The issues of affordability and assistance for low-income customers are becoming a higher priority for the water industry as rates continue to rise in order to finance needed infrastructure investments. As one element of a proactive engagement strategy on this topic, AWWA’s Rates & Charges Committee formed an Affordability Sub-committee to focus on the emerging issues related to water affordability. This subcommittee has developed webcasts; updated chapter text for the 7th edition of AWWA’s manual of practice, M1, Principles of Water Rates, Fees, and Charges; and organized sessions at AWWA conferences, such as the session at AWWA’s 2016 Annual Conference & Exposition (ACE16) upon which this article is based (Matichich 2016).

The following two case studies—of Portland, Ore., and Detroit, Mich.—outline low-income assistance programs that may be particularly instructive for utilities as they address water affordability and potential programs for customer assistance. The first case study, showcasing the program run by the Portland Water Bureau, describes the origins of their program and how it has evolved in the face of changing needs and circumstances to become one of the most comprehensive in North America. The second case study illustrates a proactive program developed recently by the Detroit Water & Sewerage Department (DWSD) to address a significant need for low-income customer assistance and the need for different business processes based on a history of high delinquency rates and payment challenges.
PORTLAND’S APPROACH TO AFFORDABILITY PROGRAMS

Origins. The City of Portland has been specifically working on affordability issues for its low-income residential customers since the Portland City Council expressed concerns about the affordability of water and sewer services in the early 1990s. At the time, Portland was facing rapidly increasing costs as required federal compliance programs were implemented, and in December 1992, the Clean River Funding Task Force had some initial affordability concerns regarding the effect that rising sewer rates would have on ratepayers living on a limited or fixed income. They said the city should consider ways to reduce the impact on these ratepayers if significant sewer increases were involved in paying for combined sewer overflow improvements.

In 1993, the city council directed the Water Bureau and Bureau of Environmental Services (BES), which provides sewer services, to study the affordability issue. The council concluded that since water and sewer charges were based on the amount of water used, low-income customers with high usage should be targeted for conservation, and low-income households should be provided some ongoing rate relief.

The bureaus prepared a report, Water/Sewer Bill Relief Program for Portland Low-Income Households, to provide the city council with several tools from which to choose to address the needs of fixed- and low-income customers of the Water and Environmental Services Bureaus. Program components for demand reduction included education services for conservation, home audit and fixture repair workshops, water conservation kits, and plumbing fixture repair up to $500 annually. To help make bills more manageable, the bureaus offered relief through payment extensions, budget or monthly billing, water block-tier pricing, a fixed bill discount based on 15% of a typical low-income bill, crisis assistance, and interest and penalty write-offs.

The primary new element of the approved program was the fixed bill discount based on the typical bill for a low-income household. Eligibility was based on a household income equal to or less than 150% of the federal poverty level. Other important new elements were crisis assistance, plumbing fixture repair, and block-tier pricing. It was estimated on the basis of census data and other information that there would be 25,000 eligible households for the discount program, and it was estimated approximately 10,000 households would actually apply.

Program expansion. During fiscal year 1996–1997 (FY 96-97) budget discussions, the city council again expressed concern with the increasing cost of water and sewer service for residential customers (Figure 1). The city council believed that rate increases were growing faster than Portland household incomes and that those on a fixed or limited income could not afford to pay their bills. During the FY 96-97 budget discussions, the discount for qualified low-income customers was increased from 15 to 25% of the typical low-income bill, which is 5 ccf/mo. At that time, approximately 3,400 customers were receiving the bill discount, roughly 900 customers received crisis assistance, and the fixture repair program served approximately 20 low-income customers. With lower participation than anticipated, the city council directed the Portland Water Bureau and BES to reconsider the program in its entirety.

