



SUSTAINABLE BY DESIGN:

Increasing Water Efficiency and Reducing Cost in Affordable Housing

A case study of the Chicago Water-Efficiency Pilot



April 2018



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Acknowledgments

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About Enterprise Community Partners

Enterprise is a proven and powerful nonprofit that improves communities and people's lives by making well-designed homes affordable. We bring together the nationwide know-how, partners, policy leadership and investments to multiply the impact of local affordable housing development. Over 35 years, Enterprise has created nearly 470,000 homes, invested \$28.9 billion and touched millions of lives. Join us at www.EnterpriseCommunity.org.

About Elevate Energy

Elevate Energy's mission is smarter energy use for all. Since 2000, Elevate Energy has designed and implemented efficiency programs that lower costs, protect the environment, and ensure the benefits of energy efficiency reach those who need them most. Elevate Energy helps lower energy and water utility bills for building owners and tenants to keep housing and essential services affordable in low- and moderate-income communities. For more, visit www.ElevateEnergy.org.

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Contents

Acknowledgments **ii**

 About Enterprises Community Partners ii

 About Elevate Energy ii

Introduction **1**

Context and background on water billing in Chicago **2**

About the Chicago Water-Efficiency Pilot **3**

 Chicago Water-Efficiency Pilot participants 4

 Timeline of pilot activities 4

Results **5**

Key Takeaways to Address Rising Water Costs **8**

 Takeaways for housing providers and environmental service organizations 8

 Takeaways for funders and policymakers 11

Next Steps **12**

Appendix A **14**

Appendix B **15**

Appendix C **16**

Introduction

Today, the city of Chicago's water utility rate is nearly three times higher than it was in 2007, and costs will continue to increase for consumers as the city implements a new water and sewer tax to shore up the municipal pension fund.¹ Beyond Chicago, other municipalities in the region have increased rates, putting a disproportionate strain on low-income and minority communities.² Other cities in the Midwest, such as Cleveland and Detroit, have seen similar increases. Given these increased costs, nonprofit affordable housing owners who fail to reduce their water use risk long-term financial and operational challenges. Buildings that continue to operate with inefficient water use could see considerable increases in water utility costs. If housing providers do nothing at all, inefficient properties could become financially unstable in the future, and owners may defer maintenance to keep up with monthly utility bills. And, ultimately, low-income residents may experience decreased housing quality.

Enterprise Community Partners (Enterprise) and Elevate Energy are working to develop solutions that will help affordable housing providers mitigate the impact of increased water rates. As a first step, the team launched the Chicago Water-Efficiency Pilot in 2016. A water-efficiency specialist visited 14 affordable housing properties across the Chicago region, providing recommendations to organizational decision-makers, along with light training and procedural recommendations for maintenance staff.

Findings from the pilot suggest that affordable housing providers can benefit greatly from comprehensive water-efficiency improvements, including usage monitoring, leak repair, and upgrades or replacement of inefficient shower heads, toilets and other fixtures and appliances. Based on the pilot's limited sample, implementing the recommended upgrades and repairs would save about 22 percent in water and sewer charges, or more than \$20,500 per property over five years.³ Within two-and-a-half years, the savings are, on average, estimated to exceed the cost of the upgrades and repairs. Using in-house maintenance staff to make the repairs would further increase the return on investment.

Although the industry has more to learn about identifying and implementing water-efficiency best practices in multifamily affordable housing, the team's initial findings through the Chicago Water-Efficiency Pilot suggest that such efforts can help financially stabilize properties and ensure financial viability for housing providers in the face of rate increases. The benefits should encourage multifamily housing providers, government agencies and philanthropic organizations to invest in comprehensive water-efficiency strategies that strengthen the supply of well-designed affordable homes nationwide.

1 "Water and Sewer Rates," Utility Billing & Customer Service, City of Chicago, https://www.cityofchicago.org/city/en/depts/fin/supp_info/utility-billing/water-and-sewer-rates.html. "Utility Tax FAQ," Utility Billing & Customer Service, City of Chicago, https://www.cityofchicago.org/city/en/depts/fin/supp_info/utility-billing/utility-tax-faq.html.

