potential capacity demands for supply and treatment Parcel area measurements readily available in most existing parcel datasets 	<ul style="list-style-type: none"> Higher variability leading to larger swings in bill impacts could shock customers
Building Footprint	<ul style="list-style-type: none"> Relationship between building size and potential supply and treatment capacity demands Building area measurements readily available in most existing parcel or building datasets 	<ul style="list-style-type: none"> Would require frequent updates to ensure changes are reflected in billing Higher potential costs to maintain a current and accurate dataset
Property Value	<ul style="list-style-type: none"> Relationship between property value and the benefits received from fire protection service intended to minimize damages Strongest correlation with income leading to greatest gains in equity 	<ul style="list-style-type: none"> Could be viewed as a property tax and would require research into potential legal issues and taxing/charging authorities of the utility Would require frequent updates to ensure changes are reflected in billing
Number of Bedrooms	<ul style="list-style-type: none"> Relationship between number of bedrooms, number of people, and potential capacity demands for water supply and treatment 	<ul style="list-style-type: none"> Not always included in existing parcel or building data and could not be generated from a geospatial analysis Would require frequent updates to ensure changes are reflected in billing Higher potential costs to gather/purchase data and to maintain a current and accurate dataset

Figure 3: Comparison of potential implementation considerations for the use of property characteristics to determine rates. Table created by the US Water Alliance and Stantec.⁵⁰

Durham, NC: Human-Centered Design

As part of a six-city cohort called CAFFE (Cities Addressing Fines and Fees Equitably), the City of Durham, NC looked to reduce inequities in how fines and fees were imposed for water services. Their report, published in July 2020, found that **water cutoffs were more likely to occur in low-income areas with larger communities of color**, and that they caused inequitable financial, mental, and emotional impacts to these groups.⁵¹ To address this, Durham followed a human-

⁵⁰ US Water Alliance and Stantec, 30.

⁵¹ City of Durham CAFFE Project Team, “Durham CAFFE Report.”

centered design approach by placing the **customer at the center of the development process** to better understand their specific needs and how to address them. They developed and implemented several interventions, including:

- Improving access to their Water Hardship Fund through better advertising of the program and an online application.
- Piloting a program called LIFT-UP to “pro-actively link vulnerable households to financial services and public benefits and provide them with tools to build assets and manage money more effectively”⁵² with the goal of reducing households facing water cutoffs.
- Referring major leaks through the Neighborhood Improvement Services (NIS) code enforcement process to support renters whose landlords refuse to fix the leak.
- Revising the cutoff warning letter to use **plain language and clear directions** on next steps for customers. See the original warning letter and revised letter in the Appendix.
- Eliminating the \$50 cutoff fee. The cost of cutting off water was funded through an incremental cost increase for all customers.⁵³
- Calling customers individually before the cutoff date to help the customer avoid the cutoff.

Durham faces similar legal barriers as OWASA to implementing different rates for customers, so the above interventions allowed them to address inequitable affordability and water cutoff impacts to low-income households without violating North Carolina general statutes. Initial results from customer calls before cutoffs showed that the initiative reduced the number of customers being cutoff and directed them to assistance resources faster. However, in March 2020 water cutoffs were paused due to the COVID-19 pandemic. While cutoffs resumed for the City of Durham in September 2020, the impacts on water cutoffs of each intervention from the CAFFE project in Durham have not been published.

⁵² City of Durham CAFFE Project Team, 23.

⁵³ UNC Environmental Finance Center, “Applied Environmental Finance: Data and Communication Background and Activity,” 22.

Suggested Readings Related to Best Practices for CAPs

Several of the sources used to inform this report provide additional important background on best practices for CAPs nationwide. The UNC EFC recommends the following for further reading:

- [US EPA: Drinking Water and Wastewater Utility Customer Assistance Programs \(2016\)](#)
 - [UNC EFC: Navigating Legal Pathways to Rate Funded Customer Assistance Programs \(2017\)](#)
 - [Washington State University: Water Assistance Programs](#)
 - [City of Durham CAFFE Report \(2020\)](#)
 - [Pierce et al.: Solutions to the problem of drinking water service affordability: A review of the evidence \(2021\)](#)
-

2. GAP ANALYSIS OF LOCAL ASSISTANCE NETWORKS

In this section of the report, the UNC EFC identifies gaps in the local assistance network that a revised OWASA CAP could address. Utility customer assistance programs offer support in paying water and wastewater bills, but customers who struggle to afford their utility bills may face other affordability challenges. These customers may reach out to a range of other local organizations to help pay their bills. To better understand how OWASA’s customers may secure financial support, the UNC EFC conducted interviews with key personnel at relevant government and non-governmental local assistance organizations. The programs discussed are summarized in Table 3.

Table 3: Local assistance programs interviewed between January and March 2023.

Program Name	Organization	Assistance Provided	Eligibility Criteria
Emergency Housing Assistance (EHA)	Orange County Housing	Up to \$6,000/year for housing costs	Live in Orange County, household income at 30% AMI** or less
Emergency Assistance/Care to Share	IFC, OWASA, and Orange County Social Services	One-time payment of \$200 a year for housing and other emergency costs	Live in Chapel Hill or Carrboro, attend an intake appointment with the IFC to discuss financial needs
LIHWAP (ending Sept. 2023)	Orange County Social Services, federally funded	Payments directly to utility for past-due water or wastewater bill	Be a US citizen or eligible non-citizen, be named on water bill, income less than or equal to 150% FPL
Community Services Block Grant (CSBG) aka PASS	Central Piedmont Community Action	Long-term case management to increase household income. Some financial assistance may be provided.	Household income at or below 125% of the FPL**; live in Chatham, Durham, Orange, or Randolph County; and have a head of household who is able and available to work

**See Area Median Income (AMI) and Federal Poverty Level (FPL) numbers in the Appendix.

This section also includes findings from the UNC EFC’s interviews with key personnel from four local assistance organizations: Orange County Emergency Housing Assistance, Central Piedmont Community Action, Orange County Department of Social Services, and the Inter-Faith Council for Social Service. Information regarding the contacts that were interviewed is listed in Table 4 below.

Table 4: Key personnel interviewed from local assistance programs.

Name	Title	Organization	Interview Date and Type
Robert Nance	EHA Housing Specialist	Orange County Housing, Emergency Housing Fund	February 10, 2023 Zoom call
Sheryl Andrews	Community Services Block Grant Director	Central Piedmont Community Action	February 21, 2023 Email response
Lindsey Shewmaker	Human Services Manager	Orange County Department of Social Services	February 27, 2023 Zoom call
Kristin Lavergne	Director of Community Services	Inter-Faith Council for Social Service (IFC)	March 23, 2023 Zoom call

Key Findings for Gap Analysis

- Most local assistance programs in OWASA’s service area only offer temporary or emergency financial assistance, including OWASA’s current CAP, Care to Share. These programs are effective at helping customers with temporary hardships, but they do not support ongoing needs.
- Due to the high cost of living in the Chapel Hill-Carrboro area, there are many low-income residents who struggle to pay their rent, utility, food, health, and other bills every month. While they can access funding through emergency assistance programs, this funding is often not enough.
- Recipients of aid usually fall into one or multiple of these demographic categories: low-income, Black, female, and/or parents.
- Assistance program personnel pointed out that US assistance programs in general usually target their outreach towards younger residents and families with children. However, many programs are still able to aid older, child-free residents despite targeting families with children. Because of this, older residents without children at home are less likely to reach out for help, even though they are eligible for assistance. They often do not feel like they should try to access assistance because they think they should be able to solve their financial problems without help.
- Eligibility for assistance programs is often limited to an applicant’s household income being below some threshold of the Federal Poverty Level (FPL), usually 100-200%.

- Assistance programs often require some kind of proof of the cost that the individual needs assistance for, such as a utility bill with their name on it. Renters, especially those in multi-family complexes, are often not named on utility bills and will not be able to receive help. Renters express confusion on whether to reach out to their landlords or to OWASA directly if they are behind on utility bills.
- Customers with cutoff warnings from OWASA often do not have sufficient time to receive the warning letter, apply to emergency assistance programs, and be approved for funding before their water is disconnected. Even if a customer immediately applies for emergency assistance upon receiving a cutoff warning, institutional timelines within the assistance organizations to approve applications and disburse funding extend longer than OWASA's deadline to cut off water service, resulting in applicants' water being cutoff before they receive assistance.

Recommendations Based on Gap Analysis

The following recommendations are based on the key findings about the local support network as described by key personnel at local assistance organizations:

- Offer both emergency and long-term bill discount assistance programs. This would account for households who encounter temporary hardships as well as for low-income households who struggle to pay all their bills from month to month. Again, discounting bills is not legally accessible to OWASA at this time, but interviews for this gap analysis indicate the need and support its adoption.
- Implement structures and policies to identify and support renters that are not direct utility customers.
- Consider regular review and revision of public communications on what a customer should do if they are unable to pay their bill or in danger of being cut off. These may be different for renters versus owners. This gap analysis indicated some need for additional clarity.
- Target community outreach efforts to customers that may struggle to access or accept assistance, beyond just families with children, to increase knowledge of financial assistance programs.
- Consider extending the water cutoff timeline so that customers have more time to receive assistance from emergency assistance programs. Work directly with assistance providers to resolve timing of cutoff notices.

- Continue collaborating directly with assistance programs like Orange County Emergency Housing Assistance and Department of Social Services to streamline the application process.

Findings from the interviews with local assistance providers align with findings from the national best practices web scour: both changes to OWASA’s CAP and human-centered design changes to administrative practices would help address currently unmet needs of the Chapel Hill–Carrboro community. A long-term bill discount CAP would provide help for a significant portion of the population that the assistance providers see continually struggling due to the high cost of living, while improving communications and administrative timelines for cutoffs may prevent individuals from being unnecessarily cutoff. Each interview brought a different perspective to what the current gaps in the assistance network may be, but together they highlight concrete changes that could be made to benefit low-income customers.

Overview of Local Assistance Organizations

Orange County Emergency Housing Assistance

Rob Nance, EHA Housing Specialist

Orange County Emergency Housing Assistance (EHA) is a local government temporary assistance program. This program provides up to \$6,000 a year for housing costs such as rent, utilities, security deposits, and application fees; it is available only to Orange County residents. Households can reapply for assistance until they reach the \$6,000 cap. To be eligible, applicants’ household income must be at 30% of the Durham–Chapel Hill, NC 2022 Area Median Income (AMI) or less (with an exception up to 60% AMI for households with utility cutoff warnings or eviction court cases).⁵⁴ The UNC EFC interviewed EHA Housing Specialist Rob Nance on February 10, 2023, via Zoom and other program information was gathered from the EHA website.^{55 56}

⁵⁴ See Durham-Chapel Hill, NC 2022 Area Median Income (AMI) amounts in the Appendix.

⁵⁵ Nance, Emergency Housing Assistance Discussion.

⁵⁶ Orange County, NC, “Emergency Housing Assistance.”

