direct installs product rebates incentives education bill reduction retrofits **plumbing repair** tax status **water bill** pilot programs Fix a Leak Week seniors housing authorities energy programs multifamily landscaping income qualification **leak identification** nonprofit **partners** recruitment efforts toilet sensors weatherization flow meters AMI major leak repair

Assistance That **Saves**

How WaterSense Partners Incorporate Water Efficiency Into Affordability Programs




EPA WaterSense

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Introduction

Water costs have been increasing steadily in the United States for more than a decade. Even so, the cost of water remains relatively inexpensive for most Americans compared to energy. However, for households considered low-income, paying for water can pose a financial burden. According to the U.S Census Bureau, the overall five-year poverty rate from 2015 to 2019 was 13.4 percent; but in some U.S. counties, the poverty rate exceeded 30 percent. For people living at or close to the poverty level, and others such as seniors on a fixed income, water affordability is critical.

For many years, water utilities have worked to ensure this essential resource is available to all customers in their service areas with a variety of customer assistance programs (CAPs). The U.S. Environmental Protection Agency (EPA) compiled a compendium of such programs in 2016, noting that 30 percent of large utilities reviewed offered some type of CAP, and closer to 20 percent of medium-sized utilities also offer CAPs. When the COVID-19 pandemic led to an increase in unemployment in 2020, even more utilities became focused on providing affordability and bill payment assistance. Now, they are looking for ways to reach underserved populations with water efficiency assistance as well.

CAPs can take many forms, from bill discounts and flexible payment terms to subsidies and temporary assistance to avoid water shutoff. More and more, utilities are finding that a focus on water efficiency can enhance their CAP programs, not only making water more affordable for those that need it, but bringing leak repairs and water-efficient products to homes that are not able to pay the upfront costs. By reducing unnecessary water use, these programs are helping to reduce the financial burden on families that might have to choose between paying their water bill and some other necessity.

To get a sense of how utilities are helping customers save both water and money with proactive plumbing repair and other programs, EPA contacted a number of interested WaterSense® partners to participate in a

series of roundtables and interviews on the topic of affordability and water efficiency in early 2021. More than a dozen utilities provided input, ideas, lessons learned, and case studies about how they incorporate water conservation programs into their CAPs, from leak detection in low-income homes to direct installs of WaterSense labeled products. Many of the programs described in this document focus on single-family homeowners, but utilities are also working to make multifamily homes more efficient, since many renters don't receive a water bill directly but are responsible for water costs.

One of the most important aspects that emerged from utilities that marry their affordability support programs and efficiency is how important partnering with related organizations is to the success of their programs. Community organizations that focus on low-income assistance, seniors, energy efficiency, and underserved populations have proven invaluable to customer communications, recruitment, and trust-building. Many program partners administer aspects of water efficiency CAPs, from qualifying potential customers to conducting in-home visits and plumbing services. WaterSense partners provided a variety of ideas and advice for finding and working with partners.

As more utilities look to address water affordability and efficiency, it may also be time to re-evaluate existing conservation efforts for their equity and accessibility. While rebates encourage many residents to replace

old toilets and other fixtures, saving water and energy costs, they tend to favor customers with the disposable income to procure products, hire contractors, and handle the paperwork. During the roundtables, WaterSense partners discussed the potential for discrimination in some of their conservation efforts. Some are now undertaking initiatives to make water efficiency more equitable across their customer base, by conducting outreach and focusing affordability efforts on previously underserved populations. With these efforts and an increased focus on CAPs that help conserve water, more Americans will be able to access—and save—this essential resource.

Acknowledgements

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Albuquerque-Bernalillo County Water Utility Authority (New Mexico)
California Water Service
City of Charlottesville (Virginia)
City of Dallas
City of Fort Worth (Texas)
City of Guelph (Ontario)
City of Richardson (Texas)
City of Sacramento (California)
City of Westminster (Colorado)
East Bay Municipal Utility District (California)
Madison (Wisconsin) Water Utility
Metropolitan Water District of Southern California
Miami-Dade (Florida) Water and Sewer Department
Michigan Department of Environment, Great Lakes, and Energy (EGLE)
Orange Water and Sewer Authority (North Carolina)
Portland (Oregon) Water Bureau
San Antonio Water System (Texas)
Seattle Public Utilities
Tacoma Public Utilities (Washington)

Identifying Candidates for Customer Assistance and Efficiency

An important aspect of customer assistance programs is qualifying participants who can benefit most from efforts to make water more affordable. WaterSense partners use a variety of methods to identify and recruit customers for water efficiency-related CAPs, including focusing on low-income areas, neighborhoods with older homes, water usage trends, household leaks, bill payment history, and other factors, such as environmental and social justice screens. Following are some of the ways that have worked to increase equity while encouraging efficiency in communities.

Income Qualification

If you are adding efficiency to an existing affordability program, past bill payment history may be the simplest way to identify customers that could benefit from conservation assistance. However, certain state regulations, organizational charters, and grant protocols stipulate that free fixtures and other types of conservation assistance should go to customers with specific needs or incomes. For that reason, many programs have household income as one of the main criteria they use to qualify customers for their CAPs. There are some differences in the ways programs qualify participants and define "low-income," but most are designed to ensure that assistance is truly needed and that providing plumbing repairs and WaterSense labeled fixtures will make a difference in water bills and usage.

For example, many utilities use the poverty level as a starting point for assistance, but since many residents living at that low an income don't own their own homes, and state definitions of poverty vary, most of them set minimum household income requirements higher than the federal poverty index.

Several WaterSense partner CAP programs report using 125 percent or 150 percent of the poverty level for their income qualification, and the City of Fort Worth, Texas, uses 200 percent of the federal poverty level. There appears to be no consistent qualification across the country for participants who receive water utility assistance. Programs also use the median household income—or the point at which half the households in a given area take in above or below that amount in a given year—as an indicator for customer assistance needs, and they set their qualifying incomes at some point below the median for their area.

Setting Standards for Program Participation

Looking for a place to start when defining "low-income" in your program efforts? The U.S. Department of Housing and Urban Development publishes income guidelines for low-income housing, as well as the median income levels for each state and metropolitan area.

Whatever income-qualifying indicator your program uses, you may need to verify applicants' income levels through tax returns, pay stubs, or other confirmation methods. One of the easiest ways to ensure your program is reaching those who need it most is to partner with an existing organization or energy utility that has already conducted such income qualifications. A successful partner could provide you with a ready list of residents to recruit or customers to cross-reference with your own.

For example, San Antonio Water System (SAWS) established income eligibility at 125 percent of the federal poverty level for its customer support services. For many years, a city department collected applications and qualified households. Recently, SAWS moved to new methods that allow faster application processing. An online tool tied to a credit agency uses prior year tax records to qualify most applicants within minutes. For cases where a tax record or social security number is a barrier, internal SAWS staff collect the information necessary to determine qualifications.

Fixed-income customers, such as seniors, are often a target of affordability and efficiency efforts. The City of Dallas' low-income minor leak repair program, for example, includes seniors on a fixed income. The simplest ways to qualify such customers are to look

at their tax status or have them self-report. However, some seniors accessing these programs have reported difficulty with the online forms, and some don't have the technology needed to complete applications online, so programs offer hard-copy forms for them to fill out and provide customer service representatives to walk seniors through the questions over the phone. Be prepared to meet these participants where they are, or partner with other organizations that already have qualified senior citizens and piggyback on their offerings.

Homes That Need Help

Sometimes the smartest way to combine efficiency with affordability is to target homes that are more likely to be in underserved communities with older plumbing fixtures. Residents who live in older housing stock often face the "double whammy" of limited income and old or leaky fixtures, leading to higher water bills than necessary. These are often the same homes that could benefit from weatherization and other efforts to increase energy efficiency, so they hold a lot of promise for partnership with energy utilities, home improvement organizations, and local energy assistance programs.