The 1996–1997 workgroup was made up of Water Bureau and BES representatives, nonprofit low-income assistance advocates, the general public, and the city’s financial administration. A review of literature, surveys, and interviews helped city staff in considering a variety of potential program elements. The essential and desirable criteria for this workgroup were as follows:

- Ease of understanding
- Minimization of rate impacts
- Revenue stability
- Public acceptance
- High participation rate
- Ease of administration
- Program flexibility
- Fair and equitable to ratepayers
- Measurable level of success

![Figure 1](https://example.com/figure1.png)
The workgroup’s goal was increased affordability of basic water and sewer service for the system’s low-income customers, with the ability to provide financial relief or affordability enhancements to low-income customers as rates increased or circumstances changed. Analysis of the essential criteria to look at both the existing program and possible new program features led to the enhanced assistance program adopted by the city council in 1997. The enhanced program, which included some elements of the previous low-income program, became effective during FY 97-98. The city continued with the bill discount and crisis assistance elements, expanded the fixture repair program to cover behind-the-wall and underground leaks, and added a waiver of penalty fees and payment arrangements without penalties.

**Current program components.** The city continues to make program improvements as it works to keep water and wastewater services accessible to low-income customers. The following components make up the bulk of the city’s current program.

**Low-income discount.** The discount continues to be a flat rate based on 50% of the typical low-income bill. In 2017 this provided a water and sewer discount of $144 per quarter to low-income single-family owners or renters responsible for this bill (i.e., water service not included in rent). For FY 15-16 an average of 7,322 customers per month received the bill discount. The highest participation rate occurred in December 2011 when 9,512 customers were enrolled in the discount program (Figure 2).

**Crisis assistance program.** Crisis assistance is available to low-income customers who are receiving the low-income discount and who are in a temporary crisis and unable to pay their water and sewer bill. The Water Bureau’s customer service staff members work with these customers and offer a crisis voucher up to $150, when appropriate, to avoid further collection fees and other associated issues. Customers may be eligible for a crisis voucher once every 12 months. For FY 15-16, the water bureau issued 2,220 crisis vouchers.

**Fixture repair program.** The fixture repair program was set up to assist low-income home owners who occupy their home and have plumbing fixtures that are leaking and causing an increase in the water/sewer bill. Currently the program covers material and labor up to $2,800 for each household per year. The program provides assistance to an average of 60 customers per year. **Monthly billing or monthly statements.** Budget billing gives customers whose service is read and billed quarterly the option of receiving three statements each quarter and paying monthly. Even though this option is not limited to low-income customers, it has been found to especially benefit those on lower incomes, improving their ability to manage financial obligations. In January 2017, the city had 22,743 customers who had selected this billing option.

**Payment extensions and penalty write-offs.** For customers who are unable to pay their bill by the due date, this program allows them to extend the due date with no late fees or penalties added. Upon request, interest and penalty write-offs can be given one time per year. Eligible fees that can be reversed are a $5 reminder fee, $10 pre-shutoff fee, $20 “last chance” door hanger, $80 shutoff fee, and $75 lock or illegal use fee. These goodwill adjustments can be used by all customers, but they mainly benefit low-income customers.

**Target conservation.** The Water Bureau’s Water Efficiency program has served low-income customers since 1994. Initial programs focused on education and outreach through community partnerships and community centers. Many of these workshops and outreach efforts target low-income customers. Educational materials and conservation devices are provided at community fairs. The city has offered toilet rebates for customer purchasing WaterSense-labeled high-efficiency toilets. Educational and outreach efforts target low-income customers. Community partnerships and community centers. Many of these workshops and outreach efforts target low-income customers. The program will target single-family residences enrolled in the city’s financial assistance program. The pilot study is designed to randomly divide low-income enrolled customers into a participant group and a control group. The program delivers quarterly digital or printed customized Home Water Reports to the participant group with information about their specific water use and tips for saving water. The remainder of customers in the control group do not receive Home Water Reports.

**Eligibility and participation.** To stay consistent with other low-income assistance programs in the Portland area, the city changed the income eligibility requirement to

![FIGURE 2 Discount program participants by month (July 2009–Oct. 2016)](image)
60% of statewide median income by household size. The program is open to single-family households that receive a bill from the City of Portland.