2 The Chicago Tribune has reported on the disproportionate impact on increasing water rates for low-income and minority communities across the Chicago region in its series, "The Water Drain": <http://graphics.chicagotribune.com/news/lake-michigan-drinking-water-rates/index.html>.

3 The average building size in the pilot was 38.6 units, with buildings ranging in size from six to 72 units.

Context and Background on Water Billing in Chicago

Most multifamily rental properties in Chicago were built or retrofitted with a single master water meter for the entire building. All water usage for a building is tracked on one meter and charges are delivered on one bill to the property owner. Without the ability to differentiate water usage for each unit or household, property owners typically cover costs as property-level expenses. While residents do not receive a water or sewer bill from their landlord, they may feel the impact of rising utility or water costs in other ways. For example:

- Property owners paying higher water/utility bills may defer maintenance to save money, leaving residents with lower quality homes.
- Properties may foreclose and/or be sold because owners cannot afford to maintain them, potentially forcing residents to relocate. If no restrictions are in place to preserve the building's affordability, the community's affordable housing supply could decrease.

The organizations in the Chicago Water-Efficiency Pilot (see chart on p. 4) reported that recent tax, water, and sewer rate increases have begun to cut into operating budgets at the property level. In typical market-rate housing, owners can mitigate increases in utility or other operating expenses by raising rents. Affordable housing providers, however, typically do not have that ability.⁴ Affordable housing developments – and by extension the nonprofit



organizations who own them – generally operate at the margins. Buildings that were tightly underwritten during an era of lower utility costs are particularly vulnerable to increased water and sewer expenses and may experience growing operating gaps.

In the Chicago region, nonprofit organizations with assets less than \$250 million are eligible for partial water bill exemptions; nonprofits with net assets less than \$1 million are eligible to have 100 percent of their water bill exempted. To qualify, organizations must have a water-conservation plan and provide “charitable services that benefit the public within Chicago.” Though certain affordable housing properties may be eligible for the exemptions, many Low-Income Housing Tax Credit (Housing Credit) properties are not due to their unique ownership structure. These exemptions have the potential to be financially beneficial for nonprofit organizations and the affordable housing sector. Housing owners, policymakers, and funders should consider these nonprofit exemptions as another way to invest in the long-term financial sustainability of the nonprofit affordable housing sector.

⁴ “Affordable housing” is a widely-used term that has different meanings to different people. Enterprise defines housing as affordable if residents who earn 80 percent of the Area Median Income (AMI) or less can afford rent or mortgage payments without spending more than 30 percent of their monthly income. Millions of residents across the United States live in buildings with rent and income restrictions targeted to individuals and households earning from 80 percent to 30 percent of AMI, depending on the mix of subsidies used to construct or rehabilitate a building. For instance, the federally supported Low-Income Housing Tax Credit (Housing Credit) program, and many other state, federal and local programs that subsidize construction and rehabilitation of affordable homes, require that housing be affordable to families making 80 percent of AMI or less.

In addition, many “naturally occurring” affordable rental and for-sale homes on the private market meet the income-based affordability thresholds for households that make 80 percent of AMI or less. All would meet Enterprise’s definition of affordable housing, but because naturally occurring affordable housing is financed differently, owners and operators of each property type may have different water-efficiency needs than subsidized owners and operators.

About the Chicago Water-Efficiency Pilot

The 2016 Chicago Water-Efficiency Pilot was an extension of the Enterprise Sustainability Exchange (ESE), a broad effort to help assess historic water consumption and utility costs among the portfolios of nonprofit affordable housing providers in Chicago. (For more information on the ESE, see Appendix A).