Many programs target specific neighborhoods with older homes for marketing, outreach, and community partnerships. What constitutes an "older home" often varies by how much funding the program has available and whether its direct install or rebate program has already saturated an area. A number of utilities use

Targeting for Greatest Impact

With a population of nearly 250,000 below the federal poverty level and older housing stock, the City of Detroit is a good place to tackle both water waste and affordability. The Alliance for Water Efficiency (AWE) carried out a study to consider how available census, socioeconomic, and housing data could be combined at a census tract level to assess opportunities for addressing affordability and potential water savings from fixture replacements. This kind of analysis can help utilities to target their programs to parts of their service area where they will be able to achieve a win-win of customer assistance and water savings. For more information, read the AWE report, *An Assessment of Water Affordability and Conservation Potential in Detroit, Michigan*.

1994 as the cutoff to focus on homes that might have toilets installed before national plumbing requirements set the maximum flush volume for toilets at 1.6 gallons per flush (gpf). The City of Fort Worth offers a free toilet voucher for any resident with a home built before 1994; nearby, the City of Dallas, which has had a robust plumbing repair program for many years, now targets homes built prior to 2004 with its toilet replacement program that installs WaterSense labeled toilets using 1.28 gpf or less. Dallas also provides minor leak repairs for low-income homes where the plumbing is failing.

Residents aren't the only customers who can benefit from energy and water improvements in underserved areas; restaurants, retailers, and religious organizations can use a boost to their buildings with weatherization and water efficiency. A number of programs are reaching out to small and medium-sized businesses in disadvantaged areas with water and energy assessments and free equipment. The subsequent savings on utility bills could come in handy for those places hit hardest by the COVID-19 pandemic. For example, the City of Pasadena, California, has a Water & Energy Direct Install Program (known as

WeDIP) that provides select commercial customers in disadvantaged communities with free assessments and installation of up to $7,500 in energy- and water-saving equipment, such as toilets, faucet aerators, showerheads, and clothes washers. As long as the business is a "small commercial" entity customer of the City utility and uses less than 50 kilowatts (kW) of electricity per year, they qualify.

Leak Detection Overlay

Lowering water bills is often about identifying unnecessary usage and detecting leaks. The most common way to pinpoint customers that may be paying for more water than they use is through usage trends. Some utilities just flag monthly water use and contact customers when they see something out of the norm; others use advanced metering infrastructure (AMI—an integrated system of water meters, communication networks, and data management systems) to tell customers as soon as they spot something that might be a leak. Flow sensors can also tell customers directly if they have a leak.

On the low-tech side, some utilities are flagging high water use trends or unusually high bills, especially in lower income areas, and contacting customers by phone, email, or letter to let them know that they might have a leak. Simple leak repair is often residents' first exposure to the utility's affordability and efficiency program, and it can open opportunities for other ways to save, such as direct installs or assessments.

Other utilities work through partners to target neighborhoods for leak inspections as part of a broader energy and water assessment, revealing pipes and fixtures that could have been wasting water for years. Sometimes wastewater leaks can be the impetus for customers—who don't differentiate by type of leak—to call the utility, so water and sewer services may want to coordinate on community outreach.

Those who have installed AMI onsite in older, low-income communities use metering to pinpoint leaks and stop water waste quickly. AMI can create

Water heater installation in Sacramento

dashboards and generate home water reports that target recommendations based on water use; some systems report results and leak detection as fast as within two days. To take advantage of AMI, however, the homeowner needs to register for the data usage portal, or conservation staff need to monitor the dashboards and contact customers. One way to get customers to sign up for the portal is to offer them a water-saving fixture or direct install. In Albuquerque, New Mexico, customers who qualify for the Albuquerque-Bernalillo County Water Utility Authority's low-income bill credit receive a free onsite audit and AMI installation.

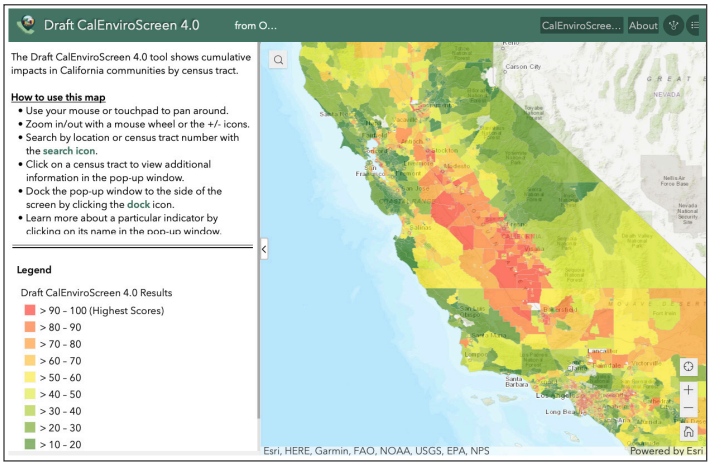
Flow sensors such as Flume are another way to monitor for leaks and signal the need for repairs. SAWS has a flow sensor rebate program that covers nearly the entire cost of the sensor. The rebate requires up-front costs and has not been as popular in low-income households. Sensors also require wi-fi access, which could be a barrier to some customers. SAWS has explored options through surveys to low-income households to determine which ones already have wi-fi and would like a flow sensor; a small number of flow sensors have been provided to survey respondents. One of these customers contacted conservation staff a

few months later to discuss data and concluded they had an early leak that the flow sensor identified. As a next step, SAWS is looking to experiment with "hot spot" devices that can provide just enough broadband signal to operate a flow sensor; this will help determine if providing both a hot spot and flow sensor would be desirable and helpful for low-income households.

Ensuring Equity of Efficiency Offerings

If you're looking to go beyond affordability and promote your water efficiency offerings to a wider audience, it may make sense to add equity as a screen to your recruitment efforts. Traditional conservation programs such as rebates tend to benefit those in a better financial position to buy and install water-saving products, and traditional outreach and events may also be missing a large portion of your community. Casting a wider net with water conservation may not be obvious, however. That's where partners can help; from efforts that support African-American homeownership to immigrant-oriented organizations, these groups can help identify, recruit, and qualify individuals that might be underserved by your conservation program offerings.

Another way to identify communities that could benefit more from your efforts is an equity or environmental justice screen. A number of tools are available on the internet to pinpoint places that might be more vulnerable to environmental impacts, as well as low-income, minority, and non-English-speaking. For example, the CalEnviroScreen hosted by the state Office of Environmental Health Hazard Assessment is a science-based map tool that helps identify California communities that are most affected by many sources of pollution, and that are often especially vulnerable to pollution's effects. This tool uses environmental, health, and socioeconomic information to produce a score for each census tract in the state, and it provides a color-coded map for the entire state, which can be searched by individual counties, cities, and neighborhoods. Some utilities, such as the City of Sacramento, use



The CalEnviroScreen science-based map tool.

it to identify disadvantaged communities in the state and target their affordability and efficiency efforts to specific areas. Information about race/ethnicity, languages spoken, and share of low-income households is included (see case study, page 20).

At the national level, EPA's EJ SCREEN is an environmental justice mapping and screening tool that combines environmental indicators, including air quality indicators and proximity to waste sites, with demographic indicators, such as percentages of low-income homes, people of color, and individuals over the age of 64. It can be used to identify vulnerable communities by census tract, as well as "linguistic isolation," or households where the occupants over 14 years of age do not speak English as a first language, and outreach in other languages might be needed.

WaterSense partners agreed that once they identified specific underserved populations to target, trusted organizations and individuals were critical to helping them spread the word about their efficiency and affordability programs. Using existing channels and communications customers could relate to, these community partners helped pave the way for recruitment, repairs, and results. Providing materials and letters about leaks in the languages they speak also helped convince more customers to participate in water conservation efforts that brought their bills under control.

Partnerships Make It Possible

One thing came through loud and clear when talking to WaterSense partners about their affordability and efficiency programs—partners are critical to success at the community level. Nonprofits, municipal programs, energy utilities, and other community organizations can help identify, recruit, and communicate with your customers for affordability and efficiency programs. Many of them have established roots and build trust within the community, which can be key to reaching your customer base. And if they are already running similar programs for home improvement or energy efficiency, they may be able to administer some portion of your efforts, so you don't have to reinvent the wheel.

If you are starting a new program, make sure to include partners from the outset. Get their input on your program offerings, qualification criteria, application process, and outreach tactics; you may rethink your initial assumptions about what customers need and how to give it to them. Trust what your partners tell you about the audiences they serve; they know their constituents' motivations and barriers much better than you do.