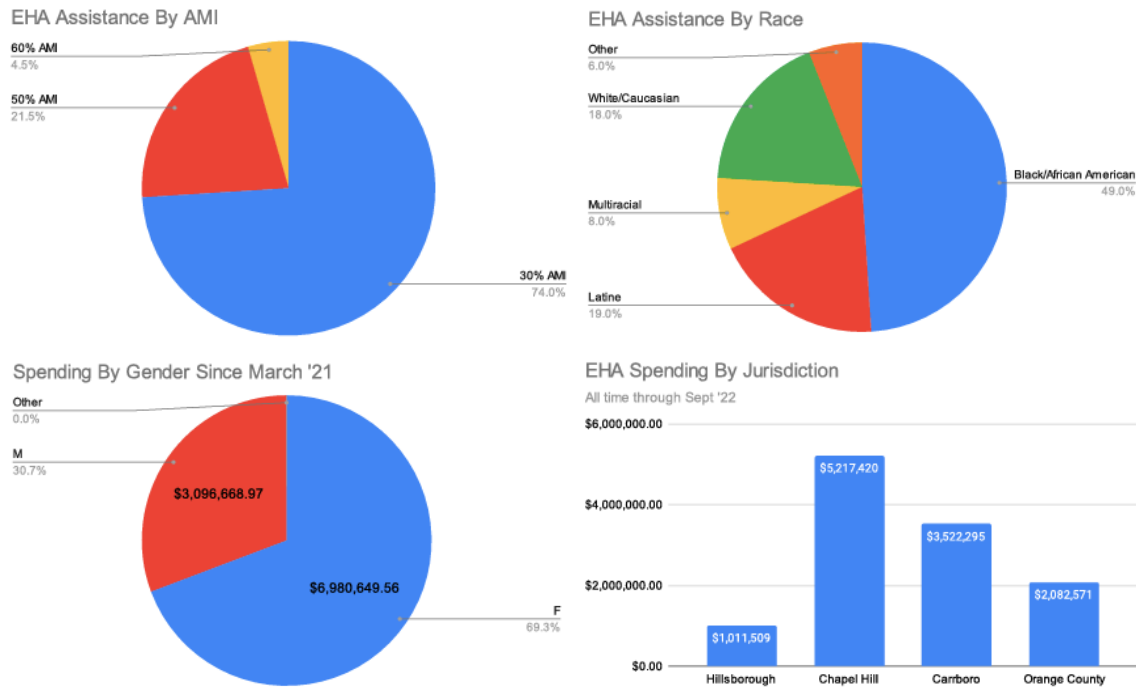


Figure 4: Dashboard of figures created by the Orange County Emergency Housing Assistance program from around 2020 – 2022. The figures show the demographic and geographic breakdowns of the recipients of EHA assistance by amount disbursed. These figures were presented at the end of 2022 to the Orange County Board of Commissioners to help create new eligibility rules for 2023.⁵⁷

As seen in Figure 4, data gathered and provided by the EHA program for 2020–2022 indicates that applicants are more likely to be either female, Black, or have a household income less than 30% AMI. Most spending from the program is disbursed to residents in Chapel Hill and Carrboro, where most Orange County residents live. These figures were created by EHA and presented to the Orange County Board of Commissioners to revise eligibility rules for 2023. The “EHA Assistance by AMI” pie chart indicates that most recipients of EHA assistance have a household income at 30% AMI or less; this statistic informed the Board’s decision to set the income limit to 30% AMI for EHA eligibility in 2023.

⁵⁷ Nance, “EHA Funding and Stats - Charts.”

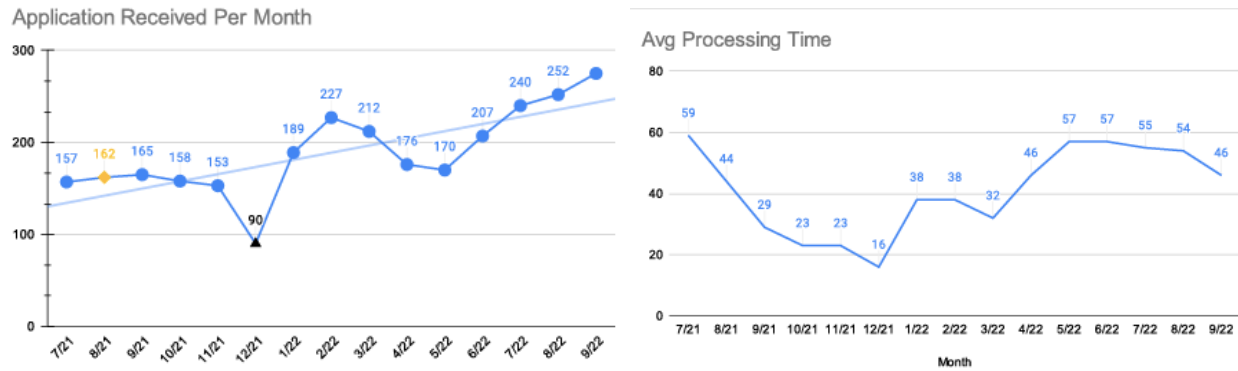


Figure 5: Applications received (left) and average application processing time (right) charts created by the Orange County Emergency Housing Assistance program for July 2021 – September 2022. These charts were presented to the Orange County Board of Commissioners.⁵⁸

The charts in Figure 5 show key trends in applications for the EHA program. The trends show that applications received per month have been increasing since May 2022, with average processing times following a similar pattern. EHA Housing Specialist Rob Nance explained in February 2023 that they were receiving “over 200 applications a month and approving 100-120,” and they were “always very behind in trying to process people in a timely manner.” According to the EHA website in April 2023, processing time for applications is three to four months, with exceptions for “evictions, utility disconnections, or exiting homelessness.”⁵⁹

Mr. Nance indicated that though exceptions are made to process applications for water cutoffs faster, OWASA’s current timeline for cutoffs is not long enough for customers to receive assistance before the deadline. Currently, OWASA’s cutoff policy is to remind customers to pay their bill to avoid a cutoff when the bill for the next month after a missed payment is generated (30 days after the original bill is generated).⁶⁰ A cutoff warning is issued after payment for the first past-due bill *and* the second bill is due. After the cutoff warning is issued, customers have five days to pay their bills before water service is cut off. This process can be seen in Figure 6 below.

⁵⁸ Nance.

⁵⁹ Orange County, NC, “Emergency Housing Assistance.”

⁶⁰ “OWASA Billing/Collection Cycles.”

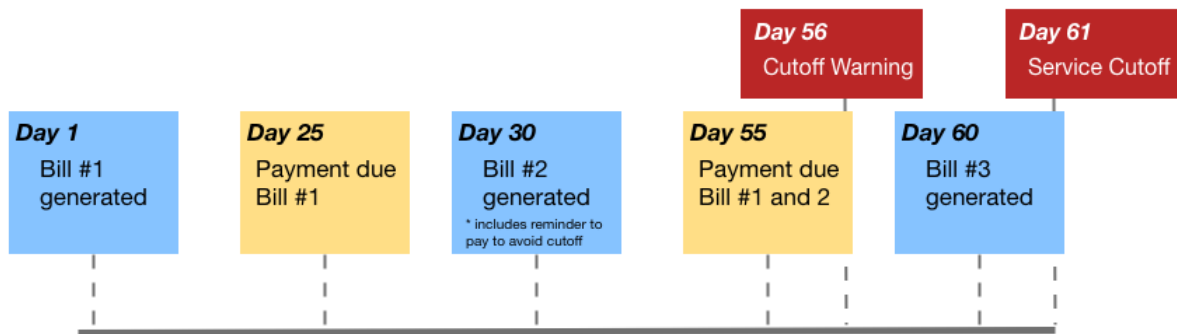


Figure 6: OWASA's cutoff process. While customers may be aware that they have missed several payments, they only have five days to respond to the official cutoff warning before their water service is cutoff.⁶¹

From the discussion with Mr. Nance at EHA, the UNC EFC identified several gaps in assistance. These include:

- Foreign language speakers:** Mr. Nance indicated that foreign language speakers “are a big group that often do not come to EHA on their own” instead, they “usually get connected through either a nonprofit or Orange County Social Services.” Mr. Nance later mentioned that the [Refugee Community Partnership](#) was one of the nonprofits that often sends foreign language speaking residents to EHA for assistance. Because the foreign language speaking community in OWASA’s service area may be difficult to access, OWASA may need to partner with Orange County Social Services or nonprofits like the Refugee Community Partnership to target this population for assistance.
- OWASA customers outside of Orange County:** Parts of the Town of Chapel Hill and OWASA’s service area extend beyond the borders of Orange County. Funding for this program is restricted to Orange County residents, so OWASA customers living outside those borders cannot access assistance. Mr. Nance explained that the EHA program uses “GIS to verify that the address [of the applicant] is within Orange County boundaries,” so “addresses that are within Chapel Hill but outside Orange County are excluded.” Figure 7 (page 29) displays reasons for assistance denial, with 11.3% of applicants categorized as “Outside OC”—individuals who thought that they would be able to access EHA assistance but live outside of Orange County.

⁶¹ Ibid.

- **Utility cutoff timeline:** While EHA prioritizes responding to requests for assistance for utility cutoffs over other less urgent needs, the window to respond to a cutoff warning is too short for EHA to review the application and provide assistance before water is cut off. Mr. Nance expressed that “one specific thing we would like to see [from OWASA] is a longer timeline for disconnects.”
 - If there was a longer timeline from when a cutoff warning was sent to when a customer needed to pay before being cut off, EHA would have more time to process applications and disburse assistance.
 - Mr. Nance also expressed the potential for a more direct partnership between OWASA and EHA, stating that “OWASA could offer more clear resources for people who are at risk of disconnection, with EHA being the solution for that.” One potential option for this could be OWASA providing EHA with a list of customers in danger of being cutoff and receiving the funds to cover bills directly from EHA, eliminating the time-determinant step of the customer applying for assistance.
- **Denials:** As shown in Figure 7 below, an applicant may withdraw their application or be denied assistance from EHA for several different reasons, including living outside Orange County, being above the income level to qualify for the program, having overlapping benefits, and not being able to be contacted later. These categories reflect potential gaps in the structure of the EHA program, where an applicant believes they have a need for assistance, but they are unable to access it due to the rules of the program or other interfering factors.
 - 11.3% Outside of OC: As mentioned above, residents outside of Orange County may still live in the Town of Chapel Hill, but they are not eligible for EHA assistance.
 - 18.9% Overlapping Benefits: This implies that the support structures that exist are confusing to users and not streamlined, resulting in residents applying for help from multiple sources for the same problem.
 - 20.2% Unable to Contact: Applicants apply for help from EHA, but they do not respond to later outreach from EHA during processing. This implies that there are substantial communication barriers for customers in need of assistance, and that extensive outreach and

coordination of assistance with other supportive groups may be necessary.

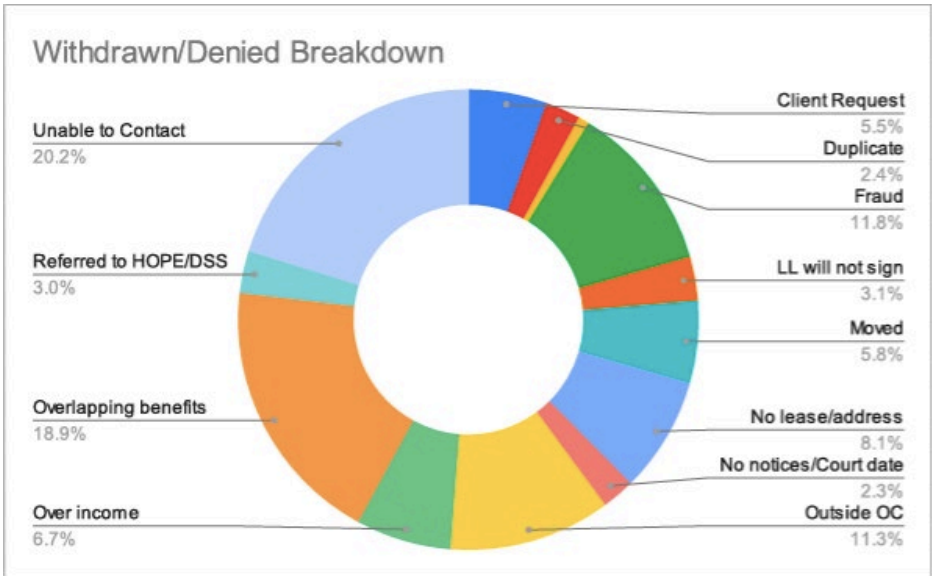


Figure 7: Breakdown of denials and withdrawn applications for the Orange County Emergency Housing Program for 2020-2022. This figure was created by the EHA and presented to the Orange County Board of Commissioners.⁶²

Central Piedmont Community Action (CPCA)

Sheryl Andrews, [Community Services Block Grant Director](#)

Central Piedmont Community Action (CPCA) administers the Community Services Block Grant (CSBG) program called Participants Achieving Self Sufficiency for Orange County. The UNC EFC interviewed CSBG program director Sheryl Andrews through email on February 21, 2023⁶³ and other program information was gathered from the CPCA website.⁶⁴ Unlike EHA, Care to Share, and other temporary assistance programs, CSBG provides long-term case management to increase household incomes. Ms. Andrews explained that “financial assistance *may* be provided based on need and funding, but it is not ongoing or promised.” She explained that the CSBG program stands out among other local assistance programs in the flexibility and duration of its case management. Further, Central Piedmont Community Action has been operating in Orange County for over 50 years, so they are well known in the community and receive most applications by referral and word of mouth.