Five affordable housing organizations (see chart) were selected to participate in the pilot. The 14 properties included in the pilot were developed, rehabilitated or purchased using the Housing Credit or subsidies, and are maintained by nonprofit providers with a mission to provide high-quality affordable homes to low-income residents. All the properties included in the pilot have felt the impact of rising water bills, which have steadily increased in Chicago since 2008.⁵ However, one of the organizations, Thresholds, receives a rate exemption for its properties.

Most of the buildings in the pilot were financed through the Housing Credit, which requires that they remain affordable for a 15-year period to support construction or rehabilitation. Buildings typically set up their operating budgets at the beginning of that 15-year period, holding funds in a reserve to support repairs or upgrades. Typically, the buildings do not undergo any substantial rehabilitation until the 15-year period is up, at which time they can apply for a new round of Housing Credit financing or seek financing through other means.

The pilot launched with four major goals:

1. **Help affordable housing providers access data on water consumption in their multifamily affordable housing properties.**
2. **Expand partner capacity to track water usage and identify risks or spikes in usage.**
3. **Identify measures that housing providers can implement to reduce inefficient and wasteful water consumption (including leaks) and lower water bills.**
4. **Build evidence demonstrating the value of water-efficiency programs for housing providers.**

All the 14 affordable housing properties participating in the pilot have faced the impact of Chicago's steadily rising bills.

⁵ Water bills include a combined charge for water and sewer services based on overall water usage. In 2007, Chicagoans paid \$9.95 per 1,000 cubic feet of water. Ten years later, the water rate has nearly tripled to \$29.04 per 1,000 cubic feet. Sewer bills have also increased. Sewer rates in Chicago are calculated based on a percentage of water bills. In 2007, a sewer bill in Chicago was calculated at 83 percent of the water bill. Starting in 2015, the sewer bill was calculated as 100 percent of the water bill.

Chicago water-efficiency pilot participants

| Organization | Year Established | Affordable Properties | Location or Focus Population |
|--|------------------|--|---|
| Claretian Associates | 1991 | 4 buildings, 137 units | South Chicago |
| Latin United Community Housing Association (LUCHA) | 1982 | 3 developments, 153 units | Chicago's Near Northwest Side communities |
| Thresholds | 1959 | 75 developments, 1,000 single-room occupancy (SRO) units | Regional |
| The Resurrection Project | 1990 | 66 buildings, 599 units under management | Chicago neighborhoods: Pilsen, Back of the Yards, Little Village and Melrose Park |
| Turnstone Development | 1998 | 1,300 units | Senior and family housing |

Enterprise engaged Elevate Energy's building efficiency staff to design and implement the Chicago Water-Efficiency Pilot. Elevate Energy worked with each participating organization over a 10-month process to achieve the following key deliverables:

1. Assess the organization's portfolio to target high-use properties.
2. Analyze baseline water-usage data for target properties.
3. Identify cost-saving measures to reduce inefficient water usage at targeted buildings.
4. Familiarize maintenance or property management staff with water-efficiency best practices.
5. Provide a water-efficiency assessment report that lists actionable next steps for each owner.

Timeline of pilot activities

| Date | Action |
|---------------|---|
| April 2016 | <ul style="list-style-type: none"> • Workshop to kick off project • Elevate Energy and pilot participants set up web-based benchmarking to track water usage and expense data |
| May 2016 | <ul style="list-style-type: none"> • Elevate Energy began portfolio- and building-level assessment of water bills and usage |
| July 2016 | <ul style="list-style-type: none"> • Elevate Energy began on-site water assessments and provides property management and maintenance staff best-practice guidance |
| November 2016 | <ul style="list-style-type: none"> • Data collection ended • Elevate Energy finalized property-level data evaluation |
| December 2016 | <ul style="list-style-type: none"> • Elevate Energy provided cohort organizations with their properties' water-savings reports |
| January 2017 | <ul style="list-style-type: none"> • Elevate Energy and Enterprise met with cohort organizations to discuss reports and next steps |

Results and Lessons Learned



The pilot accomplished its four primary goals in the following ways:

1. Help affordable housing providers access data on water consumption in their multifamily affordable housing properties.