Before you assume partners want to work with you, make sure you fully understand their mission and community members. Find areas of overlap in your affordability and efficiency objectives, to ensure that what you are asking will help them achieve theirs. Determine what business model they use, and whether your program will work within it—don't expect them to change their set procedures or assume large amounts of financial responsibility before getting reimbursed, since many of these organizations are nonprofits that operate on a shoestring budget.

What Makes a Good Partner?

There are a variety of partners who are also focused on efficiency and affordability, and some might even work in the same building. Electric and gas utilities, for example, often have bill payment assistance and efficiency programs; if yours is a municipal entity, you may share customers or administrative requirements, so there will be built-in opportunities to combine efforts. WaterSense public utility partners that are connected with the local energy provider noted that they don't have to conduct the income qualifications themselves; if customers qualify for the energy assistance, they qualify for water bill assistance as well. Some electric and gas utilities send water efficiency mailings to their customers and help make the energy-water savings connection. Even if your local utilities are privately owned, you may be able to piggyback on their efforts.

Speak Up to Spark Support From State and Local Energy Efficiency Programs

Looking for opportunities to include water efficiency in programs that are focused on energy efficiency or weatherization? Go right to the source! Some state, federal, or utility programs fund local energy improvements and will include water fixture installations, but they won't know that need unless you call attention to it. In Michigan, the state Department of Environment, Great Lakes, and Energy brought funding to the table for their plumbing repair pilot by going right to the source of energy efficiency funds. They also convinced two local utility programs, DTE and Efficiency United, to provide free water heaters.

Community efficiency efforts are often supported by local energy assistance programs, also known as LEAPs or LIHEAPs (low-income home energy assistance programs). Funded by utilities, contributions, and grants at the federal, state, and local level, these programs typically offer home energy check-ups, tune-ups, and direct installation of products and other improvements to reduce energy usage and utility bills. Many already install water-efficient showerheads and faucet aerators, so they understand the importance of reducing water to save energy. For those that focus on weatherization to improve home efficiency, a

WaterSense labeled toilet would complement those home improvements. Many LEAP programs already have relationships with plumbers that install their appliances, so they can check for leaks and complete direct installs.

Beyond energy efficiency, local nonprofits provide a variety of home ownership support in low-income communities. From building homes to providing assistance that helps struggling families survive, these groups share common goals with your efficiency and affordability efforts. Organizations that work with seniors, minorities, immigrants, and other underserved populations tend to have more trust among their constituents than the local government or utility does. Some of these organizations serve a specific population; others focus on community improvement, environmental justice, or faith-based initiatives. Find places where your program goals align with theirs and identify assistance you can offer them. For example, can you provide free fixtures at a local food bank event, or help a local Habitat for Humanity build get donations of WaterSense labeled products for one of their "blitz builds"?

Photo courtesy of Fulton County (Georgia) Department of Water Resources

Get creative when thinking about potential partners; nearby universities may have graduate students looking for programs to study or support, and they may be willing to provide you with free surveys, evaluations, or communications and outreach. Local cooperative programs and service-learning initiatives may provide willing volunteers to help staff events, conduct home visits, or canvass homes for recruiting purposes. Likewise, don't forget about opportunities to help your partners conduct outreach; invite them to your water festivals or Fix a Leak Week events, and promote your programs at their events.

Partners in Action

Following are some examples of successful partnerships that WaterSense partner utilities have forged to foster water efficiency and affordability:

- In Washington, **Seattle Public Utilities** gets new customer assistance enrollees from its energy utility counterpart, so it doesn't have to qualify participants but can just send a water mailer to them. **Tacoma Public Utilities** operates in a similar manner, and a shared utility customer service department handles the intake of income-eligible customers.
- In California, the **East Bay Municipal Utility District** (EBMUD) partners with Pacific Gas & Electric (PG&E), which has a program that focuses on low-income residences. PG&E performs most of the legwork on qualifying participants, and EBMUD piggybacks its services as a third-party provider. The **Metropolitan Water District of Southern California** has materials translated by the local gas company, which gets them into the hands of those who need them most.
- The **City of Charlottesville**, Virginia, has its electric, gas, and water utilities under one umbrella, so the water utility benefits from its energy efficiency program for low-income and elderly customers; all three utilities partner with a LEAP run by a local nonprofit that installs efficient fixtures.
- In Wisconsin, **Madison Water** works with a nonprofit that provides free energy efficiency and other improvements for low- and moderate-income homeowners who can't afford to hire a contractor or get them to come out for a small plumbing job.

- In North Carolina, the **Orange Water and Sewer Authority** partners with local social services agencies, as well as nonprofits such as Habitat for Humanity that work on home improvement efforts.
- The **City of Guelph**, Ontario, partners with a local grassroots nonprofit that offers tune-ups in older single-family homes, another nonprofit that focus on multifamily improvements, and a local immigration services office to reach out to refugees and other immigrants.
- The **City of Westminster**, Colorado, partners with a regional housing authority to run its leak repair program and recruit participants; it also works with a local job corps program that provides direct installs and local workforce training as it conducts energy upgrades funded by an energy outreach program in the state.
- The **Portland (Oregon) Water Bureau** has a partnership with the African American Alliance for Homeownership; in addition to operating Portland's leak repair program, the alliance refers participants from among its constituents.
- **Michigan's Department of Environment, Great Lakes, and Energy** (EGLE) sought a wide variety of partners to support its pilot program launched in 2021; including grassroots nonprofits, county assistance programs, utilities, state universities for data collection, WaterSense manufacturer partners, and a community environmental activist and religious leader that instilled trust among residents.

Potential Partners Checklist

ENERGY EFFICIENCY

- ☐ Local utilities
- ☐ Local energy assistance programs
- ☐ Low-income home energy assistance
- ☐ State energy offices
- ☐ Weatherization programs

HOME OWNERSHIP AND IMPROVEMENT

- ☐ Habitat for Humanity
- ☐ Rebuilding Together
- ☐ Operation Homefront
- ☐ Homes for Our Troops
- ☐ Volunteers for America
- ☐ Christmas in April

HOUSING/ASSISTANCE

- ☐ Housing authorities
- ☐ Food banks
- ☐ Area Agency on Aging
- ☐ Meals on Wheels

EQUITY AND INCLUSION

- ☐ African American Alliance for Homeownership
- ☐ Committee for Hispanic Families and Children
- ☐ UnidosUS
- ☐ Immigration and refugee service agencies

OTHER ORGANIZATIONS

- ☐ Churches and faith-based organizations
- ☐ Senior service agencies
- ☐ Universities
- ☐ Job corps/training programs
- ☐ Service-learning organizations
- ☐ Boys and Girls Clubs

Where Water Conservation and Customer Assistance Intersect

Utility water efficiency efforts dovetail well with CAP programs, combining low-income customers' needs with community water-saving goals. Using AMI for leak detection and providing plumbing repairs, which many conservation programs do, are a natural fit for affordability. Installing WaterSense labeled products directly in customers' homes is another way to reduce water costs, and it may work better than rebates to address affordability issues. Education is also a useful approach to encourage future savings and keep water bills in check.

Slowing the Flow From Leaks

Some affordability programs build in water efficiency by structuring payment discounts based on water use; instead of reducing the amount of the entire bill, they apply reductions to or waive the fixed portion of the bill, incentivizing customers to save water to reduce the variable portion themselves. Others provide flow restrictors to customers who cannot pay bills regularly, so that they are able to access enough water for basic health and daily needs, but not overuse it.

Leak detection is part of many CAP programs, because it stops customers from wasting water they can't see. As described previously, leaks can be detected by reviewing monthly water bills, installing AMI, or using sensor technologies. Leak detection is often included in residential energy and water home check-ups, and it can even be done over the phone. Some water utilities, especially during the COVID-19 pandemic, had customer service representative talk residents through some simple leak checks at home. Use the WaterSense Detect and Chase Down Leaks checklist or the Fix a Leak Week At Home Activity if you don't have your own list; both are available in Spanish. WaterSense partners can also access the checklist in Simplified Chinese.