⁶² Nance, “EHA Funding and Stats - Charts.”

⁶³ Andrews, CSBG Program Discussion.

⁶⁴ “CSBG Community Services Block Grant.”

To be eligible for the CSBG program, applicants must be at or below 125% of the FPL⁶⁵; live in Chatham, Durham, Orange, or Randolph County; and have a head of household who is able and available to work. According to Ms. Andrews, “most participants are single parent households,” and that one barrier to eligibility is that “clients must be employable...as the objective of the program is employment above the poverty level.” Regarding participant enrollment duration, Ms. Andrews explained that “participation duration depends on the barriers and needs of the family. Participants remain enrolled until they achieve program goals (household income reaches the poverty level for the family size) but not longer than 2 years.”

Gaps in assistance identified from communications with Ms. Andrews at the CSBG program include:

- **Lack of funding and staff:** Ms. Andrews explained that “Typically, we serve more participants annually than we target. With additional program funds/staff, we could certainly serve more participants.” Further, the program “experienced a significant uptick in applicants during COVID, and we are still experiencing an increase in applicants.”
- **Participants dropping out of the program:** This was identified as an “ongoing issue” by Ms. Andrews. She explained, “a percentage of new clients drop out of the program after receiving financial assistance through the program. Considering this, I foresee moving towards limiting enrollment to clients that are participating in job training/employment preparation programs and thus have already demonstrated commitment towards the goal of employment.”
 - The lack of funding and staff indicates that there is more demand from the community to be able to participate in a long-term case management program to increase household income such as the CSBG program than is currently being met. However, this may indicate that there is a group of applicants who are not interested in receiving employment assistance and are instead solely looking for financial assistance when considered in relation to the issue of participants dropping out of the program.

One option for OWASA to assist populations in high need of assistance would be to partner with CSBG to provide direct assistance with water bills. This partnership would be advantageous given the sustained relationships between the CSBG program and its participants.

⁶⁵ See Federal Poverty Level household income amounts in the Appendix.

Orange County Department of Social Services
Lindsey Shewmaker, Human Services Manager

Orange County Department of Social Services (DSS) administers several financial assistance programs including the Low-Income Household Water Assistance Program (LIHWAP), Emergency Assistance, and case management programs. The UNC EFC interviewed DSS Human Services Manager Lindsey Shewmaker on February 27, 2023, via Zoom⁶⁶ and other program information was gathered from the DSS website.⁶⁷

LIHWAP is a federally funded program that specifically provides payments directly to utilities for customers with past-due water bills.⁶⁸ Funding for this program has not been renewed and current funds are expected to last until approximately September 2023. The Emergency Assistance program provides emergency payments up to \$200 a year to Orange County residents for help with rent, water bills, and other costs. This program is contracted out through the Inter-Faith Council for Social Service (IFC) in southern Orange County. DSS also provides case management, which includes financial education and employment assistance to increase income levels for low-income households.

Eligibility requirements for DSS assistance programs vary from program to program, with most requirements determined by the Orange County Board of Commissioners who provide most program funding. Ms. Shewmaker explained that “most DSS programs have eligibility set at 200% of the Federal Poverty Level, but this depends on the program.” For LIHWAP, a federally funded program, household income must be less than or equal to 150% of the FPL and applicants must be responsible for the water bill.

The UNC EFC identified several potential gaps in utility bill assistance from the discussion with Ms. Shewmaker:

- **Foreign language speakers:** Ms. Shewmaker explained that though DSS have bilingual staff and often provide materials in English and Spanish, “there is also a significant Burmese-speaking population in the Chapel Hill area that we often struggle to assist.” **This indicates that though DSS has made considerable efforts to reach Spanish speaking residents, DSS does not have adequate representation to communicate easily with foreign language speakers beyond Spanish.**
 - Rob Nance from EHA noted this as well.

⁶⁶ Shewmaker, Orange County DSS Discussion.

⁶⁷ “Department of Social Services.”

⁶⁸ NCDHHS, “Low Income Household Water Assistance Program (LIHWAP).”

- **Gaps in community outreach methods:** Ms. Shewmaker informed us that during the height of the COVID-19 pandemic, DSS and OWASA worked together closely, and that OWASA “would send a list of clients who were past-due on bills to us so we could reach out and provide assistance.” However, she indicated that due to staff turnover at OWASA, it is unclear whether OWASA will continue to provide DSS with lists of past-due customers going forward.
 - Similar to comments from Rob Nance at EHA, this indicates that there is desire from local assistance organizations for more direct partnerships with OWASA to identify customers struggling with their bills and provide them with assistance.
- **Non-homeowners not specified on water bill:** For LIHWAP, Ms. Shewmaker explained that it “can be difficult to provide LIHWAP funding to renters if their name is not specified on the bill, as this is a federal requirement.”
 - While they may qualify for water assistance in all areas, a lack in documentation of who is responsible for the water bill has prevented many renters from being able to access LIHWAP help. While they are responsible for the water bill, they are not explicitly named on it and therefore cannot receive assistance.
- **Low-income residents in need of long-term assistance:** Ms. Shewmaker noted that often the households that are most in need of help are those who continuously have a low-income and often fall into arrears for their utility bills. She explained that “Accumulating arrears leads to financial crises for families and puts extra strain on assistance programs that then have to use a significant amount of funds to pay off huge debts, rather than just helping people who are behind on their current bill.”
 - Providing a continuous monthly bill discount for these households who are regularly behind could eliminate this strain for assistance providers like DSS.

Beyond the gaps identified, the UNC EFC’s review of DSS website materials revealed an additional gap that was not discussed with Ms. Shewmaker:

- **Documentation status:** Several DSS programs, including LIHWAP and Emergency Assistance, require eligible applicants to be US citizens or eligible aliens. This would exclude undocumented residents from accessing assistance or may discourage them from seeking assistance even if they are eligible.

Inter-Faith Council for Social Service (IFC)

Kristin Lavergne, Director of Community Services

The Inter-Faith Council for Social Service (IFC) is a local nonprofit organization in Chapel Hill and Carrboro. The UNC EFC interviewed IFC Director of Community Services Kristin Lavergne on March 23, 2023, via Zoom⁶⁹ and other program information was gathered from the IFC website.⁷⁰ While the IFC offers many different programs to address poverty in OWASA's service area, their Emergency Assistance program is partially funded through OWASA's Care to Share program and often helps customers struggling to pay their water bills. This program is also partially funded by Orange County DSS as mentioned above. The IFC provides \$200 payments to individuals once a year to help pay for rent, OWASA payments, and other emergency costs. According to the UNC EFC's NC Water and Wastewater Rates Dashboard for 2023, the monthly water and sewer bill for an OWASA customer using 5,000 gallons is \$108.92, so these \$200 would cover almost two months of OWASA bills, depending on consumption.⁷¹

Ms. Lavergne explained that the Emergency Assistance program “does not have specific income-based eligibility requirements.” Instead, applicants must live in Chapel Hill or Carrboro and must schedule an intake appointment with the IFC. During the intake appointment, an IFC employee will discuss the applicant's circumstances, including household income, to determine whether a payment should be made. Ms. Lavergne indicated that IFC employees “will look more closely into unusual circumstances [e.g., having a high income], but there are no specific thresholds [for denying an application] and usually there is an explanation for it.” She explained that typically, if an individual contacts the IFC for help and attends one of the twelve weekly intake appointments, they will receive the \$200 payment. If the payment is being made towards an OWASA bill, the IFC will be reimbursed from OWASA's Care to Share funds. Ms. Lavergne estimated that the population of applicants are estimated to be “65% Black, 30% white, and 5% Latinx.”

The UNC EFC identified several gaps in assistance from our discussion with Ms. Lavergne:

- **Older adults' reluctance to apply for assistance:** Ms. Lavergne explained that the IFC is “one of the few places that works with single folks with no children and older adults.” While they are not specifically excluded from the program, she described how older adults (from middle age to seniors) without children at home are less likely to reach out for help. She said that

⁶⁹ Lavergne, IFC and Care to Share Discussion.

⁷⁰ “Inter-Faith Council for Social Service - Homepage.”

⁷¹ UNC EFC, “NC Water and Wastewater Rates Dashboard.”

they often “feel like they should be able to provide for themselves,” and they “don’t want to be seen as asking for help, because that is seen as not something you do unless you absolutely need it.”

- **Confusion when confronted with a bill they cannot pay:** Ms. Lavergne explained that for customers struggling with utility payments, a common issue is that customers “don’t always understand why the bill is so big and are confused on what to do with it.” For example, if they are renters, “should they ask OWASA for help or their landlord?”
 - This indicates that OWASA’s materials and messaging about cutoffs may not be clearly understandable by all customers, and that certain customers, like renters, may need different directions from homeowners.
- **Low-income residents in need of long-term assistance:** As also mentioned in interviews with other local assistance programs, Ms. Lavergne explained that there is a significant population of Chapel Hill and Carrboro residents who struggle to pay their monthly bill because their income is not high enough to cover the high cost of living in the local area. She stated that “many people are living paycheck to paycheck, so a single crisis can put them behind.” For these individuals, Ms. Lavergne suggested that long-term monthly utility bill discount program would help them better afford their water bills than what is currently available.
 - According figures from the Cost of Living Index from the Council for Community and Economic Research updated in March 2023, the cost of living in Chapel Hill, NC is 7% higher than the state average and 2% higher than the national average.⁷² However, when broken out by specific cost category, the cost of *housing* (buying or renting) in Chapel Hill is 40% higher than the than the state average and 20% higher than the national average.
 - However, Ms. Lavergne also indicated that one-time “emergency assistance is also useful [in addition to a long-term program] for other individuals who may not be struggling month to month but have a specific hardship that causes them to miss a payment or fall behind.”

⁷² “Cost of Living in Chapel Hill, NC.”

- Ms. Lavergne said that ideally, a customer assistance program would be able to provide both monthly bill discounts for low-income households *and* emergency assistance for temporary financial hardships.