- Through benchmarking, as well as portfolio- and building-level assessment and analysis of water bills, Elevate Energy helped affordable housing providers **access information and gain new insights about water consumption** in their properties.
- Water usage at the 14 properties in the pilot ranged from 57 to 149 gallons per bedroom per day. Average water usage per bedroom in the cohort was 97 gallons per day. Elevate Energy identified **upgrades and fixes that could save an average of 23 gallons per bedroom per day.**

2. Expand partner capacity to better track water usage and identify risks or spikes in usage.

- Enterprise and Elevate Energy helped participants begin **tracking utility bills using web-based benchmarking platforms.** Through these

platforms, pilot participants are now able to compare their water bills over time or from building to building, making it easier to **identify buildings with abnormally high usage.**

- Elevate Energy selected buildings with high-water usage for additional assessment.

3. Identify measures that housing providers can implement to reduce inefficient and wasteful water consumption (including leaks), and lower water bills.

- Elevate Energy provided building owners with **property-specific recommendations** for increasing water efficiency and achieving cost-savings over the next five years. Examples include: repairing leaking pipes and low-flow toilets, and replacing inefficient faucet aerators/showerheads and inefficient or damaged toilets.
- Elevate Energy also instructed **building maintenance staff on how to** pinpoint the sources of increased usage, such as identifying leaks in toilets, faucets and other fixtures.



4. Build evidence demonstrating the value of water-efficiency programs for housing providers.

- Estimated costs of water-efficiency upgrades vary by building size and condition, with an **average cost of \$11,533 per property**, based on the 14 buildings assessed through the pilot. On average, if owners implemented the upgrades, they could **expect total water-bill savings to exceed initial costs after two-and-a-half years**. For certain buildings, particularly larger properties, owners could expect savings to surpass costs in as little as six to 12 months.
- With the upgrades and repairs identified by Elevate Energy, organizations participating in the pilot can expect to **save 22 percent in annual water and sewer expenses** at their properties.
- Elevate Energy identified repairs and upgrades that could save building owners the following amounts over a five-year period:

- \$391 per bedroom
- \$20,543 per property
- \$56,720 in average total savings to the organization

The results of the Chicago Water-Efficiency Pilot show the five participating organizations how investing in water efficiency could save money and help make their buildings more financially stable. Using this new knowledge, several of the organizations identified potential next steps to implement in their portfolios, including:

- Investing in additional staff training from Elevate Energy to identify leaks and possible repairs and upgrades that would save water.
- Utilizing third-party water-efficiency contractors that finance upfront water retrofits based on a shared savings contract that splits the financial benefits of a water retrofit between the building owner and the third-party contractor.⁶

⁶ Third-party water-efficiency contractors – including groups such as Minol and eConserve – are similar to energy service companies (ESCOs). According to the U.S. Department of Energy, “ESCOs act as project developers for a comprehensive range of energy conservation measures and assume the technical and performance risks associated with a project” (<https://energy.gov/eere/femp/energy-service-companies-0>). Water-efficiency contractors implement similar solutions, and are attractive to some building owners because they offer the opportunity to implement water-efficiency solutions without upfront investment in upgrades or staff training.

The Chicago Water-Efficiency Pilot helped demonstrate how investing in water efficiency can cut costs — and increase the financial stability of affordable housing developments.



- Completing recommended fixture improvements using utility-funded energy-efficiency programs that incent hot-water-saving fixtures and appliances.⁷
- Using existing capital and staff capacity to complete recommended fixture improvements.

While the pilot's findings have helped to inform the broader evidence base on water-efficiency programs in Chicago's affordable housing, its scope is limited to the challenges facing a small sample size of 14 properties and their owners. More information and investment in developing solutions for the affordable housing sector can help Enterprise and partners continue to build a strong case for large-scale investments in water efficiency.