Smart Steps to a Successful Conservation-Oriented CAP

Each of these eight steps, adapted from EPA's compendium on drinking water and wastewater CAPs, is also critical to any program focused on water efficiency and customer assistance, such as a direct install or leak repair effort. Some of these topics—such as partnerships and financial eligibility—are discussed in more detail in previous sections of this tool; others are described later in this section or in the case studies at the end of this document.

INDENTIFY TARGET AUDIENCES	Who needs assistance with both bills and efficiency?Any specific demographic targets?
SECURE LOCAL PARTNERS	Look for local or state organizations with similar goals, design, recruitment, implementation, and outreach.
ANALYZE YOUR OPTIONS	Consider options to deliver assistance in a way that meets customers' needs and water-saving goals.
DETERMINE AID ELIGIBILITY	Work out how assistance will be provided, how eligibility will be determined, funding limitations, etc.
EXAMINE LEGAL ISSUES	Review state law, service agreements, funding provisions, and liability concerns for installing products.
FIND STAFF AND CONTRACTORS	Develop contractor capability and internal capacity for home visits and customer service.
CONDUCT PUBLIC OUTREACH	Engage the public for recruitment and promotional purposes, working through your partners.
EVALUATE AND IMPROVE	Implement and include ways to evaluate the program and make improvements over time.

Leverage Fix a Leak Week to Launch

Looking for an opportunity to launch a leak detection and repair effort in a particular community? Consider Fix a Leak Week, the third week of March. The City of Dallas was one of the first WaterSense partners to do so, March 15 through 21, 2010, by holding "The Great Dallas Fix a Leak Week Roundup" to address the backlog with its low-income plumbing repair program. Using toilets and other fixtures donated by Kohler, the City rounded up as many plumbers as it could to fix leaks and improve plumbing in 100 homes.

Some WaterSense partners have found that their utility employees are more experienced in identifying the source of residential water waste than plumbers, based on their familiarity with the common leaks that make customers' water bills spike.

Once leaks are identified, there might be simple fixes the customer can make themselves. Worn flappers are inexpensive to purchase, and WaterSense offers a video on how to replace them. More complicated leaks require new fixtures or plumbing repair. Major leak and pipe repairs are a bigger issue, especially in older communities. Weather events, such as the severe 2021 winter storms in Texas, can increase the need for major leak repair, replacement of burst pipes, and plumbing overhauls. Be sure to prioritize emergency responses in low-income communities, where customers cannot typically afford the up-front cost of major plumbing repairs and wait for reimbursement.

For plumbing repair programs designed to help low-income customers, be sure to have plenty of plumbers on contract and ready to meet demand. Several WaterSense partners reported difficulties securing the contractors needed to service their leak repair initiatives. Some plumbers don't want to do business with municipal utilities, as the reporting requirements can be quite cumbersome. However, if you have a plumbing contractor that services the city's buildings, they may be interested in expanding their business and able to handle the administrative paperwork. When it launched its pilot program for Fix a Leak Week 2021, Michigan's EGLE engaged the local plumbers' unions in order to ramp up installation efforts.

While looking for leaks indoors, don't forget about outdoor water waste. In some drier parts of the country, even low-income areas like to have nice lawns and irrigate their landscapes. Even if your irrigation evaluation program isn't income-based, if you offer free outdoor audits and simple repairs, you could be stopping sprinkler system leaks that cause water bills to spike in the summer. WaterSense has Sprinkler Spruce-Up materials available in English and Spanish to support our partners' efforts; consider contracting with irrigation professionals certified by a WaterSense labeled program to conduct audits and provide irrigation improvements.

Install Long-Term Savings

Because customers who have trouble paying their bills are likely not able to afford to buy a new toilet to get a rebate, installing WaterSense labeled models may be a better way to assist with affordability when customers are wasting water with old fixtures. Many direct install programs focus on replacing older toilets. The utility typically covers the cost of installation, which includes removing the old toilet; make sure you have a waiver the customer can sign before entering the home and

plan for disposing or reusing the ceramics from the toilets.

If you have a rebate program that reimburses residents for the cost of the toilet and installation, contractors may be willing to assist and front the cost of the product and labor. If they keep WaterSense labeled models on hand, plumbers can install them in customers' homes and apply for reimbursement, keeping the homeowner from having to pay any money in the transaction. Another way utility partners have kept direct install costs low is by asking manufacturer partners to donate WaterSense labeled fixtures, and several of those companies have contributed to their efforts.

Community partners can also come in handy by installing fixtures. Some utilities have found nonprofit partners such as Habitat for Humanity chapters and energy assistance providers that were already doing home tune-ups and improvements and had access to plumbers who were able to add WaterSense labeled products to their services. You may find that local energy assistance programs are already installing faucets, aerators, and showerheads; it's not a big leap to ask them to make sure they are WaterSense labeled and consider installing a rebated high-efficiency toilet as well.

There have been some downsides reported with direct installs. In some instances, customers have been reluctant to allow contractors into their homes due to a lack of trust in the program or utility, and in others contractors have found the plumbing repair required in older homes that haven't been well-maintained exceeds the costs allowed for installation. Following the serious issues with drinking water contamination in Flint, Michigan's EGLE found that customers were more concerned about the quality of their water and contamination from lead pipes than they were with failing plumbing fixtures. Incorporating a healthy homes initiative with a trusted community partner helped alleviate skepticism and enhance participation in their leak detection and direct install program.

Commodes to Roads in Colorado

One of the planning issues that must be addressed in any direct install program is what to do with the fixtures that are replaced, especially old toilets, which shouldn't end up in other homes or a landfill. To address this dilemma, Colorado Springs Utilities came up with a plan to recycled toilets many years ago. Because the ceramic in toilets makes a good aggregate material, and since the utility already had a permit to recycle concrete and other materials, they were able to crush the old, inefficient toilets into aggregate suitable for road base, and allowed transportation crews to pick up the material for free. Known as "Commodes to Roads," the program was quite successful at solving multiple challenges in the city!

In other partners' programs, customers were eager for new fixtures, but after the products were installed, they assumed the utility was responsible for plumbing repairs for the life of the fixture. Some partners with a direct install program reported receiving phone calls from seniors and other recipients many years after they installed toilets in their homes, so be prepared to have customer service representatives respond to requests for repairs or replacements when installed products have issues in the future.

Education as Motivation

While efficient fixtures can help reduce water use and bills, behavioral changes can help keep charges at bay. Many home check-ups, direct installs, and AMI dashboards are accompanied by water conservation education, including materials that WaterSense provides and partners can customize. Some partners incentivize education by providing one-time discounts or reductions on water bills for taking a water conservation webinar; others require those who receive customer assistance to complete a course.

The Great Rebate Debate

Many water utilities already have rebate programs, so why don't more make these incentives part of their affordability efforts? In areas where state regulations might limit how and which funding can be spent on programs that benefit seniors and low-income residents over other customers, rebates may seem like a viable option. In reality, however, rebates are not usually designed with affordability in mind.

For starters, rebates require residents to purchase the product up front, and those who struggle to pay water bills might not have the disposable income for a new toilet. If they're not the do-it-yourself type, they also might not be able to afford to hire a plumber to install it. Even if they are handy, some customers are "time poor" with work and other obligations. What's more, some seniors and other customers might not have the vehicle or ability to buy and bring home a toilet. That said, there are some benefits to rebates over direct installs. For one, those who select and buy their own plumbing fixtures take ownership of the product, its installation, and whatever happens to it in the future, so they are far less likely to call the utility when something goes wrong with it. And rebate programs generally don't require collection and disposal of the replaced fixtures.

There may be ways to make the rebate work, for example in multifamily buildings. The Metropolitan Water District of Southern California (Metropolitan) operates a six-county water-efficient toilet rebate program for its 26 member agencies. To better target its efforts, Metropolitan reviewed local demographics and determined that 60 percent of the multifamily customers in its service area are in disadvantaged communities (DACs), and decided to conduct a Regional Rebate Pilot Program. Initially, property owners of multifamily units were offered a rebate of $250 for premium high-efficiency toilets flushing with 1.1 gpf or less—enough to cover the cost of the new toilet and installation. To qualify, buildings had to be constructed prior to 1994, and pre-installation inspections were conducted to identify the older toilets and collect water usage data.

