Affordability & Water Rates

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Presentation Outline

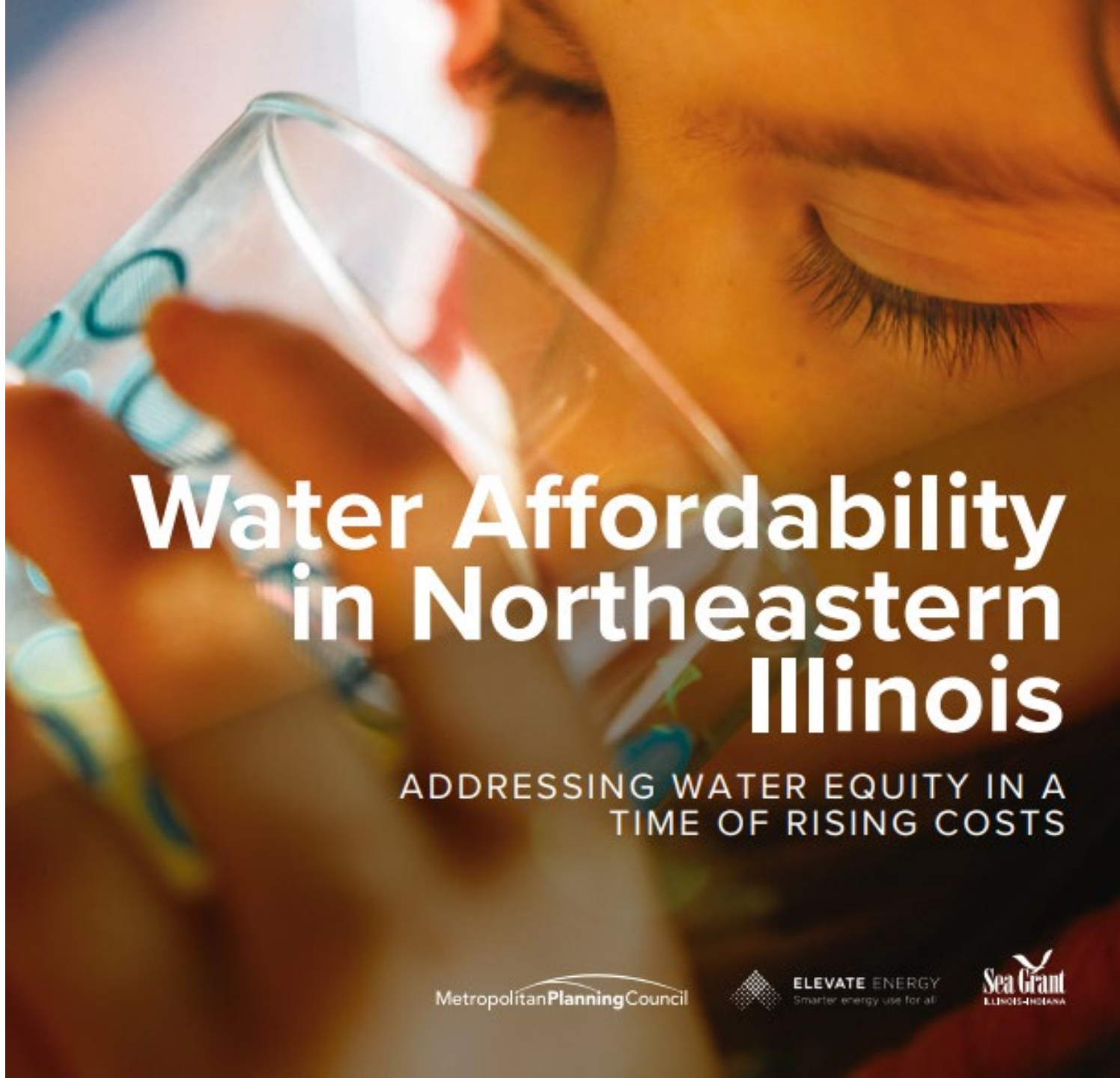
Water Affordability in Northeastern Illinois
Defining and Measuring Water Affordability
Water Affordability Programs and Policies
- Rate Design
Cases
- Chicago
- Evanston