⁷ In Illinois and many other states, gas and electric utility companies are required to collect fees from utility ratepayers on each utility bill. These dollars go to fund energy efficiency programs that enable building owners to access subsidies that reduce the cost of energy- and water-saving building systems, such as high-efficiency water heaters. Utility programs in Illinois also include free installation of faucet aerators and low-flow shower heads.

Key Takeaways to Address Rising Water Costs



Enterprise and Elevate Energy are committed to sharing the knowledge gained through the Chicago Water-Efficiency Pilot to help address the issue of rising water costs and to protect the viability of the nation's supply of affordable homes, as well as to protect natural resources. Below are key takeaways for affordable housing providers, environmental service organizations, funders and policymakers to consider.

Takeaways for housing providers and environmental service organizations.

Strategic monitoring of water billing data can help housing providers effectively maintain and invest in their buildings.

Organizing water billing data for a mid-sized or large portfolio (five buildings or more) can be time-consuming, particularly for buildings receiving paper rather than web-based bills. Web-based benchmarking tools such as Wegowise, Energy Scorecard, ENERGY STAR® PortfolioManager® and other similar platforms can help housing providers organize utility billing information into a centralized web portal, which decision-makers can then use to identify needs, such as on-site building assessments, repairs, or building retrofits.

Housing providers should identify a staff member who can focus upfront hours on consolidating and organizing billing information onto such platforms. Housing providers should also consider assigning a water-efficiency point person (e.g., an asset or senior property manager) responsible for keeping track of irregularities and spikes in water usage. This person can use information from the platforms to identify action items for buildings on an as-needed basis.

It is important to pay close attention to the **usage** as well as the **cost** data on a water bill, since utility billing rates can be influenced by changes in water rates over time, differing rates by geographic jurisdiction, or water billing exemptions for certain nonprofit-owned buildings in Chicago and other cities. If the housing provider is employing a system such as Wegowise or Energy Scorecard to track and measure water usage, it should verify the accurate transfer of both usage and cost data from the water utility's online billing system to the centralized web-based platform, as there is the possibility of data-transmission errors due to the wide range of online systems used by local water utilities in different cities.

For the purposes of the pilot, Elevate Energy used water billing information to identify buildings with higher-than-expected water use and then targeted those buildings for on-site assessments. Organizations that use a web-based benchmarking platform can identify issues before engaging a group like Elevate Energy to perform on-site water-efficiency assessments.

Housing providers and environmental service providers should work together to establish short- and long-term portfolio-management strategies that prioritize water-efficiency improvements within the context of existing organizational structures.

Analyzing past water bills and monitoring water usage are the first steps in developing a portfolio-level water-efficiency strategy. From there, a housing provider can begin to develop a portfolio-management strategy that includes water efficiency. Some housing providers may engage an environmental service group like Elevate Energy. Others may develop in-house strategies. Either way, housing and environmental-service providers should do the following when developing a portfolio-management strategy:

- Identify decision-makers at the housing organization early in the assessment process and ensure they receive relevant information from assessments. Third parties like Elevate Energy

that conduct assessments should also understand organizational structures so they can work effectively with housing provider staff to determine next steps. An organization's staffing structure can influence how information from water assessments is received and acted upon. Contributing factors include internal capacity, decision-making structure and processes, and on-site versus off-site management.

- Clearly articulate water usage and cost savings (i.e., document goals, targets and achievements) when preparing water-efficiency assessments. Environmental service providers or in-house staff charged with assessing buildings should prepare assessment reports for key decision-makers that prioritize recommendations and outline phased timelines for making improvements.
- Consider conducting water-efficiency assessments five to 10 years after construction or major renovation. At this juncture, toilets and other fixtures may be failing, but reserves remain available, given that affordable properties often recapitalize every 15 years based on the Housing Credit. At or near 15 years, providers will seek new capital for renovation or rehab and potentially invest in efficiency water fixtures. However, during the years in between, properties may begin to suffer from leaks or inefficiencies.
- Utilize existing touchpoints between maintenance staff and housing units to implement water-efficiency strategies. Property managers at The Resurrection Project, for example, found it helpful to inspect key water fixtures as part of their standard unit turnover procedure.
- Involve maintenance staff throughout the process of water-efficiency assessments and retrofits. Successful adoption of best practices must align with training, support and empowerment of maintenance staff to make needed changes. For example, during the Chicago Water-Efficiency

Pilot, Elevate Energy offered informal training to maintenance staff during water-efficiency assessments. After the pilot, Claretian Associates hired Elevate Energy to provide additional training to maintenance staff.