Metropolitan contacted regional trade associations for apartment owners, as well as sending information to contractors who had previously participated in rebate programs. The contractors were supportive of the project and eager to engage property owners with whom they had connections, especially because of the funding incentives.

As a result of the successful promotion, Metropolitan processed 67 applications covering nearly 8,000 toilets retrofitted during the pilot. About 40 percent of the toilets were 3.5 gpf models, and 75 percent of the toilets replaced were 1.6 gpf or higher. While the program was not specifically geared towards underserved properties, 54 percent of applications received were identified as properties in DAC census tracts; toilets in those buildings tended to have higher flush volumes than those in non-DAC buildings. Following the successful pilot, Metropolitan now offers the pre-1994 multifamily program annually but with a tiered approach—offering the full rebate of $250 for replacement of toilets 3.5 gpf or higher, and a $125 rebate for replacement of 1.6 gpf to 3.4 gpf toilets.

Rebates can also work in conjunction with partnerships; in Wisconsin, Madison Water partners with a local nonprofit organization called Project Home. As part of its free energy efficiency support for low- and moderate-income families, Project Home provides efficient showerheads and aerators; the organization purchases WaterSense labeled toilets and installs them for clients, then applies for the $100 toilet rebate Madison Water offers. In that way, customers who might not be able to afford a plumber—or be able to get one to come out for a small job—can enjoy the benefits of water savings and performance with a new toilet too.

Lessons Learned

With the wide variety of customer assistance programs that incorporate water conservation of late, there have been many opportunities to learn from utilities that prioritize both efficiency and affordability. Following are some of the lessons learned by successful—and challenging—efforts:

- **Prioritizing partnerships increases efficiency.** Partners have been critical to the qualification, credibility, and communications of successful conservation-oriented customer assistance programs. Grassroots organizations that customers trust pave the way for utilities to promote their affordable conservation programs within the community, reducing the effort needed for recruitment, qualification of applicants, and promotion of your program.
- **Energy programs have weathered this before.** Some of the best partners might be other utilities, agencies, and organizations that make energy improvements such as weatherization for low-income constituents. They are often funded by state or federal funds, and many include water-efficient showerheads and faucet aerators in their offerings. Your efforts could be well informed by their experience, and many are willing to to handle purchasing the hardware and installing plumbing fixtures.
- **Lose the legwork, piggyback instead.** You don't need to hold your own recruitment campaigns, educational events, or product distributions; partners can carry the water when it comes to public outreach. Housing assistance fairs, food banks, and nonprofit charity events may give you the opportunity for a tabletop display to distribute information and free faucet aerators or showerheads. WaterSense campaigns, such as Fix a Leak Week, can be used to launch leak repair projects or programs in low-income areas; WaterSense educational materials and outreach templates available to partners can reduce your communications and promotional costs.
- **Don't assume items will get installed.** Just because you distribute free fixtures, don't assume they will get installed. One partner found Flume devices they provided to customers didn't get connected; another makes a point of checking Facebook marketplace after distribution events to ensure their fixtures aren't getting sold online. Before offering free plumbing fixtures, consider and remove the potential barriers customers may face before they can use the products. That's why many utilities depend on direct installs to get the job done.
- **Line up leak repair professionals.** Before launching a plumbing repair or direct install program for qualified customers, make sure you have contractor support to manage the flow of applicants. Don't assume contractors will be easily accessible when you launch your program; line up enough licensed plumbers ahead of time, and keep a directory of providers available. Some partners have found that one plumbing company with a service area that matches theirs keeps quality and communications consistent; others found having multiple plumbers with municipal contracts meant they were available when their leak repair needed to ramp up. You may need to provide incentives for them to participate, or an easy way for them to purchase qualified products and conduct installations, then get the rebate directly from you.
- **Consider customer service.** For utilities undertaking their own direct install programs, make sure you have dedicated customer service representatives available to answer questions from participants. And don't be surprised if those questions keep coming long after customers receive their toilets. Some WaterSense partners found that direct install customers will attempt to contact the utility when the toilet needs repair or replacement, even long after the product warranty has expired.

- **Speak their language.** Being able to communicate with your area's diverse population is instrumental in reaching customers who may need assistance. Make sure your promotional materials, forms, and websites are translated into the language your customers speak, as well as culturally appropriate for the communities you want to reach. Partners whom your target audience trusts are also the best source of information and influence. Get partner input on your programs' plans, processes, and promotions to ensure they are understandable by and resonate with customers.
- **Work with WaterSense partners where possible.** Some WaterSense utility partners have found plumbing manufacturers in the program who are willing to provide products for charity builds, home makeovers, and direct installs. As part of their sustainability goals, many companies wish to align themselves with organizations that encourage financial resiliency and conservation. If your affordability effort involves outdoor efficiency, make sure to contract with irrigation professionals who have been certified by a WaterSense labeled program.

Many of these lessons are apparent in the plumbing repair, direct install, and other CAP projects that WaterSense partners have undertaken in recent years. The case studies on the following pages describe the programs, qualifications, partners, and processes that allowed partners to promote both affordability and efficiency successfully—as well as what they learned to do differently.

Resources

Customer Assistance and Water Efficiency

Drinking Water and Wastewater Utility Customer Assistance Programs (EPA, 2016):
https://www.epa.gov/waterfinancecenter/compendium-drinking-water-and-wastewater-customer-assistance-programs

An Assessment of Water Affordability and Conservation Potential in Detroit, Michigan (AWE, 2020):
https://www.allianceforwaterefficiency.org/impact/our-work/assessment-water-affordability-and-conservation-potential-detroit-michigan

Thinking Outside the Bill: A Utility Manager's Guide to Assisting Low-Income Water Customers (American Water Works Association [AWWA], 2014):
https://www.awwa.org/Portals/0/AWWA/ETS/Resources/ThinkingOutsidetheBill-2Ed.pdf

Water Rates: Water Affordability—Issue Brief (Pacific Institute, 2012)
https://pacinst.org/publication/water-rates-water-affordability-need-to-know-brief/

AWWA Journal Article on Affordability Programs (2017):
https://www.portlandoregon.gov/cbo/article/663680

WaterWorld Article on the Future of Affordability Programs (2018):
https://www.waterworld.com/water-utility-management/article/16190095/the-future-of-affordability-programs

Where We Are Today: Identifying and Reaching Vulnerable Customers (Valor Water Analytics blog, 2019):
https://efcnetwork.org/challenges-and-innovations-current-and-future-states-of-water-affordability-part-2/

Equity

CalEnviroScreen: https://oehha.ca.gov/calenviroscreen

Portland (Oregon) Water Bureau Equity Matrix:
https://pdx.maps.arcgis.com/apps/MapSeries/index.html?appid=2e2252af23ed4be3a666f780cbaddfc5

Portland (Oregon) Water Bureau Small Business Utility Relief Program:
https://www.portlandoregon.gov/water/80822

Multifamily Assistance

Portland (Oregon) Water Bureau—Multi-Family Financial Assistance:
https://www.portland.gov/water/water-financial-assistance/multifamily-housing-financial-assistance

Low-Income and Multifamily EE programs (American Council for an Energy-Efficient Economy):
https://database.aceee.org/city/low-income-multifamily

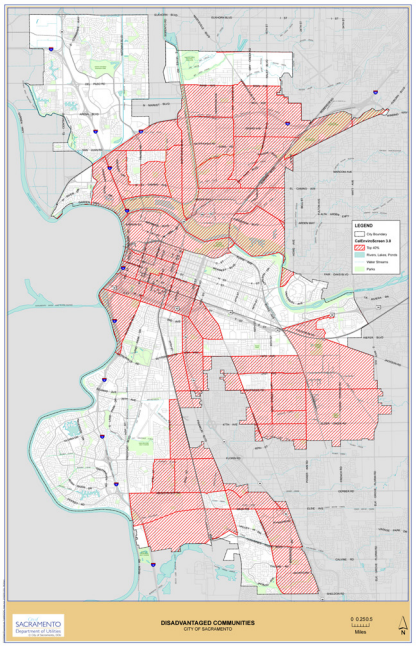
Customer Assistance Programs for Multi-Family Residential and Other Hard-to-Reach Customers (Water Research Foundation):
https://www.waterrf.org/research/projects/customer-assistance-programs-multi-family-residential-and-other-hard-reach

Case Study

Increasing Equity—and Savings—in Sacramento

The City of Sacramento (California) offers a rate assistance program, fee assistance services, and indoor and outdoor product rebates. The City also has the Leak-Free Sacramento program, which provides free repairs to eligible single-family homeowners in disadvantaged communities and low-income households. Leak Free Sacramento provides repairs, replacements, or upgrades on plumbing and irrigation fixtures, as well as mainline repairs.