Unfortunately, participation levels have been below the city’s expectations. Experience has shown there are a number of barriers to participation, some of which include the following:

- Lack of program awareness
- Lack of access to program offices
- Misperceptions about eligibility
- Mistrust of utilities
- Lack of transportation
- Stigma of receiving public assistance

To help overcome some of these barriers and increase accessibility, the Water Bureau has posted an application on the bureau’s website so customers can apply directly for potential assistance. Two months before the end of an existing customer’s discount, the city mails an application packet to customers so they can reapply directly through the bureau.

The city continues to partner with Multnomah County and other service providers to build a referral network to automatically enroll customers who are receiving other benefits without sending them through the application process. These improvements continue to be developed and are designed to improve program accessibility.

Recently the city added an Honored Citizen feature for elderly customers on Social Security or those on permanent disability. Honored Citizens are given an extended termination date and are saved from having to apply for the program every two years.

**Safety Net program.** The BES and the Portland Water Bureau offer the Utility Safety Net program to provide emergency utility payments for ratepayers with temporary loss of employment, a medical emergency, or other personal emergencies. In July 2007, the city council authorized the Utility Safety Net program to help the city’s sewer and water customers avoid service shutoff if they have experienced a significant temporary change in household income. Safety Net is a last-resort solution for those qualified customers who are unable to achieve a solution through normal payment options.

The Safety Net program consists of four basic components:

- Deferred water shutoff
- Waiver of recent delinquency charges
- Interest-free payment plans
- Financial assistance, if applicable

When combined, these elements provide the time and means for customers to manage their way through a temporary crisis. The program is conditioned on responsible efforts by the customer to make regular, agreed-upon installment payments toward the payoff of past-due account balances.

Under this program, the city and the customer jointly determine the length of the deferral period and the number and amount of installment payments on the basis of the size of the account delinquency and the depth or severity of the hardship. The conditions of the assistance result in a signed agreement, reversal of penalty fees for the last three months, and an initial credit of $50 that is applied to the customer’s account. At the end of the agreement period, the city applies an additional credit of up to $300 to further help the customer bring the account up to date.

The customer returns to a normal billing cycle once the agreement ends and may work with the city to establish a new payment plan (outside of the Safety Net program) for any remaining outstanding account balance. The city may cancel the Safety Net agreement and revoke any financial assistance at any time if the customer fails to meet the terms of the signed agreement.

To help overcome barriers and increase accessibility, the Water Bureau has posted an application on the bureau’s website so customers can apply directly for potential assistance.

**Assistance for multi-family renters.** In light of high housing costs, the city council aims to provide assistance to low-income families living in multi-family dwellings; however, these families are not direct water/sewer customers, which creates an obstacle to providing these discounts equitably while meeting all legal requirements. The city studied this option and in 2007 approved a two-year pilot project to provide assistance to 300 multi-family units that were submetered. Unfortunately, this pilot project produced poor results that were determined to be caused by third-party billing issues, high administrative costs, and difficulty in getting accurate records from property managers and ensuring that discounts were passed on to the tenants through the third-party billing agent. Another workgroup reviewed this issue again in 2015, and their report is under review by the Portland Utility Board.

**Funding sources.** Determining who ultimately pays for these programs and how these funds are collected are sensitive policy issues. The City of Portland explored voluntary contributions, but ultimately didn’t want to compete with charitable organizations for public funding. The city also wanted to avoid the need for administration support for this type of funding, and it seemed unlikely that charitable giving alone would be enough to fund the majority of the program’s requirements. The city also
reaching these customers; however, this population is somewhat more transitory, making it difficult to reach and engage. Additionally, high housing costs are driving many low-income households out of Portland altogether.

The challenge for the city to minimize its water and sewer rates while providing high-quality service is made more difficult when trying to ensure these services are affordable for all. City leaders and administrative staff agree it is important to continue to provide financial assistance and to continuously improve the program with the intention that all households be able to afford water services.

**WATER AFFORDABILITY IN DETROIT**

Water affordability is a significant concern in Detroit, Mich., where water, sewer, and drainage charges are high and poverty is endemic. Almost 40% of the population, or more than 260,000 people, lives below the federal poverty line. The annual residential bill for 5 ccf of monthly water use, or ~45,000 gal/year, is just under $850 for water, sewer, and drainage services, which is almost 3.5% of the federal poverty level for a family of four (HHS 2016).