Other Local Assistance Organizations

Administrators of the assistance programs discussed above also mentioned many other local assistance programs that OWASA customers may receive assistance from. These organizations are additional contacts for insight into the needs of the local community, and they also represent potential partnerships for OWASA alongside the four organizations interviewed above. These organizations include:

- [Orange County Housing: Housing Choice Voucher \(Section 8\) Program](#)
 - [Community Empowerment Fund](#)
 - [Refugee Community Partnership](#)
 - [Inter-Church Council Housing Corporation \(INCHUCO\)](#)
 - [Legal Aid of North Carolina](#)
 - [The Salvation Army of Durham, Orange, and Person Counties](#)
-

3. QUANTIFICATION OF ASSISTANCE NEEDS

The goal of this section of the report is to estimate the amount of assistance that OWASA would need to fund the gaps in the previous section of the report and implement the best practices identified in the first section. The UNC EFC modeled different scenarios for funding a customer assistance program (CAP) using data from the 2015–2019 American Community Survey 5–Year Estimates,⁷³ Orange County 2019 property parcel data⁷⁴ and 2019 customer data from OWASA. This analysis draws inspiration from the UNC EFC’s Bill Payment Assistance Tool, an Excel-based tool which can help utilities create a ballpark estimate of how much a CAP may cost to fund.⁷⁵ The UNC EFC created several maps with ArcGIS Pro to investigate what demographic trends may exist in OWASA’s service area, especially in relation to where water cutoffs occurred. Cutoff locations are a strong indicator of the customers most in need of assistance because they have missed several OWASA bills. Cutoff data from 2019 was used because this was the last full year before the COVID-19 pandemic that OWASA conducted water cutoffs. Customer locations (cutoff and not cutoff) were compared to demographic and income indicators like median household income and percent of population below the poverty level.

Key Findings for Quantification of Assistance Needs

- OWASA serves a diverse service area, and the need for bill payment assistance is not immediately apparent from a census level as vulnerable populations may “hide” or be “washed out” within census geographies.
 - Census data, though used here, may not be granular enough to be reflective of need in a highly affluent area such as OWASA’s service area. Additional analysis of the financial burden due to utility bills and cost of living may be necessary to assess and quantify total bill payment assistance needed.
- Census block groups with the highest percentage of cutoffs have higher Black and Latinx populations than block groups with lower percentages of cutoffs. High cutoff block groups also have higher percentages of families below the FPL. Additionally, the lowest valued parcels in OWASA’s service area have higher percentage of cutoffs than higher valued parcels.
 - There are vulnerable groups in OWASA’s service area that are experiencing cutoffs. There may also be customers that need bill

⁷³ U.S. Census Bureau, “2015-2019 American Community Survey 5-Year Estimates.”

⁷⁴ Orange County, NC, “January 2019 GIS Parcels.”

⁷⁵ Eskaf and Berahzer, “Bill Payment Assistance Program Cost Estimation For Water Utilities.”

payment assistance that are not reaching the point of cutoffs but are nonetheless burdened by their utility bill.

- The amount needed to fund OWASA’s CAP will vary substantially based on chosen eligibility criteria and programmatic structure (i.e., total coverage of bill, partial coverage of bill, maximum bill per customer, etc.).
 - There are many options available to OWASA. As a best practice from parts 1 and 2 of this report, long-term bill discount is recommended, but the effectiveness of that strategy will vary by the other programmatic elements selected.

OWASA’s Service Area

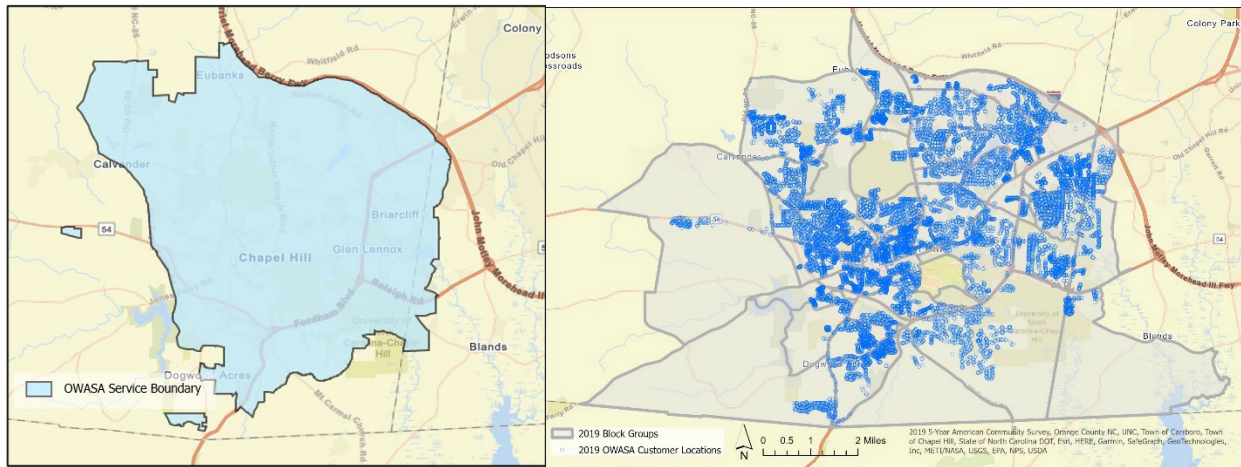


Figure 8: Left: OWASA’s service boundary.⁷⁶ Right: OWASA customer meter locations in 2019 overlaying selected block groups from 2019 5-Year ACS.

OWASA’s service area is primarily located in Chapel Hill and Carrboro, within Orange County, North Carolina. Some of OWASA’s service area also extends into Durham County in the east for a portion of Chapel Hill outside of Orange County. Figure 8 above shows OWASA’s service boundary and the location of customers within 2019 Census block groups.

⁷⁶ “OWASA Service Area Public Web App.”

OWASA Cutoffs in 2019

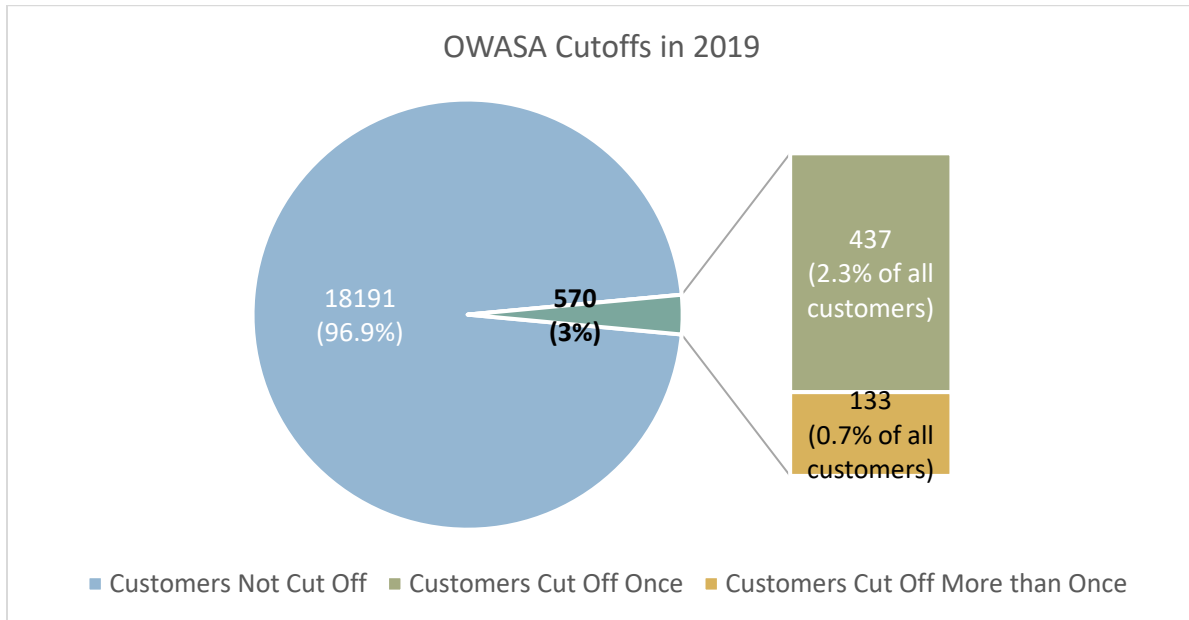


Figure 9: About 3% of all residential customers were cutoff in 2019. Out of the groups of customers who were cut off in 2019, about 23% were cutoff multiple times (0.7% of all residential customers). Residential customers include single-family, multi-family, townhouse, and mobile home park customers.

There were 18,761 residential customers in 2019 in the dataset provided by OWASA. As seen in Figure 9 above, about 3% of all customers in the 2019 dataset were cutoff in 2019. Most of these customers were only cut off once, but about 23.33% were cutoff between 2-13 times throughout the year.

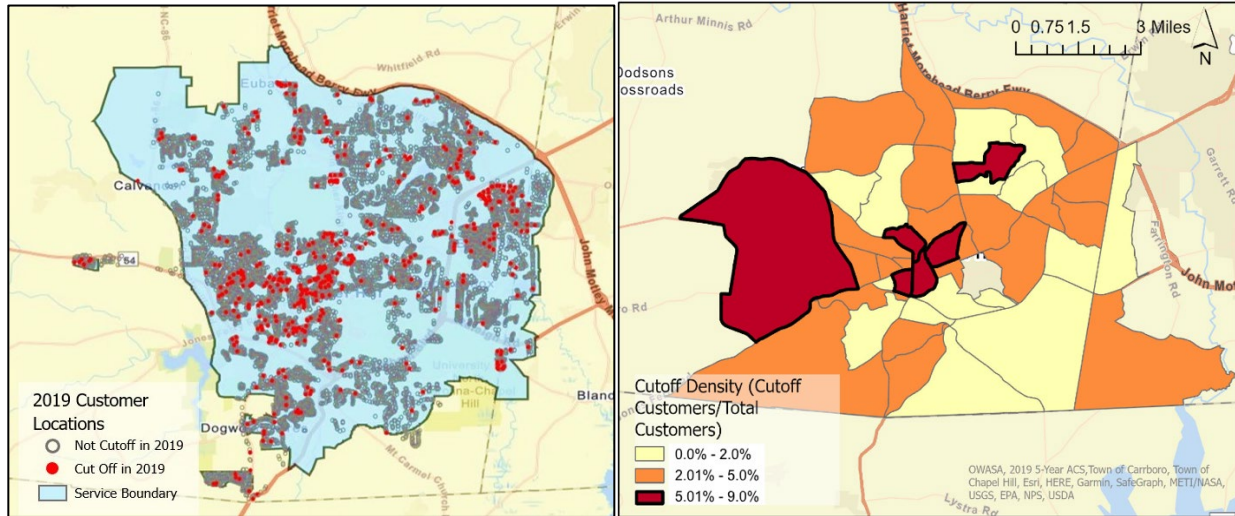


Figure 10: Left: OWASA customer locations in 2019. 18,181 customers who were not cut off in 2019 are in gray, while the 570 customers who were cut off in 2019 are in red. The OWASA service boundary is shown in blue.⁷⁷ Right: The percent of OWASA customers in each block group that had their water cut off in 2019. The block groups with the highest percentage of cutoffs are outlined in black.

Figure 10 (above, left) shows the geographic distribution of cutoff customers among all OWASA customers. Cutoffs are fairly dispersed throughout OWASA’s service area. When cutoff customers are divided by the number of customers per block group (above right), six block groups (outlined in black) are shown to have the highest percentage of customers that were cutoff (5.01–9%). These block groups include the Northside neighborhood in Chapel Hill, downtown Carrboro, part of Orange County west of Carrboro, and a residential area in Chapel Hill near the intersection of MLK Jr. Blvd. and Estes Dr.

Using the geographic locations of these cutoff and not cutoff OWASA customers, the UNC EFC sought to identify which types of customers might be most at risk of falling behind on their bills and to whom a new CAP would be best targeted. As seen in Table 5, there were about equal amounts of customers who received some type of charity assistance with their OWASA bills and did not get cutoff (36 customers) and those who did receive charity and were cutoff (30 customers). There were also many more customers who were cutoff and did not receive any charity (540 customers). This demonstrates that there is a gap in assistance where customers need assistance but do not receive any help, and there is also a gap in customers who receive assistance, but it is not enough to prevent a cutoff.