Affordable housing operations and maintenance procedures and practices should prioritize water-efficiency and leak management.

For the purposes of the pilot, Elevate Energy looked for inefficient technology, leaks and behavioral waste – all items that can be added onto routine maintenance visits. For many properties, it was easy to identify discernable issues such as leaks in toilets or inefficient shower and faucet fixtures. Depending on an organization's structure, some housing providers may be able to train maintenance staff to prioritize water efficiency by looking for similar inefficiencies whenever they enter a unit.

However, housing providers that want to integrate water efficiency into routine maintenance must consider who should be trained, or the appropriate point person to work with a group like Elevate Energy to develop a water-efficiency strategy. While some organizations have responsive on-site staff at each property, others have staff responsible for managing and maintaining multiple buildings. In either case, the provider's organizational structure has an impact on how routine maintenance is delivered. For example, certain organizations may rely on residents to report leaky faucets or toilets to property management through a work order request. These organizations might deliver in-person messaging to residents about the positive benefits of consistently reporting leaks. Other organizations that experience regular resident turnover or regularly inspect housing units for routine maintenance may find it helpful to integrate water efficiency into regular unit turnover and/or maintenance checklists.

Portfolio-level water retrofit strategies can yield financial savings for housing providers. A housing provider's asset manager, or another decision-maker at the organization, should develop a retrofit strategy based on their organization's needs. Some housing providers may choose to engage environmental service providers to develop or implement retrofit strategies.

Some organizations with the appropriate staffing capacity and expertise may be able to use the information in this case study to analyze their utility bills, identify buildings for additional assessment, and choose buildings to retrofit. Other groups may find it useful to engage an independent advisor like Elevate Energy to help them. From there, the housing provider can consider the following strategies for implementing retrofits.

- Housing providers that own buildings with moderate water usage or providers seeking to recoup a higher percentage of cost savings over the long-term should consider training staff to perform retrofits. One of the pilot organizations, Claretian Associates, has contracted with Elevate Energy to provide training to its maintenance staff to perform water-efficiency retrofits on high-usage buildings and make additional efficiency improvements to buildings in the future.
- Housing providers that prefer to hire licensed plumbers should have them focus on technical retrofits (fixing leaky pipes or toilets, installing new toilets, etc.) and utilize maintenance staff for less technical work such as installing low-flow faucet aerators or shower heads.
- Housing providers that lack the capital to pay a plumber or contractor to make improvements and are unable to train in-house maintenance staff should consider third-party service providers. As discussed above, these providers can bring upfront capital to projects and receive payment based on

future savings. Such providers typically work on larger buildings (50-plus units) with high water usage that have the potential for large financial savings.

- Water-efficiency upgrades may not be appropriate for certain properties and units. For example, properties in the pilot occupied by residents with acute health challenges had higher water usage. Resident characteristics affect a building's operational and maintenance practices, dictating what is achievable.

Takeaways for funders and policymakers

Private foundations, civically engaged corporations and public officials at municipal, county and state levels should consider supporting programs that subsidize water-efficiency assessments, along with programs that offer training and technical assistance to maintenance and resident services staff.