For decades, the DWSD has struggled with high bad-debt expenses and a high incidence of customers with unmanageable arrearages that resulted in their accounts becoming eligible for shutoff. In 2005, a Water Affordability Plan (Colton 2005) featuring an income-indexed rate structure was proposed but not implemented, in part because of concerns about potential challenges under Michigan law. In lieu of revenue-funded assistance, various volunteer-funded assistance programs were promoted but offered an inadequate patchwork of support. In 2014, extensive DWSD service disconnections prompted litigation against DWSD and street protests that gained international attention (Chapman 2014). In 2015, under the direction of Mayor Michael Duggan’s administration, payment plan options were greatly expanded to help water customers avoid water shutoffs and address their payment arrears (see sidebar, “Detroit’s 10/30/50 Plan”).

In 2016, however, the institutional landscape was changed in Detroit, laying the foundation for new approaches to address water affordability. In January 2016, the DWSD system’s regional assets were leased to the newly created Great Lakes Water Authority (GLWA), which is now responsible for wholesale service delivery. DWSD’s scope was thereby limited to retail service delivery only, enabling a focus on financial solvency by balancing high-quality but affordable service with reliable and robust billing processes and policies.

**Compassionate customer service.** The new, retail DWSD has made compassionate customer service a center point of its strategic vision. Even before the Jan. 1, 2016, launch of the GLWA, DWSD leadership convened a Blue Ribbon Panel on Affordability (BRPA), supported by the Detroit City Council and composed of national experts and regional activists, to develop recommendations on how to address water affordability within Michigan’s restrictive legal framework (see sidebar, “Detroit’s 10/30/50 Payment Plan”). The BRPA offered concrete, practical short- and long-term recommendations, as well as an overview of state and national advocacy (Detroit Blue Ribbon Panel on Affordability 2016). Perhaps more importantly, it

### TABLE 1  Project costs 2017–2018

<table>
<thead>
<tr>
<th>Assistance Program Element</th>
<th>Cost $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bill discount</td>
<td>4,866,612</td>
</tr>
<tr>
<td>Crisis voucher</td>
<td>750,000</td>
</tr>
<tr>
<td>Safety net</td>
<td>100,000</td>
</tr>
<tr>
<td>Fixture repair</td>
<td>75,000</td>
</tr>
<tr>
<td>Administrative cost</td>
<td>143,000</td>
</tr>
<tr>
<td>Total</td>
<td>5,934,612</td>
</tr>
</tbody>
</table>

**Lessons learned.** Participation in the affordability program has been lower than anticipated because reaching low-income households and effecting change have proved difficult. Marketing and education are considered the best methods of

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**Detroit’s 10/30/50 Payment Plan**

The 10/30/50 Payment Plan was developed for Detroit Water & Sewerage Department customers who have past-due balances or are delinquent on their accounts. The plan has no income restrictions and allows arrearage payments to be spread over a 24-month period with as little as a 10% down payment on the past-due amount. If participants miss a payment, they can re-enroll by making a payment of 30% of the remaining balance; if another payment is missed, a participant may re-enroll by making a 50% payment on the remaining balance. For additional information on the payment plan, visit www.detroitmi.gov/How-Do-I/Find-Community-Services/DWSD-Water-Fund.
prescribed “compassion” as a fundamental tenet of service delivery.