Having mapped out its rebate recipients, the City noticed that they tended to be in wealthier communities, and there were some neighborhoods with no customer participation. Although the City of Sacramento is not allowed to discount or subsidize a program for a specific community, they were concerned by the data that they were not reaching disadvantaged communities. During the last drought and heat waves, it also became more apparent that neighborhoods with less tree canopies and other disadvantages are hit harder than other communities. This can not only affect water and energy bills, but also widen the gap between affluent neighborhoods and disadvantaged communities.



Sacramento DAC areas

The City uses the CalEnviroScreen mapping tool, which evaluates indicators along exposures, environmental effects, sensitive populations, and socioeconomic factors to identify disadvantaged communities (DAC). For those outside the DAC, the City included homeowners who are income-eligible and seeking utility rate assistance. With this information, the utility used AMI data to identify customers with potential leaks and contact them by letter. To prioritize, they focused on the biggest leaks with the most financial impact.

The City of Sacramento's Water Conservation Team also provides free leak inspections, water-wise house calls, and direct installs of toilets and other fixtures. During the COVID-19 pandemic, they were able to keep both inspections and the Leak-Free Sacramento Program going despite in-person restrictions, walking the customers through steps to detect leaks over the phone or virtually. However, the majority of the site visit work was limited to outdoor efforts.

Once the City secured additional funding for the Leak-Free Sacramento program, they hoped to encourage plumbers to participate. Getting plumbers on board has been a challenge, as the costs of labor rose during the pandemic. The City likes to have its plumbers participate as partners in the program, and wants to ensure their willingness to work in disadvantaged communities. They ended up going with a plumber that was already under contract with the City and familiar with the paperwork and requirements.

LEAK FREE SACRAMENTO

Leak-Free Sacramento also covers outdoor systems. City staff can walk the site and help customers program their controllers, and a plumber or irrigation tech can return to conduct minor repairs. Looking ahead, the City of Sacramento is planning direct installs of drought-tolerant landscaping, as well as smart irrigation controllers, to address disadvantaged communities affected by drought. Another program, "Redo the Loo," is geared toward multifamily buildings and provides $250 toward the cost of high-efficiency toilets.

Case Study

A Tale of Two Cities Saving Water in Michigan

Michigan's Department of Environment, Great Lakes, and Energy (EGLE) developed a water leak repair pilot program in two different parts of the state aimed at developing a scalable effort to reduce water waste and utility bills in communities across Michigan. EGLE selected two cities—Benton Harbor and Highland Park—to fix leaks, replace inefficient toilets, swap out other plumbing fixtures, and update old, inefficient water heaters. EGLE launched the pilot during Fix a Leak Week 2021.

To help develop the framework, plan, and implement the Highland Park pilot, EGLE worked with Metro Wayne Community Action Agency, a nonprofit that provides consumer assistance in Wayne County, Michigan, where Detroit is located. EGLE also worked with the Highland Park Human Rights Coalition to recruit participants. On the west side of the state, EGLE enlisted the Benton Harbor Community Water Council, an environmental group led by community activist and local leader Reverend Edward Pinkney.

The input and credibility of the partners were critical in learning customers' concerns and ensuring the success of both pilot locations. For example, due to issues with water contamination in Flint, Michigan, residents were more concerned about the safety of their water than saving it. To address this concern, EGLE added a lead abatement aspect to its repair program through the Michigan Department of Health and Human Services' Healthy Homes Program. EGLE also has the benefit of being the state's energy agency, providing funding for energy-saving measures. To reduce the cost of plumbing fixtures, EGLE was able to secure a donation of WaterSense labeled toilets, faucets, and showerheads from fellow WaterSense partner Kohler; they also got water heaters from local utilities.

Months of planning and engagement by the community organizations in Benton Harbor and Highland Park has contributed to the early success of the pilot. By engaging local partners in the process from the beginning and letting them run with it, EGLE ensured they had ownership and investment in the project, and residents were more likely to trust those organizations. EGLE initially budgeted $800 per home to purchase and install fixtures, but some homes needed more extensive plumbing repairs, so the amount was increased to $1,000.

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To identify qualified participants in Highland Park, the Highland Park Human Rights Coalition targeted high water users based on the City's software and launched their recruiting effort with a door-to-door canvassing campaign during Fix a Leak Week in March 2021. In Benton Harbor, volunteers began canvassing in January 2021 in neighborhoods where repairs were most needed, leaving behind fliers and discussing the high cost of leaks and effects of old plumbing. Volunteers also distributed fliers at the Benton Harbor Boys and Girls Club. To build trust and participation in the project, Reverend Pinkney even provided his cell phone number to potential participants, then followed up and walked them through the audit and application process over the phone. As of May 2021, 10 homes in Benton Harbor had received repairs.

EGLE's goal is to complete upgrades in at least 100 homes in each community as the project continues in 2021, then roll it out to additional communities across the state. To analyze the pilot's successes and make refinements, EGLE is partnering with the University of Michigan to have engineering graduate students evaluate lessons learned from the project. EGLE continues to seek out other agencies and community-level partners to keep the momentum going in the future.

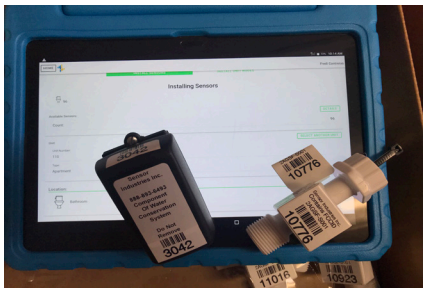
Case Study

City of Oxnard, California, Helps Multifamily Maintenance Staff Monitor Leaks Remotely

Leaking toilets are often a water-wasting culprit in multifamily properties, but tenants don't always realize they have a leak or report it to the management, which runs up utility bills. To address this problem, the City of Oxnard partnered with the Metropolitan Water District of Southern California (Metropolitan) on a six-month remote sensor pilot at a multifamily property. Metropolitan is a water wholesaler serving agencies across the region with rebates and funding to spend on local water efficiency projects. Calleguas Municipal Water District, one of Metropolitan's 26 member agencies, is also a water wholesaler, and supplies water directly to the City of Oxnard.

Sensor device

In 2019, the City identified a 100-unit senior living complex in Oxnard that had been experiencing high water bills. They worked with Sensor Industries to install a device on each toilet (at the angle stop near the base) that monitors and feeds water flow data to a central network in the maintenance office. The system is designed to be easily installed and monitored by onsite maintenance staff, but it requires a local wi-fi network and a subscription service. The complex also had to install a series of repeaters in the hallways to extend the wi-fi signal throughout the facility, but this allows the sensors to send real-time data to a cloud-based dashboard that maintenance staff or property owners can use to remotely monitor the water flow in toilets throughout the building. Sensor Industries sends weekly data reports and text message alerts if a leak is detected, so that maintenance staff can repair it immediately and reduce water waste and unnecessary costs.



Toilet monitoring equipment

Results in the first nine days of collecting data at the property showed that 47 percent of all water used by toilets in the building was due to leaks! After conducting the necessary repairs, that number decreased to 4.4 percent. The six-month pilot helped the facility reduce their water consumption by more than 460 HCF (hundred cubic feet) compared to the same time period the previous year, which is equivalent to over 680,000 gallons of water saved annually. As toilet leak monitoring continues, the property is projected to save more than $7,700 annually on their water bill. Other agencies in the Metropolitan service area have begun installing the sensors in a few of their multifamily buildings as well to monitor units' toilet flows and make leak identification easier.