⁷⁷ Ibid.

Table 5: OWASA’s 2019 customer cutoffs and receipt of charity assistance.

	Received Charity	Did Not Receive Charity	Total
Customers Not Cutoff	36	18,155	18,191
Customers Cutoff	30	540	570
Total	66	18,695	18,761

Demographic Overview of OWASA’s Service Area

Race and Ethnicity

To gather an understanding of the demographics of OWASA’s service population, the UNC EFC overlaid 2019 customer locations to 2019 Census block groups (Figure 10, previous page). It is important to note that for several block groups at the perimeter of OWASA’s service area, there are relatively few OWASA customers represented within the population. Therefore, the demographic overview presented below should be viewed as an approximation of OWASA’s service population, rather than an exact representation. While the US Census Bureau does collect demographic data at smaller geographies, the data of interest (race, ethnicity, and income indicators) is only publicly available at the block group level.

As seen in Figure 11 below, OWASA’s service area is almost 70% white, with most of the remaining 30% of the population identifying as Black (11%), Hispanic or Latino (8%), or Asian (8%). Figure 12 shows the geographic distribution of these groups.

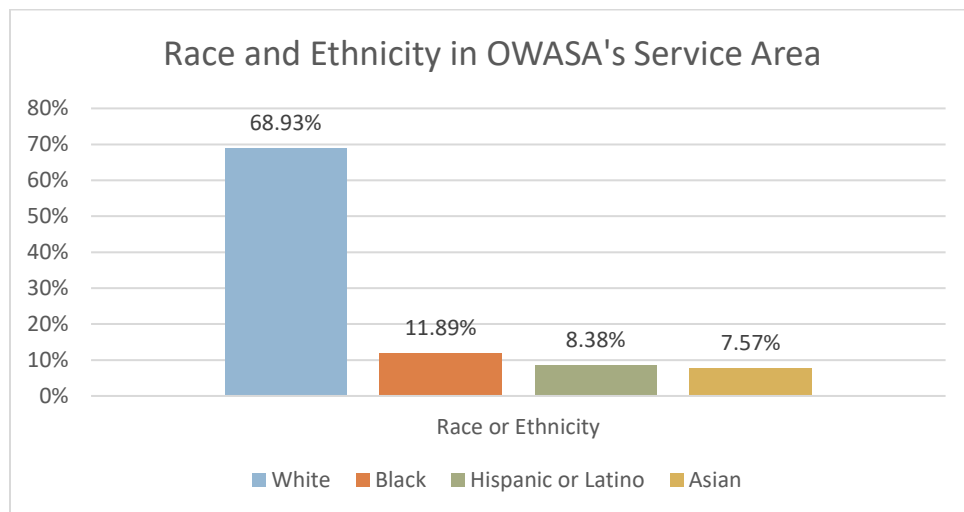


Figure 11: Racial and ethnic overview of OWASA’s service area using 2019 5-Year American Community Survey data.

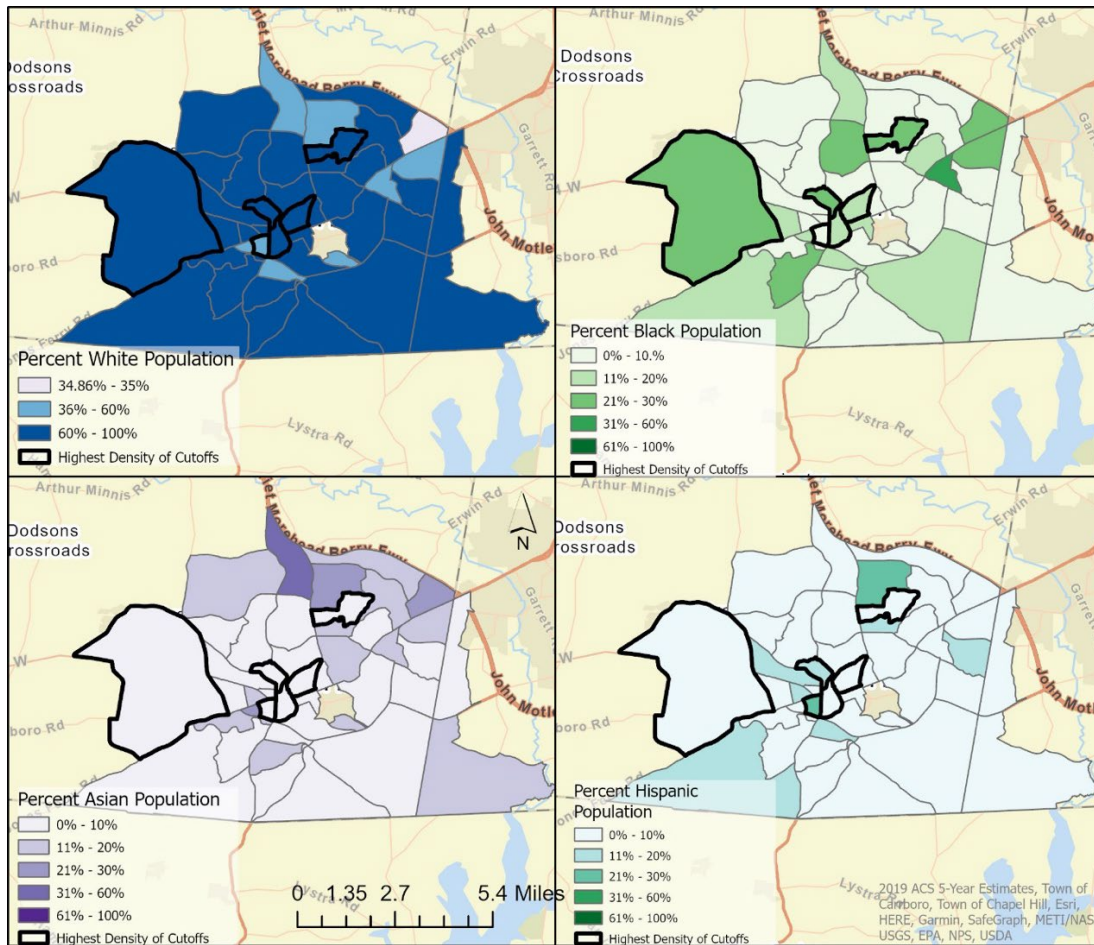


Figure 12: Racial and ethnic geographic distribution within block groups in OWASA’s service area (2019 5-Year ACS). Boldly outlined block groups are where the highest density of cutoffs among OWASA customers occurred in 2019.

Income Indicators

The UNC EFC also looked at several socioeconomic indicators from the 2019 5-Year ACS for the block groups within OWASA’s service area. Figure 13 below shows the percent population under 100% of the Federal Poverty Level (FPL)⁷⁸ and between 100–200% of the FPL (left, above and below),⁷⁹ the median household income⁸⁰ (above right), and the percent of the block group that is receiving some form of government benefits (receiving Social Security Income, Supplemental Security Income, and/or Public Assistance Income) (below right). The block groups with the highest density of cutoffs among OWASA customers are outlined in black. These block groups tend to have a lower median household income

⁷⁸ Out of those for whom poverty status is determined, 13% of the population in Figure 13 fall below 100% of the Federal Poverty Level.

⁷⁹ See the 2019 Federal Poverty Level annual income amounts in the Appendix.

⁸⁰ The median value of the 2019 median household incomes displayed in Figure 13 for OWASA’s service area is \$71,979 (in 2019 dollars).

compared to surrounding block groups (see Table 6, page 43). They also tend to have more residents either under 100% of the FPL or between 100-200% of the FPL.

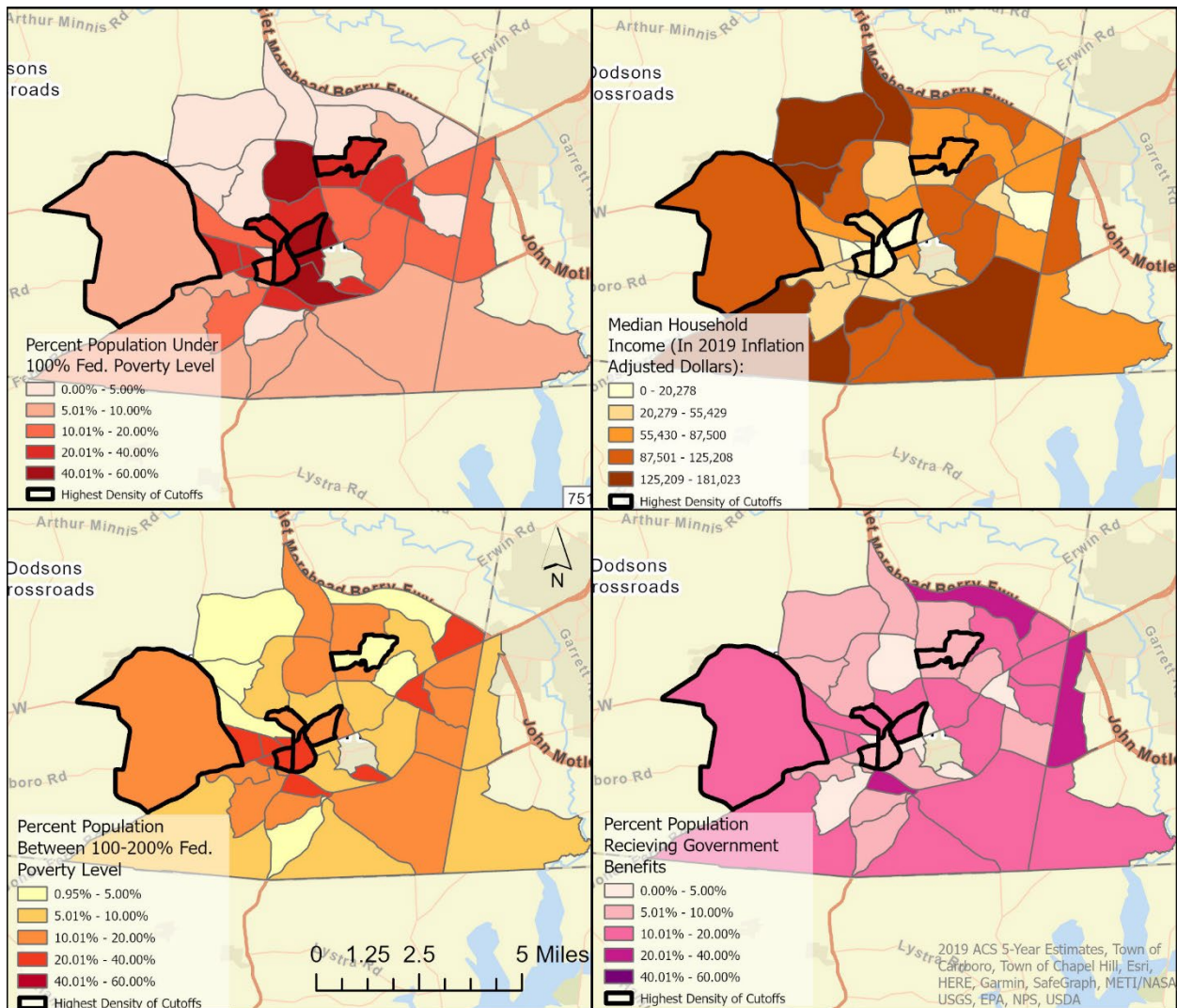


Figure 13: Income level indicators for block groups in OWASA’s service area (2019 5-Year ACS). Bold-outlined block groups in all maps are those with the highest density of customers who were cutoff in 2019 as compared to other block groups. Left: Percent population under 100% and between 100-200% of FPL is calculated only for the population for which poverty status is determined by the US Census Bureau, which excludes those living in group quarters. Top right: Median household income (MHI) for each block group. The MHI for the entire US in 2019 was \$68,703.⁸¹ Bottom right: Percent population receiving government benefits includes those receiving Social Security Income, Supplemental Security Income, and Public Assistance Income.