Compassionate customer service is easier said than done—especially in a utility plagued by historical deficiencies in basic business practices, technology, and staff capabilities. The new, retail-focused, DWSD is attempting to effect dramatic improvements in basic utility operations and customer service functions while at the same time instilling internal culture and capacity improvements. Remedial measures include the following:

- Changing billings from properties, where bills were addressed to “Resident” to billing the financially responsible party for the customer account
- Training, monitoring, and assessing the performance of customer service personnel
- Enhancing billing system and business practices (e.g., interactive voice response system updates, smartphone-enabled customer service applications, new payment kiosks throughout the city)
- Adopting a new bill design that more effectively communicates the bill amount and basis for billing and provides measures customers can take to manage their usage and bills

Going further, DWSD is looking beyond the challenge of meeting industry-accepted customer service norms. DWSD is tailoring its affordability program to respond to the acute challenges of the population it serves through the following measures:

- **WRAP.** Under the lease terms, 0.5% of GLWA and Detroit retail system revenues (approximately $4.5 million in FY 2017) fund a Water Residential Assistance Program (WRAP) designed to provide eligible low-income customers in the GLWA service area with bill payment and conservation assistance (City of Detroit & Great Lakes Water Authority 2015a, 2015b) (see sidebar, “Water Residential Assistance Program”). As GLWA was a component of bankruptcy settlement agreements adjudicated under US federal court supervision, and its originating documents contemplated the WRAP, revenue funding of the program is insulated from a potential legal challenge under Michigan state law. DWSD worked with GLWA to ensure administration of the WRAP would complement its customer service initiatives and align with community-funded assistance efforts.
- **Billing basis.** DWSD is phasing in a change to the billing basis for its drainage charges from water meter sizes to measured impervious areas. In October 2017, the conversion will apply to residential properties such that bills will be reduced for smaller-sized lots.

**Collections.** Perhaps most significant is that DWSD has modified its approach to collections to help customers avoid service disconnections. Water shutoffs are forestalled for those customers who enroll in payment plans and are faithful to their terms. Eligible low-income customers who apply for the WRAP are similarly not disconnected (see sidebar, “Helping Customers Avoid Water Shutoffs”).

**Additional measures.** Consistent with the BRPA’s recommendations, DWSD is planning a number of measures to provide more comprehensive and cohesive services for low-income residents in Detroit.
- To supplement the WRAP funding, DWSD is budgeting to provide additional assistance to help eligible low-income customers reduce water leaks and inefficient water usage. Given Michigan’s
restrictive legal framework, DWSD has developed a business case evidencing the positive economics of ensuring water affordability. DWSD’s revenue-funded assistance is anticipated to yield benefits to DWSD’s infrastructure systems by reducing flows and mitigating bad-debt expense.

- DWSD is planning to implement an inclining-block rate structure for both water and sewer services that will be designed to ensure that the cost of services are reasonable and fair for all.
- Recognizing that water affordability problems are often symptomatic of other acute poverty-related issues, DWSD is engaging with City of Detroit and Wayne County social service organizations to build a referral network for financially distressed customers. DWSD intends to train selected customer service representatives to not only help customers enroll in GLWA and DWSD programs to avoid shutoffs, but also to make sure customers are aware of other social services that can help them on the path to financial self-sustainability.

**Advancing environmental justice.** Beyond advancing new approaches to reduce shutoffs and expand assistance to low-income residents in Detroit, DWSD’s sole focus on Detroit residents enables it to potentially mitigate water utility-related environmental injustices. In order to address the large inventory of lead service lines, DWSD is implementing a Minimizing Lead in Drinking Water program that is changing how the utility approaches field operations, education and outreach, and capital program planning and implementation (Betanzo 2016, City of Detroit n.d.). Recognizing that incidences of sewer overflows, basement backups, and surface flooding primarily plague the economically disadvantaged sections of Detroit, DWSD has challenged traditional deflections of utility responsibility and sought quick resolution of customer’s damage claims.

**Redefining utility service.** DWSD, perhaps more than any other major metropolitan area, lives in the shadow of the recent Flint Water Crisis. Like Flint, Detroit’s residential population is challenged by acute poverty and economic dislocation. Its underground pipe networks are aged and require significant reinvestments, while its basic business processes and customer service culture require modernization and implementation of best management practices.

Looking to the future, DWSD is redefining its services not as simply the delivery of water but in terms of protecting public health. This redefinition prioritizes universal access to service and water affordability, changes the calculus of cost-of-service, and assumes a more customer-centric approach. In doing so, DWSD hopes to confirm the business case for compassion.

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https://doi.org/10.5942/jawwa.2017.109.0103

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