Case Study

Portland, Oregon, Water Bureau Spurs Equity and Assistance to Underserved Customers

The City of Portland Water Bureau offers financial assistance in the form of bill discounts for sewer and water charges, crisis vouchers, payment arrangements, and water leak repair services. To respond to the impacts of COVID-19, the bureau also relaxed financial assistance program qualifications and created Portland's Small Business Utility Relief (SPUR) program.

Through its Water Leak Repair Program, the Portland Water Bureau provides leak repair, free water-efficient toilets, and other efficiency support for approximately 100 residential customers living with low and fixed incomes each year. Recently, the Water Bureau wanted to find a way to prioritize customers that have been historically underserved as it worked through the waiting list for its leak repair program. The Water Bureau used an equity matrix from its Transportation department to map neighborhoods' income and race data. This was then combined with other factors, such as gallons used per day, the impact the leak had on well-being, household income level, and time waiting for leak repair.

The Water Bureau uses this matrix and the other factors to generate an overall score to prioritize individual customers for the next available leak repair visit. In the future, they plan to use the equity matrix for more focused outreach. In order to expand the program to be accessible to more Portlanders, the Water Bureau is working to adapt the letter they send to customers with increased water use due to leaks or other increases, as well as providing materials for Spanish, Russian, Chinese, and Vietnamese-speaking customers. The Water Bureau is also testing application forms for accessibility after realizing their original Water Leak Repair Application was inaccessible to screen readers and other assistive devices.

Collaborating with community organizations is vital to the success of the leak repair program. The Water Bureau has worked with Multnomah County on this program since 1998. In 2020, the program was expanded to bring on the African American Alliance for Homeownership (AAAH) and Community Energy Project as partners. Customers apply for leak repair through the Water Bureau and, once approved, they are referred to one of the three partners who coordinate the repair. Partners hire plumbers to fix leaks and replace toilets, showerheads, and faucet aerators with WaterSense labeled models, and replace inefficient washing machines with ENERGY STAR® certified models.

The partnership with AAAH has been key to increasing the number of customers in the program who identify as Black or African American. AAAH focuses on education and home retention in the African American community in Portland, as well as other programs that dovetail nicely with leak repair. Homeowners enrolled in AAAH's programs automatically qualify for the Water Bureau's services, and the Water Bureau refers customers to AAAH for their programs as well.

Community Energy Project is one partner in the Water Bureau's leak repair program.

Case Study

Westminster, Colorado, Has Water Savings at Its Corps

The City of Westminster in the Denver metropolitan area offers three different types of customer assistance programs with water efficiency at their core. The first, an income-qualifying leak repair program, is run under a contract the City has with Foothills Regional Housing Authority. The City of Westminster used to identify customers within its 33,000 water accounts that have potential leaks based on monthly meter readings that revealed constant flows over a 72-hour period; now, the City uses a new AMI system that can detect leaks instantaneously. City staff create a list of income-qualified customers with a potential leak and sends it to Foothills Regional Authority, which then hires a plumber to fix the leaks and perform other needed plumbing repairs. Foothills is reimbursed by the City, up to $3,000 per home.

The other two programs are direct installation of high-efficiency toilets, showerheads, and faucet aerators; due to state law, all products are required to be WaterSense labeled. One program focuses on multifamily buildings, the other on single-family homeowners. Westminster modeled its multifamily program after a successful one in Long Beach, California. In one building owned and operated by a local housing authority, metered data show a savings of 300,000 gallons of water per month following upgrades in 72 units—a 48 percent decrease. This translates into a $65,000 reduction in annual water and sewer costs, allowing the housing authority to invest in additional affordable housing support in the community. The City invested $30,000 in this particular project, so the payback period was very short; now Westminster is using this return on investment calculation to make the business case for market rate housing to make similar investments.

Both the multifamily and single-family direct install programs for income-qualifying residents are administered by Mile High Youth Corps, which won the work in an open competition. Mile High is an AmeriCorps program, which means they provide useful job training, experience, and stipends to youth serving underrepresented communities. The City takes candidates from its water bill credit program and data shares with a Colorado state agency (LEAP) that tracks heating needs, to build a pre-qualified list of potential customers that it sends to Mile High Youth Corps for recruitment. The Corps members then send customers information on Westminster letterhead describing the free plumbing fixture program, which helps build credibility in Mile High's outreach and enhances customer participation.

WESTMINSTER
COLORADO

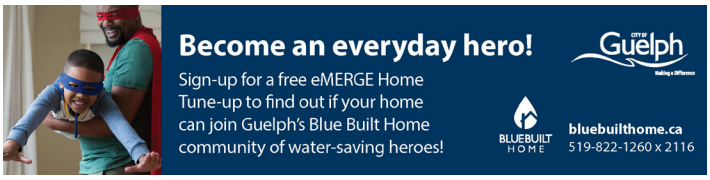
Once homeowners sign up for the program, Mile High Corps members visit the home to conduct an energy and water assessment, during which they install showerheads and faucet aerators. If needed, Corps members with plumbing training return on a second visit to install 0.8 gpf WaterSense labeled toilets, up to two per home. The energy efficiency upgrades are funded by Energy Outreach Colorado, and the City reimburses Mile High for the plumbing fixtures and labor. The program serves about 35 single-family homes per year, installing about 50 toilets annually. An example of the contract between the City of Westminster and Mile High Youth Corps is available for WaterSense partners.

Westminster has begun funding some of its efficiency and affordability efforts as a capital improvement project (CIP), since it sees reductions in water consumption as a CIP-like investment that reduces the need for spending on repair and replacement of infrastructure. In the future, the City is looking to adjust its turf removal program, which is currently conducted as a cost-sharing arrangement, for inclusion in its affordability offerings.

Case Study

Partners Help the City of Guelph's Customers Emerge From Water Waste

To implement its conservation programs with homeowners, the City of Guelph (Ontario, Canada) has established contractual collaborations with several local grassroots organizations. One such organization is eMERGE Guelph, a nonprofit that provides free in-home audits and energy "tune-up" consultations with simple retrofits and recommendations to improve home efficiency. The City pays eMERGE to include water use assessments and provides free WaterSense labeled faucet aerators and showerheads to install as part of their tune-ups. During a tune-up visit, eMERGE checks for leaks, swaps out the old fixtures for new models, and suggests other do-it-yourself ways to lower utility bills.



During these home visits, eMERGE also introduces opportunities for customers to save money through rebates, such as Guelph's Royal Flush toilet and rain garden rebates, and provides an overview of how to become Blue Built Home certified. The City's Blue Built Home certification is based on a flexible checklist that includes simple and low-cost options such as WaterSense labeled faucet aerators and Healthy Landscape visits for those with yards. Mid-range cost options include WaterSense labeled toilets or ENERGY STAR certified appliances, and community members can apply for rebates to offset the costs of these water-saving features. To promote the City's rebate program, eMERGE even goes the extra mile by visiting local home improvement stores and places stickers on WaterSense labeled toilets.

Another reason for the longstanding success of Guelph's partnership with eMERGE, which started in 2009, is that the organization is a trusted and knowledgeable local resource for energy efficiency; eMERGE conducts public outreach, webinars, workshops, and events for the Guelph community and works closely with the City to ensure consistent messaging and that expectations are clear with regards to service delivery and performance indicators.

In 2021, Guelph partnered with Reep Green Solutions, another local nonprofit, to conduct water audits in multifamily residential units. This is in addition to the rain garden rebate program that Reep is contracted to administer for the City and the Blue Built Home certification program that Reep promotes to multifamily building owners.

In addition to partnering with local nonprofits to encourage water savings, the City also engages with international students and new Canadians. The City works closely with the Guelph Wellington Local Immigration Partnership and Immigrant Services for Guelph and Wellington, which provide "Orientation to Ontario" workshops. City employees present information about water bills, conservation programs, rebates, and water-saving tips and provide materials to participants.