⁸¹ Semega et al., “Income and Poverty in the United States.”

Table 6: Comparison of demographic and income indicators for block groups with the highest density of cutoffs (bold outline in Figure 12 and 13) vs. all other block groups.

	Block Groups with the Highest Density of Cutoffs						Other Block Groups Mean (Std. Dev.)
	Block Group A	Block Group B	Block Group C	Block Group D	Block Group E	Block Group F	
# of Cutoffs	20	21	7	20	83	29	11 (9)
Cutoff Density	6%	5%	6%	6%	9%	7%	2% (1%)
Hispanic	14%	0%	10%	25%	3%	1%	6% (5%)
Black	22%	10%	20%	6%	20%	24%	10% (9%)
White	62%	80%	67%	59%	67%	62%	70% (14%)
Asian	0%	4%	1%	2%	8%	10%	11% (8%)
Below 100% FPL	31%	28%	10%	11%	60%	26%	17% (16%)
Between 100-200% FPL	19%	23%	12%	34%	16%	2%	14% (10%)
Receiving Benefits	13%	8%	13%	10%	11%	8%	10% (6%)
Median Household Income	\$48,182	NA	\$109,485	\$50,662	\$20,278	\$83,576	\$77,032 (\$45,884)

Table 6 above shows a demographic overview of the block groups with the highest density of cutoffs as compared to other block groups in OWASA’s service area with a lower density of cutoffs. The block groups with the higher density of cutoffs tend to have higher Hispanic and/or Black populations than lower density cutoff block groups. They also tend to have a higher percentage of their population either below 100% of the Federal Poverty Level or between 100-200% of the Federal Poverty Level.

Property Valuations

The UNC EFC investigated whether parcel-level property value information is positively associated with customer shut off. If so, property valuation could be used as a factor in eligibility that would be publicly available and would not require the customer to submit their own income documentation. The methods for matching customer locations to Orange County parcels is described below.

Determining OWASA Customer Property Valuations

1. Using 2019 parcel information from Orange County, parcels are restricted to those located within block groups in OWASA’s service area. The parcels in Durham County customers are excluded.

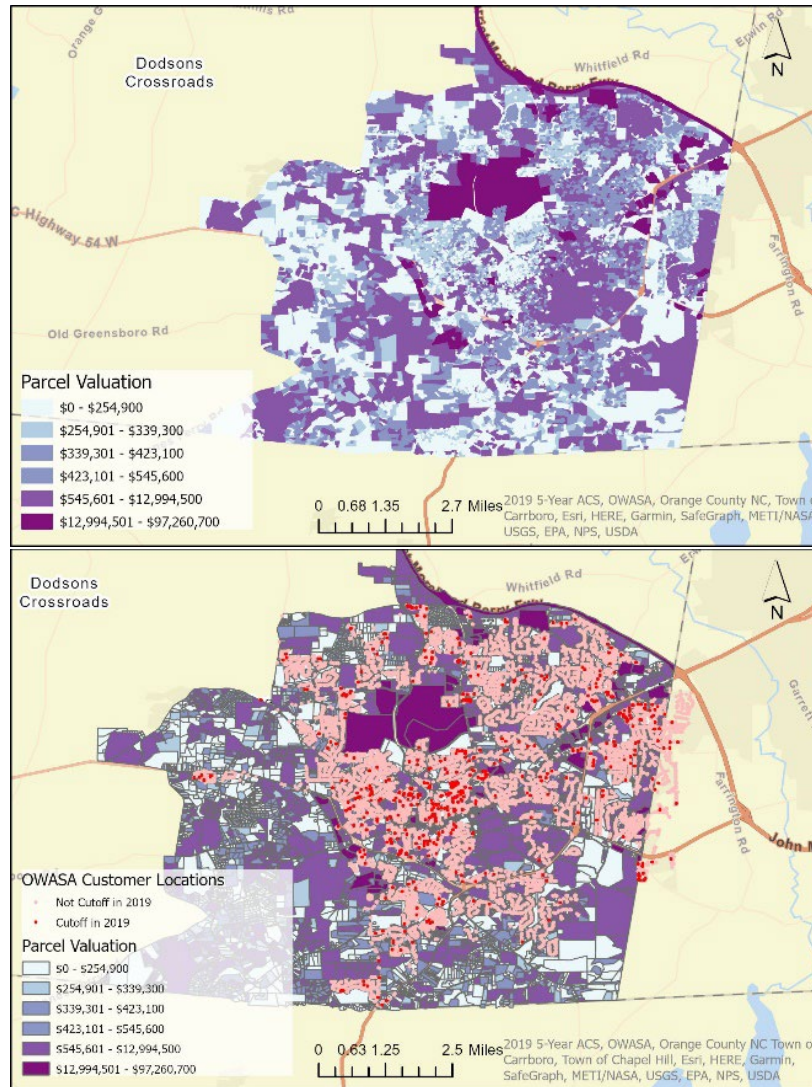


Figure 14: Comparison of parcel locations in Orange County (top) and OWASA customer locations (bottom) in 2019. Cutoff customers in red, non-cutoff customers in pink.

2. The dataset is restricted to OWASA customers that are marked as single-family residences. Parcels are matched with customer locations (latitude, longitude) using a 20 feet buffer radius from the customer locations. Some customer locations were matched to multiple parcels, while others had no parcels selected within 20 feet.

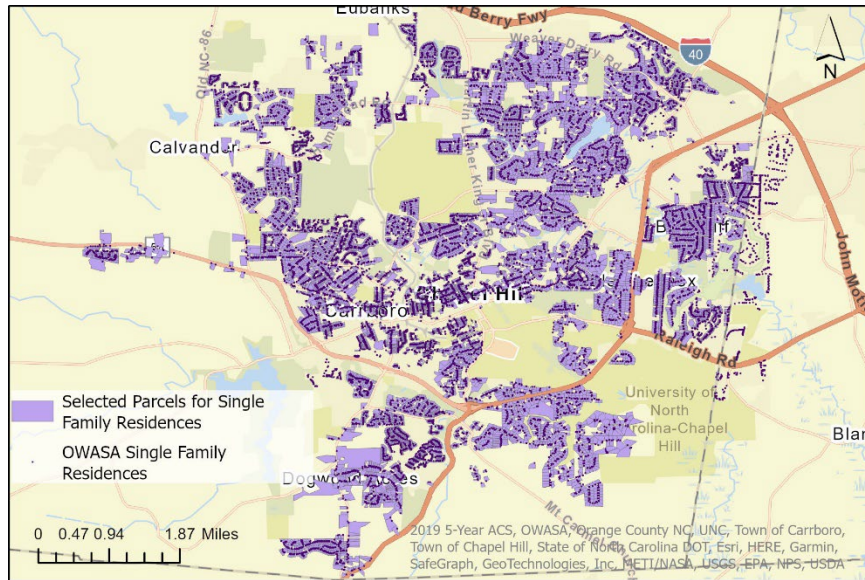


Figure 15: OWASA single-family residence customer locations and nearby parcels in 2019.

3. The matched parcel dataset is cleaned to remove parcels where no buildings seem to exist (i.e., building count = 0). Parcels that are clearly not associated with an OWASA customer were manually removed. For customer location points associated with more than one parcel (e.g., the point is on the line between two parcel polygons), therefore both parcels were included it is assumed that both parcels are associated with the customer location.

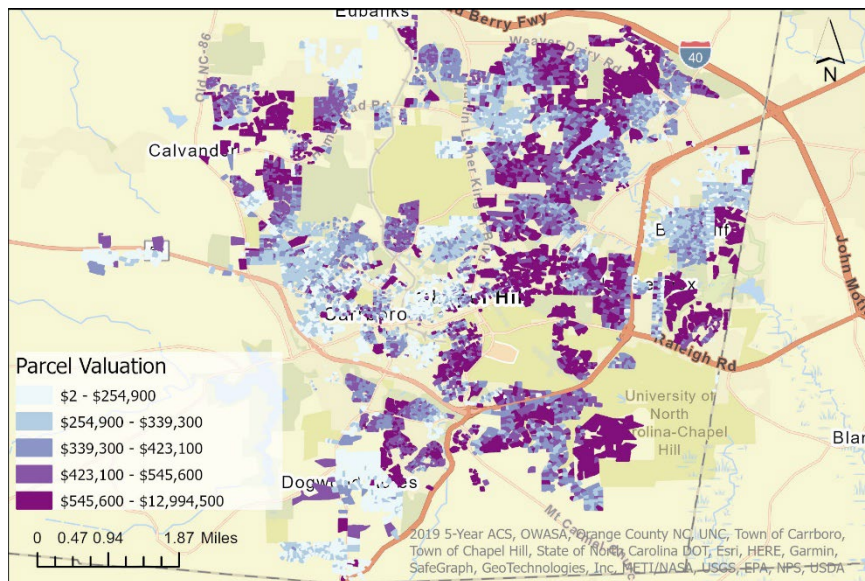


Figure 16: Parcels associated with OWASA customer locations in 2019.

Property Valuation Findings

Figure 17 below shows the percentage of single-family homes that were cut off in 2019 by parcel valuation quintiles, with their median valuation in parentheses.

The UNC EFC found that single-family parcels with valuations in the “Very Low” quintile (median = \$205,200) had the highest percentage of cutoffs. Parcels in the “Low” quintile also had a higher percentage of cutoffs than higher-valued parcels, at almost 2.5%. All three of the highest-valued parcel quintiles (“Medium,” “High,” and “Very High”) all had just over 1% of parcels cut-off in 2019. Details for each quintile are shown in Table 7.

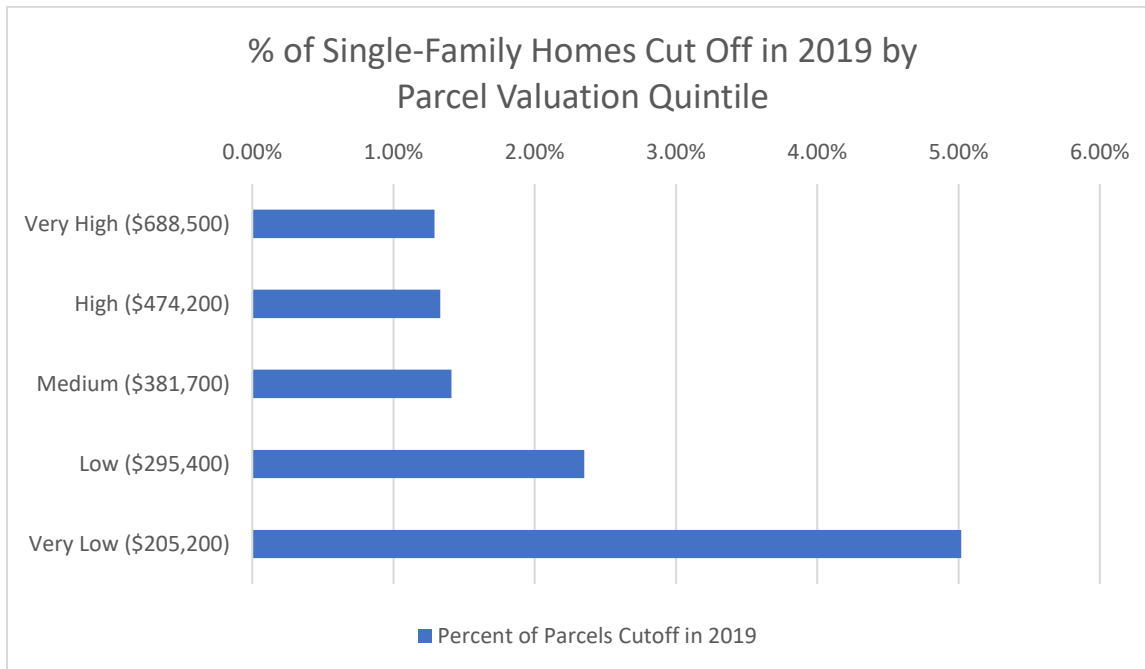


Figure 17: Percent of single-family homes that were cut off in 2019 grouped into quintiles by parcel valuation. The median home value for each quintile is listed in parentheses. The lowest quintile of parcel valuations has the highest percentage of homes cut off.