Upfront investments in water efficiency can help stabilize operating expenses for affordable housing providers as water rates continue to rise in Chicago and other cities. As such, funders and public officials should consider the following opportunities to help preserve and stabilize properties that depend on public and philanthropic support:

- **Secure financial support for water-efficiency assessments conducted by independent environmental service advisors, such as Elevate Energy.** To incent provider participation in the Chicago Water-Efficiency Pilot, the water-efficiency services were delivered free of charge to participants. Enterprise used capacity-building funds from the U.S. Department of Housing and Urban Development (HUD) to cover the cost of these assessments. However, HUD capacity-

building dollars are limited and additional support is needed from foundations and local governments to make water-efficiency assessments readily available to housing providers in Chicago and beyond.

- **Develop or financially support programs that directly subsidize water-efficiency retrofits.** The pilot did not directly subsidize water-efficiency upgrades, although some groups are moving forward with retrofits using their own funds. A subsidy program or revolving loan pool for water retrofits could be structured based on existing models to support energy efficiency retrofits, such as the utility ratepayer-supported programs described earlier in this case study. This type of program could help scale the impact of water-efficiency investments, and prove especially beneficial to housing providers relying on third-party property management companies.
- **Ensure that funding supports capacity building, including training building staff on identifying and repairing or replacing inefficient or leaky fixtures.** Training staff to identify and repair leaks before they become significant costs can have a marked impact on operating margins. Training should also include resident engagement components to encourage residents to report leaks promptly and reduce water use. Enterprise has resident engagement, operations and maintenance templates that can be customized when offering training to building staff.⁸ Elevate Energy staff, along with other third-party technical assistance providers, have a history of working with Enterprise to deliver training directly to building staff; however, our collective capacity to deliver this training is limited by the amount of funding available.

⁸ "Tools & Services," Green Communities, Enterprise Community Partners, <http://www.enterprisecommunity.org/solutions-and-innovation/green-communities/tools-and-services>.

Next Steps



Together with Elevate Energy, Enterprise is committed to helping affordable housing providers, as well as government agencies and philanthropic organizations, pursue cost-saving water-efficiency solutions through comprehensive strategies that include technical assistance, maintenance staff training and building retrofits.

Enterprise sees the potential to build on the Chicago Water-Efficiency Pilot in the following ways:

- Stay in touch with cohort participants through implementation of recommendations identified in the water-efficiency assessments and disseminate additional insights to other organizations interested in pursuing similar work.
- Widely disseminate information on the pilot and its lessons to engage housing providers, policymakers and funders in tackling water efficiency in affordable housing.

A range of stakeholders — from policymakers to utility companies — can play a role in helping housing providers strengthen their portfolios through water- efficiency improvements.

- Utilize Enterprise-managed HUD Section 4 capacity-building grants (as resources allow) to support water-efficiency improvements in affordable housing properties. Enterprise has committed several Section 4 capacity-building grants to Chicago-based housing providers that plan to train staff and implement water-efficiency procedures across their organizations.
- Work with policymakers, utility companies, funders, affordable housing providers and other interested stakeholders to develop and test grant programs, financing models and policies to expand the affordable housing sector's access to water-efficiency improvements.
- Explore financially viable models for offering training to property maintenance staff on water-efficiency fixture repair and maintenance.
- Continue to explore financial incentives and technical assistance opportunities to bring water-efficiency improvements to a larger number of affordable housing developers.
- Continue to share water-efficiency best practices related to the Enterprise Green Communities Criteria and technical resources (see Appendix C).

Together with its partners, Enterprise and Elevate Energy look forward to building on the Chicago Water-Efficiency Pilot and to helping affordable housing providers in Chicago, the Midwest and nationwide improve the sustainability of their portfolios and their organizations – and protect the viability of affordable housing.