Cal Water Pivots From Fixture Replacement to Irrigation Improvements During COVID-19

Quality. Service. Value.®

California Water Service (Cal Water), which serves customers throughout the state, offered a Bathroom Fixture Replacement Program for single-family households, but targeted its outreach to customers who are eligible for the Cal Water Customer Assistance Program (CAP), as well as those having trouble paying water bills. One state-licensed contractor provided plumbing services statewide; the firm procured WaterSense labeled showerheads, faucet aerators, and toilets that use 1.1 gpf or less and was reimbursed for the fixtures and installation. A single contractor ensured consistency of work and familiarity with Cal Water's process, as well as clear lines of communication with the utility.

Most funding for the program was provided through rates, although the utility received a water-energy nexus grant to complete installations in disadvantaged communities in the East Los Angeles, Dominguez, and Bakersfield, California, districts. Single-family and multifamily customers in those areas could receive multiple toilets, showerheads, and faucet aerators free of charge, as could small businesses.

To recruit participants, Cal Water primarily sent direct mail to targeted customers in specific districts based on participation in the CAP and unusually high water use. Participants signed up by phone or registered online, and once they were verified as customers, the contractor conducted a pre-inspection to ensure that the plumbing problems weren't so extensive that a new toilet wouldn't help. The plumber could turn down the job if the necessary repairs were excessive or install pressure-assisted toilets if needed, but most of the toilets they installed were 0.8 gpf models. Cal Water conducted inspections on a sample of the installations to verify completion, and recipients had a year to call the plumber back if there were any repairs needed based on the installation. The plumber could reinstall toilets after one year on a case-by-case basis, as the fixtures are under manufacturer warranty if they malfunction.

According to Cal Water, the COVID-19 pandemic brought about the end of the Bathroom Fixture Replacement Program in 2020, since restrictions kept plumbers and inspectors from visiting homes, but the program had basically run its course in terms of identifying and qualifying customers. The utility is shifting its focus to outdoor water waste with a Smart Landscape Tune-Up Program, using a model similar to its bathroom fixture replacement program and targeting low-income and high-water-using customers with leaks.

Another single, licensed contractor is administering this program; they inspect irrigation systems and look for leaks, provide minimal repairs, and replace sprinkler nozzles. The inspector prepares a report, and Cal Water can then approve a professional to return to the property to repair system valves, sprinkler heads, leaks, and drip systems. They also install pressure-regulating spray bodies if needed, provide a WaterSense labeled weather-based irrigation controller, program the controller, discuss other outdoor options, and leave behind a folder about water efficiency and controller care.

The Smart Landscape Tune-Up Program, launched during the pandemic in 2020, is available to single-family, multifamily, and commercial customers at no cost, though most of the tune-ups are in single-family homes. Cal Water has been pleased with the initial uptake by a few hundred customers. The irrigation tune-ups are a bit more complicated than plumbing repairs; contractors need more flexibility to determine what they can fix without scheduling a second visit, so it's more difficult to determine fixed costs for the program. In addition to low-income and high-use customers, Cal Water plans to promote the program to customers that had toilets installed through its Bathroom Fixture Replacement Program using emails, postcards, and materials translated into Spanish.

Case Study

Madison Water Utility Partners to Bring Water-Saving Projects Home

When Madison Water Utility in Wisconsin wanted to expand its successful rebate program for WaterSense labeled toilets and make inroads on affordability, it turned to a local partner to make it possible. Project Home, a nonprofit organization focused on weatherization and other improvements for low- and moderate-income homeowners, made the perfect match. Due to state regulations on funding for customer assistance, Madison Water wasn't allowed to fund its affordability initiative through its conservation program, so the utility makes a donation to Project Home using unallocated "rate-of-return" funds.

Project Home was chosen because it has connections and is a trusted source within the community. The organization already had a screening process in place, qualifying applicants based on household income, and professionals who visit homes to make repairs and install energy-efficient products, including a master plumber. For customers that qualify for Project Home assistance, Project Home installs WaterSense labeled showerheads and faucet aerators, as well as conducting leak detection and repair. The nonprofit can also purchase and install new toilets for homeowners and apply for Madison Water Utility's $100 rebate on WaterSense labeled models.

Project Home replaced a toilet, fixed a tub faucet leak, installed new windows, and repaired a broken ceiling fan in this Madison resident's condo.

Madison Water Utility uses AMI and reviews water usage reports; if they think a home has a leak, they notify the customer and make referrals to Project Home. Project Home screens them for eligibility and considers them for energy improvements as well. Once the leak is fixed, customers can apply for a one-time leak adjustment bill credit from Madison Water Utility.

Through this effort, Madison Water believes they are reaching a variety of families in the area that don't normally benefit from their rebate program. Since 2016 (when the Project Home partnership started) through 2019, 309 Madison Water customers have received plumbing assistance. Fifty percent of those customers are seniors, about one-third are single-woman households, and one-quarter are people with disabilities; the majority of assistance recipients are people of color. Demand for the program has been larger than what Madison Water Utility can fund using rate-of-return revenues.

Making the link from energy to water efficiency hasn't been a big step for Project Home. Madison Water Utility provides a donation, and the nonprofit reports on how they used it. Project Home has completed about 100 water efficiency improvements per year between 2016 and 2019; numbers were pending for 2020. While the program currently serves only owner-occupied homes, Madison Water Utility is looking to expand to renters and multifamily homes by participating in a pilot program in Dane County, Wisconsin, to provide property owners with energy and water efficiency improvements and tenants with conservation education.

Case Study

From Plumbing to Pipe Repair, SAWS Uplifts People

For two decades, San Antonio Water System (SAWS) provided leak repairs to avoid water waste in homes that needed assistance. While this has been effective, customers often only learned of the program when the leak and water bill grew to crisis proportions. Staff began to look at what water use should be for households identified as lower income to determine if usage was higher than expected, given assistance application information on household size. The idea was to catch leaks before they become a financial crisis for customers. Now, 85 percent of the time when staff review water bills and customers respond, a leak is identified and found faster!

SAWS has created an umbrella branding over all its targeted customer assistance programs, called Uplift. Over 34,000 families are enrolled in the Uplift Affordability Discount. One Uplift Program—Plumbers to People—provides leak repairs and product replacements. Participating households must be at 125 percent of the poverty level or less to qualify, and the home must be owner-occupied. With a more proactive approach to identifying leaks among affordability discount customers, participation in Plumbers to People has increased 20 percent and now serves about 1,000 customers per year.

The severe winter storms and freezing temperatures in Texas in early 2021 damaged many San Antonio homeowners' pipes. SAWS quickly leapt to action, creating its Community Pipe Repair (CPR) program within days, using donations from community foundations. After the first month, donations for the CPR program grew to $1.1 million. The first 100 households needing help were identified within 24 hours due to calls from people who had used Plumbers to People in the past. Qualifications for the CPR program were broader than for Plumbers to People; criteria included single-family homes valued under $140,000 and households below 140 percent of the poverty level. Rental properties meeting criteria were included, with a landlord consent form. SAWS processed 1,000 applications the first week; eventually they had over 2,000!

Customers who could afford to hire a plumber could get some of their costs reimbursed by the CPR fund. However, 80 percent of affected customers told SAWS they could not afford to and needed direct plumbing services. To address the most immediate needs, SAWS split the CPR into phases. During Phase 1, plumbers restored cold water to homes with no service. They went back and addressed hot water once the immediate service needs were met.

The existing Plumbers to People plumbing contractor was able to begin CPR program work immediately, but it was challenging to hire more plumbers due to private sector competition for services after the storm. Emergency contract options were available from SAWS, but despite expedited processes, it took several weeks to get to the full CPR capacity of four companies with 30 repair teams. This experience underscored the need to proactively develop relationships with plumbers to ensure their availability in emergencies.

To communicate with customers that can use assistance, SAWS suggests many recruitment methods. Networking with community organizations to get people enrolled was highly effective, and the CPR program was promoted by local media and assistance organizations across the city after the storm. During the CPR program deployment, SAWS discovered that digital tools were effective for maintaining communication with most CPR applicants. Approximately 80 percent of the CPR applicants were able to provide an email, and most applied on a mobile device. While lower income households are unlikely to have broadband or computers, up to 85 percent have smartphones and email.

SAWS also deployed bilingual staff to help people with applications, answer questions, and provide updates to those without digital access. After the storm, city and SAWS employees checked on specific households of those who were elderly or at higher risk.

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