Table 7: Property value and cutoff information for OWASA single family residential customers, divided into quintiles by tax parcel valuation.

Property Value Quintile	Min Value (\$)	Max Value (\$)	Avg Value (\$)	Median Value (\$)	# of cutoff accounts	# of accounts without cutoff	% Cutoff within quintile
1 (Very Low)	2	254,900	2,000,063	205,200	128	2,423	5.02
2	254,900	339,300	296,556	295,400	60	2,490	2.35
3	339,400	423,100	381,456	381,700	36	2,514	1.41
4	423,200	545,600	477,453	474,200	34	2,516	1.33
5 (Very High)	545,600	12,994,500	786,320	688,500	33	2,517	1.29

If considering cutoffs as a proxy for needed assistance, this analysis indicates that property valuation could serve as an alternative CAP eligibility criterion: parcels in the lowest quintile of valuation have the highest percentage of cutoffs. However, it is important to note that because this analysis only included single-family homes, this analysis does not consider families living in multi-family property units. The valuation of a multi-family property with many units would not necessarily correlate with the ability to pay of an individual customer living in that property.

Cost of Water Consumption

The UNC EFC used 2019 OWASA customer water consumption data to calculate what the total cost of a new CAP may be. In 2019 the total bill amount for OWASA customers, excluding base charges (i.e., revenues from consumption) was \$6,219,298.29. Figure 18 shows the average amount spent per customer within each block group. The block groups where the highest percentage of customers were cut off in 2019 are outlined. The total bill amount for these high cutoff block groups was \$540,920.54, or 8.7% of the total bill amount for all customers. These block groups account for 2,139 customers, or 11.4% of all customers.

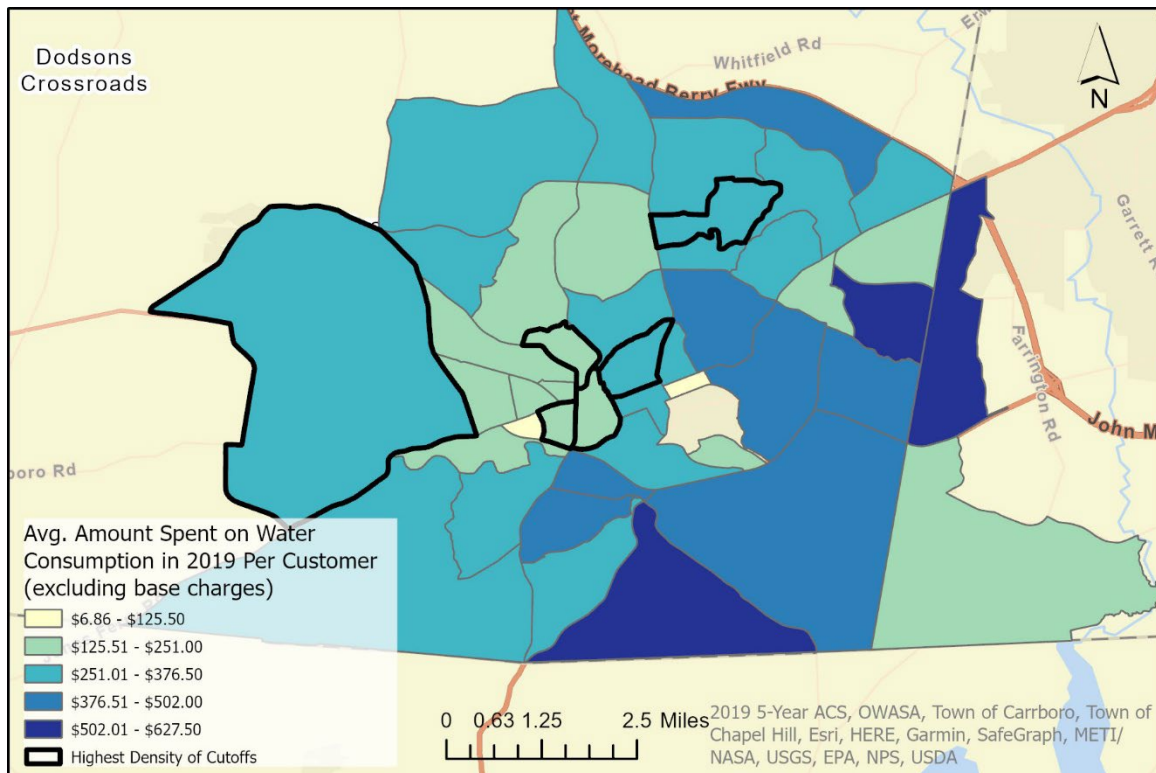


Figure 18: Average amount spent per OWASA customer for each block group (total spent on consumption/number of customers) in 2019 on water consumption, excluding base charges. This includes multi-family, townhome, and single-family residential customers. Bold outlined block groups had the highest density of cutoffs in 2019 (count of cutoffs/count of customers).

It is important to note that this analysis excluded base charges, which are calculated based on meter size, as meter size was not indicated in the customer data the UNC EFC received from OWASA. The actual total bill amounts may be higher.

The Cost of Funding a Customer Assistance Program

As evidenced from the first two sections of this report, there are many ways to structure a customer assistance program. In this section, the UNC EFC has quantified need for assistance using various eligibility criteria, CAP structures and OWASA consumption data from 2019.

The UNC EFC has an existing tool that helps utilities calculate the needed funds for a bill payment assistance program – a version of this tool completed for OWASA is included with this report. It uses localized census data, specifically the number of families falling below the federal poverty limit, to calculate the variable charges that would need to be covered by a CAP. In 2019, about 5% of families within OWASA’s service area fell below the federal poverty limits. Taking 5% of the total variable revenues calculated from OWASA’s 2019 consumption data (\$6,219,298.29), it is estimated that \$310,964.91 would be needed to fund bill assistance, assuming every customer below 5% of these customers were to participate in the program. Additional options are available to model within the tool.

Block Group Level Approach

As is clear from the interviews with local assistance network staff (part 2), there are many potential indicators of the need for bill payment assistance. To address this, the UNC EFC looked at how variable revenues are spatially distributed and calculated what funds OWASA may need to implement different customer assistance “programs” using different eligibility criteria. The “programs” modeled in the tables below include full coverage of the variable portion of a water bill; coverage of 50% of the bill; and a maximum customer payment of 4% of household income. Median household income for each block group was used as a proxy for individual household income, as this point-level data (i.e., income of OWASA customers) is unknown. If the bill exceeded the 4% of MHI for that block group, then the model quantifies OWASA paying the excess; if the bill was under the 4% of MHI, then the customer would be responsible for the entire bill. The funds needed to be provided by OWASA are indicated as “OWASA \$” – for two of the programs (half bill coverage and 4% of MHI), the monthly bill for the average *enrolled* customer is also displayed. For total bill coverage, the average customer monthly bill would be \$0.

Eligibility for these programs was defined using census data at the block group level, though in practice enrollment and proof of eligibility could vary substantially. The percentages of relevant census characteristics were split into

quintiles, and the most relevant quintiles are displayed in the tables. In Table 8, the program amounts needed to cover bill payment assistance for the block groups falling within the lowest two median household income quintiles are shown; Table 9 shows the same information for block groups within the two highest quintiles of Black population; and Table 10, within the two highest quintiles for being below the poverty line. Each program only addresses the consumption-based charges already discussed in section, and excludes base charges.

Note that the CAPs modeled here are not legally accessible to OWASA at this time.

Table 8: Cost of CAPs with eligibility based on Median Household Income.

Household Income Quintile	Total bill coverage, OWASA (\$)	Half bill coverage, OWASA (\$)	Half bill coverage, avg. monthly customer (\$)	4% of MHI, OWASA (\$)	4% of MHI, total customer (\$)	4% of MHI, avg. monthly customer (\$)
Low (\$48,182-84,630)	827,499	413,749	13	366,442	461,057	14
Very Low (\$0-44,669)	921,746	460,873	12	16,379	905,366	25
Total	1,749,245	874,622	--	382,821	1,366,423	--

Table 9: Cost of CAPs with eligibility based on % of Black population.

% Black Population Quintile	Total bill coverage, OWASA (\$)	Half bill coverage, OWASA (\$)	Half bill coverage, avg. monthly customer (\$)	4% of MHI, OWASA (\$)	4% of MHI, total customer (\$)	4% of MHI, avg. monthly customer (\$)
High (0.09%-18.5%)	694,002	347,001	13	91,278	602,724	23
Very High (19%-40%)	655,468	327,734	11	14,143	641,324	22
Total	1,349,471	674,735	--	105,422	1,244,049	--

Table 10: Cost of CAPs with eligibility based on poverty line.

% Population in Poverty by Quintile	Total bill coverage, OWASA (\$)	Half bill coverage, OWASA (\$)	Half bill coverage, avg. monthly customer (\$)	4% of MHI, OWASA (\$)	4% of MHI, total customer (\$)	4% of MHI, avg. monthly customer (\$)
High 13.3%-25.8%)	881,774	440,887	14	32,990	848,783	27
Very High 26.5%-59.6%)	735,972	367,986	12	102,838	633,133	21
Total	1,617,746	808,873	--	135,829	1,481,917	--

The amount of money OWASA would be responsible for providing in each CAP as designed above varies substantially by eligibility criteria as well as CAP structure. Median household income is the most expensive criteria to fund across all three programmatic structures. It also provides the lowest average monthly bills for customers.

These models are not meant to be recommendations of what eligibility criteria are appropriate, just, or equitable for OWASA and their customer base. Additionally, these calculations utilize groupings defined by census data to make many assumptions about customer characteristics and their ability to pay. Eligibility criteria could certainly be a combination of the demographic factors described above and should be informed by continued conversation between OWASA and the local assistance network in Chapel Hill and Carrboro.

Parcel Level Approach

Inspired by the non-traditional approach modelled by Stantec and the U.S. Water Alliance for Greater Cincinnati Water Works, the UNC EFC used tax parcel valuation data as a proxy for ability to pay (see Figure 17 and Table 7 on page 46 for details on these quintiles). Defining programs similarly to the block group approach above, Table 11 below shows the cost of funding these programs for customers with property values in the lowest two quintiles. This eligibility criteria results in fewer funds needed across all programmatic structures when compared to the Median Household Income criteria, but still provides low average monthly bills for qualifying customers.

Table 11: The cost of funding different levels of bill amounts for residential customers in the two lowest quintiles of property values in 2019.