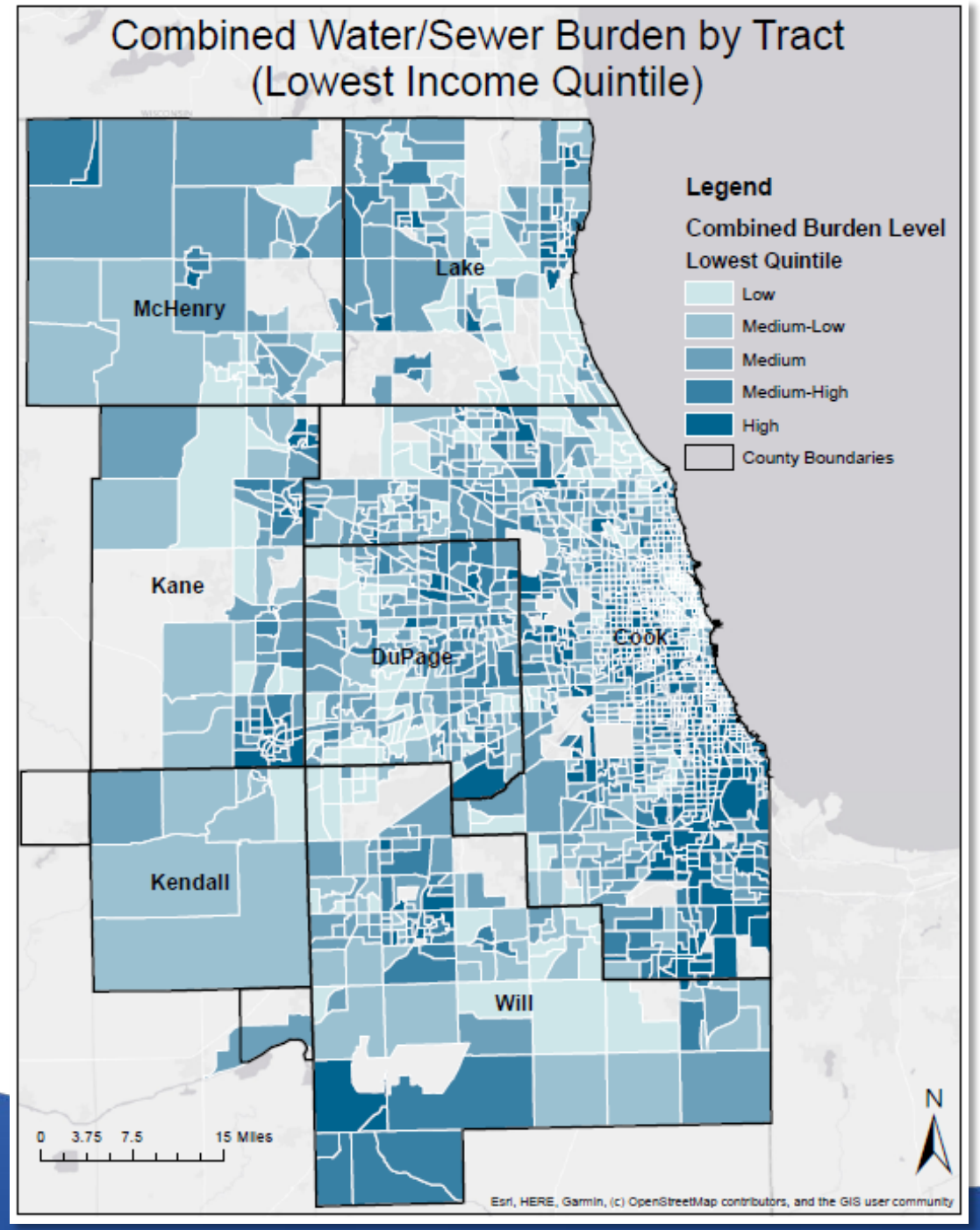
Insufficient Rates that are already too high for customers

10 Lessons *from* Community Leaders A Rural Community Assistance Partnership (RCAP)® RESEARCH REPORT
March 2020

Water Affordability Resources

metroplanning.org/WaterAffordability





Key Finding 1: Water affordability is an issue across the region

→ *As water system costs and rates continue to increase careful examination of ability-to-pay within your customer-base will be necessary*