Appendix A

Aggregate data collected from the pilot, as referenced throughout this report, can be found below.

| | # Participating Properties in Pilot | Units | Bedroom | All Properties | Per Property | Per Unit | Per Bedroom |
|--|-------------------------------------|-------|---------|-----------------|-----------------|-----------------|--------------|
| Thresholds Housing | 3 | 80 | 80 | \$44,926 | \$14,975 | \$561.58 | \$562 |
| Latin United Community Housing Association | 3 | 98 | 145 | \$55,539 | \$18,513 | \$566.72 | \$383 |
| Claretian Associates | 2 | 82 | 152 | \$49,076 | \$24,538 | \$598.49 | \$323 |
| The Resurrection Project | 3 | 103 | 164 | \$38,188 | \$12,729 | \$370.76 | \$233 |
| Turnstone Development | 3 | 178 | 211 | \$95,872 | \$31,957 | \$539.00 | \$454 |
| Average Savings: | | | | \$56,720 | \$20,543 | \$527.00 | \$391 |

Appendix B

Chicago Enterprise Sustainability Exchange

Technical Assistance &
Capacity Building

Chicago Water-
Efficiency Pilot

Public Conference
Trainings

Green Resident
Engagement
Collaborative

In 2014, Enterprise's Chicago market office launched the Enterprise Sustainability Exchange (ESE) with support from partners. Through the ESE, Enterprise works to create sustainable communities in Chicago and the Midwest. Since its inception, three cohorts with a total of 14 affordable housing developers, owners and operators have participated in the ESE, benefiting from training, technical assistance and capacity-building grant funds to support sustainability initiatives.

Organizations participating in the ESE collectively manage more than 12,000 units of affordable housing in Chicago. Each year they participate in at least six meetings or trainings, as well as public conferences. In 2016, Enterprise also launched a Green Resident Engagement Collaborative in partnership with the U.S. Green Building Council of Illinois.

ESE results to date

- Community Development Corporations (CDCs) that participated in the Year 1 and Year 2 ESE capacity-building cohorts performed energy efficiency or water retrofits on 5,609 housing units from 2014-2016. More than 50 percent of homes in ESE cohort member portfolios underwent an energy or water retrofit.
- Nearly 100 organizations attended three publicly advertised ESE-hosted events in 2015 and 2016. Participating organizations included nonprofit and for-profit affordable and market-rate developers; property management companies; city, county, and state government officials; and members of the energy and water industries.
- Enterprise has deployed \$600,000 in capacity-building grant funds – an average of \$43,000 per organization – to 14 cohort members through HUD's Section 4 program. Funds were earmarked to support sustainability capacity-building initiatives at each organization.
- Fourteen water-efficiency assessments were completed for 14 properties with 541 units total, as part of the Chicago Water-Efficiency Pilot in 2016.
- Ten volunteers were paired with 10 multifamily buildings to conduct resident engagement activities in 2017 as part of a Green Resident Engagement Collaborative, a partnership between the U.S. Green Building Council of Illinois and four housing and community development agencies.

*Results based on ESE Year 1 and Year 2 members, who own and operate 9,400 housing units. The ESE Year 3 cohort selected in late 2016 collectively owns approximately 3,000 housing units. Those groups are working toward 2017 outcomes.

Appendix C

Enterprise Green Communities and water conservation

One of Enterprise's most successful and widely used tools, the Enterprise Green Communities Criteria, integrates guidance for water conservation into affordable housing development. To date, 25 states (including Illinois) and seven cities have adopted the Criteria, creating close to 40,000 healthy and environmentally responsible affordable homes nationwide. The 2015 Criteria is available at: www.enterprisecommunity.org/solutions-and-innovation/green-communities/criteria. Category 4 of the Criteria addresses leaks, water metering and strategies for indoor water conservation.

In addition, Enterprise has online tools and resources designed to help affordable housing providers achieve their green goals.

The following resources, available in Enterprise's Multifamily Retrofit Toolkit, may be of interest to providers seeking information about in water-efficiency improvements:

- Operations & Maintenance Training in a Box
- Resident Engagement Training in a Box
- Overview of Benchmarking Tools
- Financial Decision Tree
- Database of Energy Efficiency & Renewables Incentives & Rebates
- Technical Assistance Provider Database

All Enterprise Green Communities tools and resources are available at:
www.enterprisecommunity.org/solutions-and-innovation/green-communities/tools-and-services.



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