Property Value Quintile	Total bill coverage, OWASA (\$)	Half bill coverage, OWASA (\$)	Half bill coverage, avg. monthly customer (\$)	4% of MHI, OWASA (\$)	4% of MHI, total customer (\$)	4% of MHI, avg. monthly customer (\$)
Very Low (\$2 - \$254,900)	529,294	264,647	8	57,481	471,812	15
Low (\$254,900 – \$339,300)	639,812	319,906	10	83,194	556,617	18
Total	1,169,106	584,553	--	140,676	1,028,430	--

Defining Need on Previous Inability to Pay

OWASA could also take the approach of providing bill discount to all customers who have been cut off in prior years, as this is an indicator of those customers struggling to pay their bills. Table 12 below shows the different levels of need across customers with varying cutoff experiences, and the total bill amounts (i.e., revenues) from consumption alone, excluding base charges, coming from these customers.

Table 12: Customers experiencing cutoffs and the consumption revenues generated.

	All Customers	Customers Not Cutoff	Customers Cutoff at Least Once	Customers Cutoff Multiple Times
Count of Customers	18761	18191	570	133
% of Total Customers	100%	97%	3%	0.7%
Total Bill Amounts from Consumption	\$6,219,298	\$6,017,547	\$201,752	\$58,499
% of Total Bill Amounts from Consumption	100%	97%	3%	0.9%

Table 13 below shows the cost of funding different levels of bill payment assistance for customers who faced cutoffs in 2019, excluding base charges.

Table 13: Cost of a CAP, defining need by previous inability to pay (i.e., cutoff status).

	25% Bill Discount	50% Bill Discount	100% Bill Discount
Customers Cutoff Once or More (3% of customers)	\$50,438	\$100,876	\$201,752
Customers Cutoff Twice or More (0.7% of customers)	\$14,635	\$29,250	\$58,499

This approach targets those customers identified as struggling to the point of cutoff, and so it likely underestimates the need for bill payment assistance, as there may be customers that are struggling but able to ultimately avoid cutoff. The block group analysis described previously quantifies some of the potential needs based on various eligibility criteria but may be an overestimation depending on how OWASA chooses to define customers in need of assistance.

CONCLUSION

The UNC EFC's analysis of best practices among existing CAPs revealed several different approaches with varying advantages. The most innovative models— income-based billing and pricing rates based on property characteristics—have only been considered for utilities with large service populations. Other methods have been employed by mid-sized utilities. A percentage bill discount, such as Seattle's Utility Discount Program, is widely used across the US among utilities of different sizes to improve affordability. Despite multiple attempts, the UNC EFC was unable to establish personal contact with the described CAPs. Thus, there remain outstanding research questions, including additional evaluation metrics and further details about sources of funding.

The UNC EFC recommends that OWASA consider the benefit of a long-term bill discount program either based on the customer's income or a percentage discount off their regular bill. This is not currently allowed by North Carolina state law, so it is not a feasible solution for OWASA at this time; however, the utility could consider what they would implement if state law were to change. The UNC EFC also recommends that OWASA uses human-centered design principles to improve accessibility for their customers. Specifically, OWASA should evaluate their current processes and materials related to water cutoffs to see if any improvements can be made to improve customers' understanding and next steps when facing a cutoff.

The UNC EFC's discussions with key personnel at local assistance organizations in OWASA's service area revealed potential gaps in the current assistance network that a new OWASA CAP could address. Of these, the biggest need reiterated was for a long-term bill discount program to assist low-income households who pay a significant amount of their income in housing and utility bills. Though Care to Share, Emergency Housing Assistance, and LIHWAP still serve an important role in helping individuals who have fallen behind on their bills once, a long-term discount, if allowed legally, would help the families whose financial struggles are chronic. A water bill is just one of many expenses that a household must balance, and reducing this cost would help assist households in making tough choices about how to allocate resources.

OWASA serves a diverse customer base with varying levels of need for assistance with their water bills. There are many options available to OWASA for structuring their customer assistance program, both in the amount of assistance provided and the eligibility criteria utilized. Continued analysis of need will be useful in helping to structure the CAP, and significant outreach and communication efforts may be necessary once implemented. As the CAP progresses, internal review and evaluation will help ensure that in-need populations are being served and that the CAP reaches maximum success.

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APPENDIX

2022 and 2023 Federal Poverty Level Income Per Year

Household Size	2022	2023			
	100% FPL	50% FPL	100% FPL	150% FPL	200% FPL
1	\$13,590	\$7,290	\$14,580	\$21,870	\$29,160
2	\$18,310	\$9,860	\$19,720	\$29,580	\$39,440
3	\$23,030	\$12,430	\$24,860	\$37,290	\$49,720
4	\$27,750	\$15,000	\$30,000	\$45,000	\$60,000
5	\$32,470	\$20,140	\$35,140	\$52,710	\$70,280
6	\$37,190	\$20,140	\$40,280	\$60,420	\$80,560
7	\$41,910	\$22,710	\$45,420	\$68,130	\$90,840
8	\$46,630	\$25,280	\$50,560	\$75,840	\$101,120

Source:

Office of the Assistant Secretary for Planning and Evaluation. “Frequently Asked Questions Related to the Poverty Guidelines and Poverty.” ASPE. Accessed April 25, 2023.

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Washington State 70% of State Median Income

Effective Jan. 1, 2023, To be eligible for Seattle Utility Discount Program, “your total household income in the one-month period prior to applying must be at or below:”

Household Size	Gross Monthly Income	Gross Yearly Income
1	\$3,441	\$41,292
2	\$4,500	\$54,000
3	\$5,558	\$66,696
4	\$6,617	\$79,404
5	\$7,676	\$92,112
6	\$8,735	\$104,820
7	\$8,933	\$107,196
8	\$9,132	\$109,584

Source:

Seattle Public Utilities. “Utility Discount Program.” Seattle. Accessed January 16, 2023.

<http://www.seattle.gov/utilities/your-services/discounts-and-incentives/utility-discount-program>.

Durham Cutoff Warning Letter: Original and Revised Version

Original Disconnection Letter

07/29/2019

CITY OF DURHAM
Department of Water Management
Customer & Billing Services Division
101 CITY HALL PLAZA | DURHAM, NC 27701
919.560.1200 | F 919.560.4827
www.durhamnc.gov

IMPORTANT NOTICE ENCLOSED

Dear Customer:

As of this date, the City has not received payment for your utility bill and your account is seriously overdue.

Your payment must be received in our office by 5 p.m. on the last business day prior to the disconnect date. See below for your account information.

Failure to make payment by this time will result in a \$50 delinquency charge added to your account, whether or not your water service is actually terminated. You may also be charged an additional deposit of \$50.

The back of this letter has more information, and answers to frequently asked questions. If you have additional questions, contact us at 919-560-1200 or <http://durhamnc.gov/2996>.

If your payment has been made, thank you and please pardon the confusion. You may disregard this letter. You may also want to contact us to verify your payment has been posted to your account.

Sincerely,

Customer Billing Services Division,
Department of Water Management

DISCONNECT DATE: 08/06/2019
PAYMENT DUE: [REDACTED]
Account Number: [REDACTED]

Original Cutoff Letter

CITY OF DURHAM
Department of Water Management
Customer & Billing Services Division
101 CITY HALL PLAZA | DURHAM, NC 27701
919.560.1200 | F 919.560.4827
www.durhamnc.gov

06/16/2020

IMPORTANT NOTICE ENCLOSED

Dear Customer,

We know many in our community have lost their jobs, businesses, and healthcare coverage in the wake of the coronavirus pandemic. If you are facing hardship, we urge you to call us at 919-560-1200 to set up a payment plan or receive a list of community resources that may offer financial support.

This is necessary because the City has not received payment for your water bill, and your account is overdue. **You need to act now.**

If you do not pay or contact us by 5 PM on 06/23/2020, your water will be shut off on 06/24/2020.

We do not want you to go without water. But if we do not hear from you or receive your payment **BEFORE** your Disconnect Date, we will assume you are actively choosing to have your water cutoff.

You must contact us **BEFORE** the Disconnect Date written below. If you cannot afford your bill, we will work with you (see back). If you regularly forget, you can set up automatic payments.

To pay, you can:

- Call 919-560-1200, and press "option 1"
- Pay online at www.durhamnc.gov. Select "Pay Your Water Bill."
- Put your payment in the drop box at City Hall, on Mangum Street

DO NOT pay at a local store. They will turn your payment in too late and your service will be disconnected.

If you have already paid, thank you and you may disregard this letter. To check that your payment went through to your account, please contact us at 919-560-1200 or <http://durhamnc.gov/2996>.

Sincerely,

Customer Billing Services Division,
Department of Water Management

Last Day to Pay to Stop Water Shutoff: 06/23/2020

Payment Due: \$94.20
Disconnect Date: 06/24/2020
Account #: [REDACTED]

Revised Letter

Source:

City of Durham CAFFE Project Team. "Durham CAFFE Report." City of Durham. Accessed April 25, 2023.
https://cityordinances.durhamnc.gov/OnBaseAgendaOnline/Documents/ViewDocument/WS-Published%20Attachment%20-%202014166%20-%20REPORT%20-%20203%20-%20CAFFE%20REPORT%20-%2010_5_2020.pdf?meetingId=415&documentType=Agenda&itemId=18069&publishId=75771&isSection=false.

2022 HUD Area Median Income (AMI) limits for Durham-Chapel Hill, NC

Household Size	30% AMI	60% AMI
1	\$20,100	\$40,140
2	\$22,950	\$45,840
3	\$25,800	\$51,600
4	\$28,650	\$57,300
5	\$32,470	\$61,920
6	\$37,190	\$66,480
7	\$41,910	\$71,100
8	\$46,630	\$75,660

Source:

U.S. Department of Housing and Urban Development. “North Carolina 2022 Adjusted Home Income Limits,” 2022. https://www.huduser.gov/portal/datasets/home-datasets/files/HOME_IncomeLmts_State_NC_2022.pdf.

2019 Federal Poverty Level Income Per Year

Household Size	Income at 100% FPL	Income at 200% FPL
1	\$12,490	\$24,980
2	\$16,910	\$33,820
3	\$21,330	\$42,660
4	\$25,750	\$51,500
5	\$30,170	\$60,340
6	\$34,590	\$69,180
7	\$39,010	\$78,020
8	\$43,430	\$86,860

Source:

Office of the Assistant Secretary for Planning and Evaluation. “2019 Poverty Guidelines.” ASPE, 2019. <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/prior-hhs-poverty-guidelines-federal-register-references/2019-poverty-guidelines>.

Block Groups with the Highest Density of Cutoffs

Block Group Name in Report	GEOID
Block Group A	371350107052
Block Group B	371350107053
Block Group C	371350107011
Block Group D	371350107034
Block Group E	371350113001
Block Group F	371350119012

Source:

OWASA. “2019 Customer Billed Use Data Including Latitude and Longitude and Charity,” 2019. U.S. Census Bureau. “2015-2019 American Community Survey 5-Year Estimates,” n.d. <https://data.census.gov/>.

GEOIDs for Other Orange County and Durham County Block Groups Included in Analysis

GEOID	GEOID	GEOID	GEOID	GEOID
371350107051	371350107031	371350112021	371350112053	371350119022
371350118002	371350122012	370630020192	371350107033	371350119021
371350107041	371350122021	371350107062	371350121003	371350107061
371350117002	371350122011	371350107043	371350112052	371350122022
371350114001	371350107042	370630020181	371350118001	

371350114002	371350121004	371350116023	371350107032	
371350115001	371350121002	371350112051	371350107054	
371350121001	371350119013	371350117001	371350122023	

Source:

OWASA. "Customer Billed Use Data Including Latitude and Longitude and Charity," 2019.

U.S. Census Bureau. "2015-2019 American Community Survey 5-Year Estimates," n.d.

<https://data.census.gov/>.



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Finance Center

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