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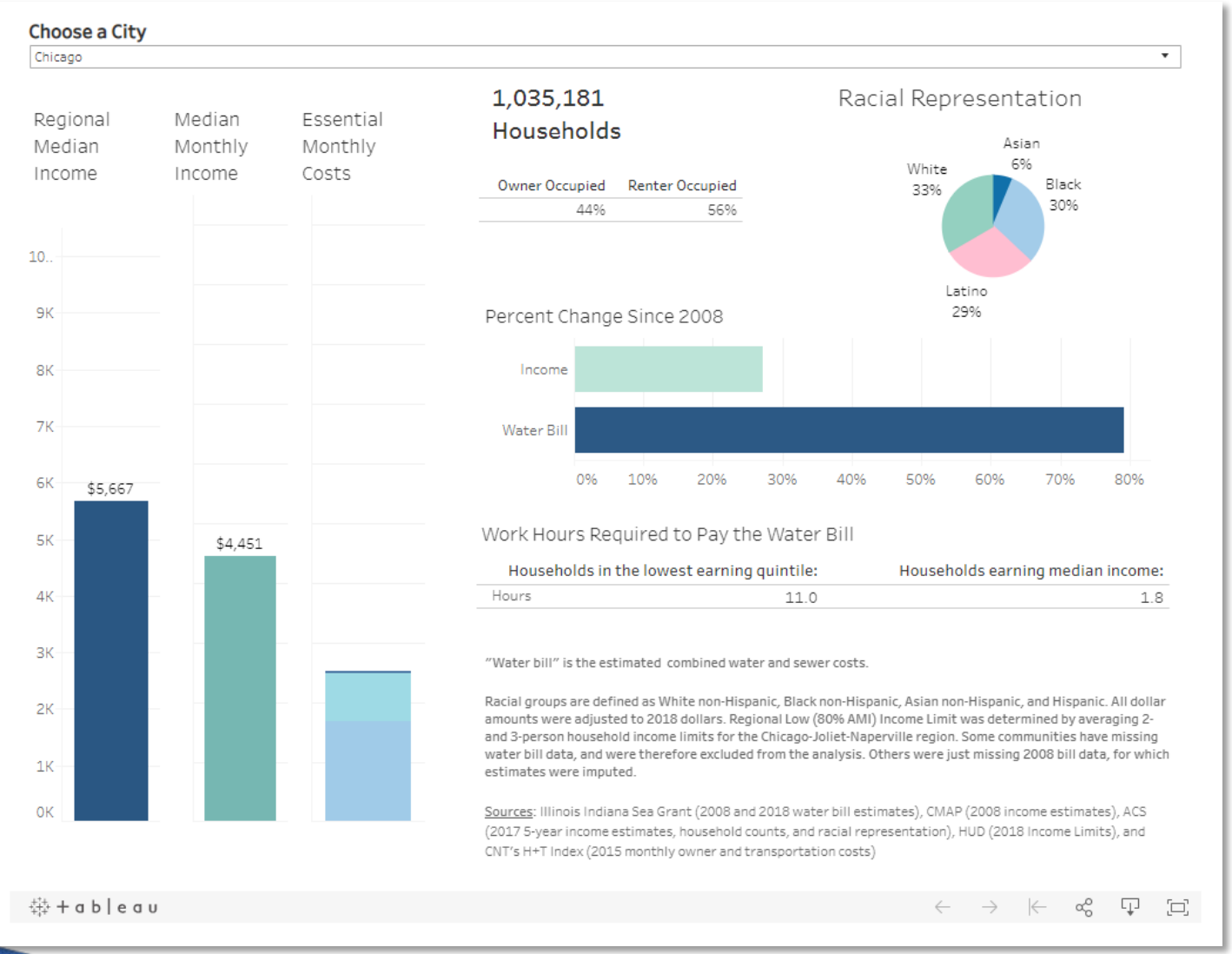

https://www.metroplanning.org/waterdashboard/default.aspx

Key Finding 2: Water affordability is a nuanced issue

→ Use household-level data to explore affordability metrics within local context

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Foundational actions for all communities

- Water Rates — Full Cost Pricing[58]
- Reduce Costs — Asset Management
- Water Conservation — Leaks (water loss audit, leak control, metering)
- Customer Assistance — Tailored Programs
- Hard-to-Reach — Characterize
- Reduce Cost — Shared services, mergers, and regionalization

Communities with high water costs/bill

- Reduce Costs — seek subsidies/funding from state and federal source
- Reduce Costs — explore regionalization solutions
- Water Conservation — if anticipated bill burden is from projected capacity expansion, water conservation plan
- Customer Assistance — adjust billing and collection policies

Communities facing an overarching low income issue

- Water Conservation — older housing stock, retrofits & rebates, targeted assistance
- Water Rates — Lifeline rate, reduce fixed charge, use income-indexed rates
- Customer Assistance — Piggy-Back programs on existing federal assistance programs
- Hard-to-reach — Integrate programs

Communities with large hard-to-reach populations

- Hard-to-reach — Characterize/Identify
- Hard-to-reach — Integrate Programs
- Hard-to-reach — Sub-metering

Key Finding 3: There is no one-size fits all solution & cannot go it alone

→ Tailor solutions to local conditions and continue to advocate for more robust state and federal solutions

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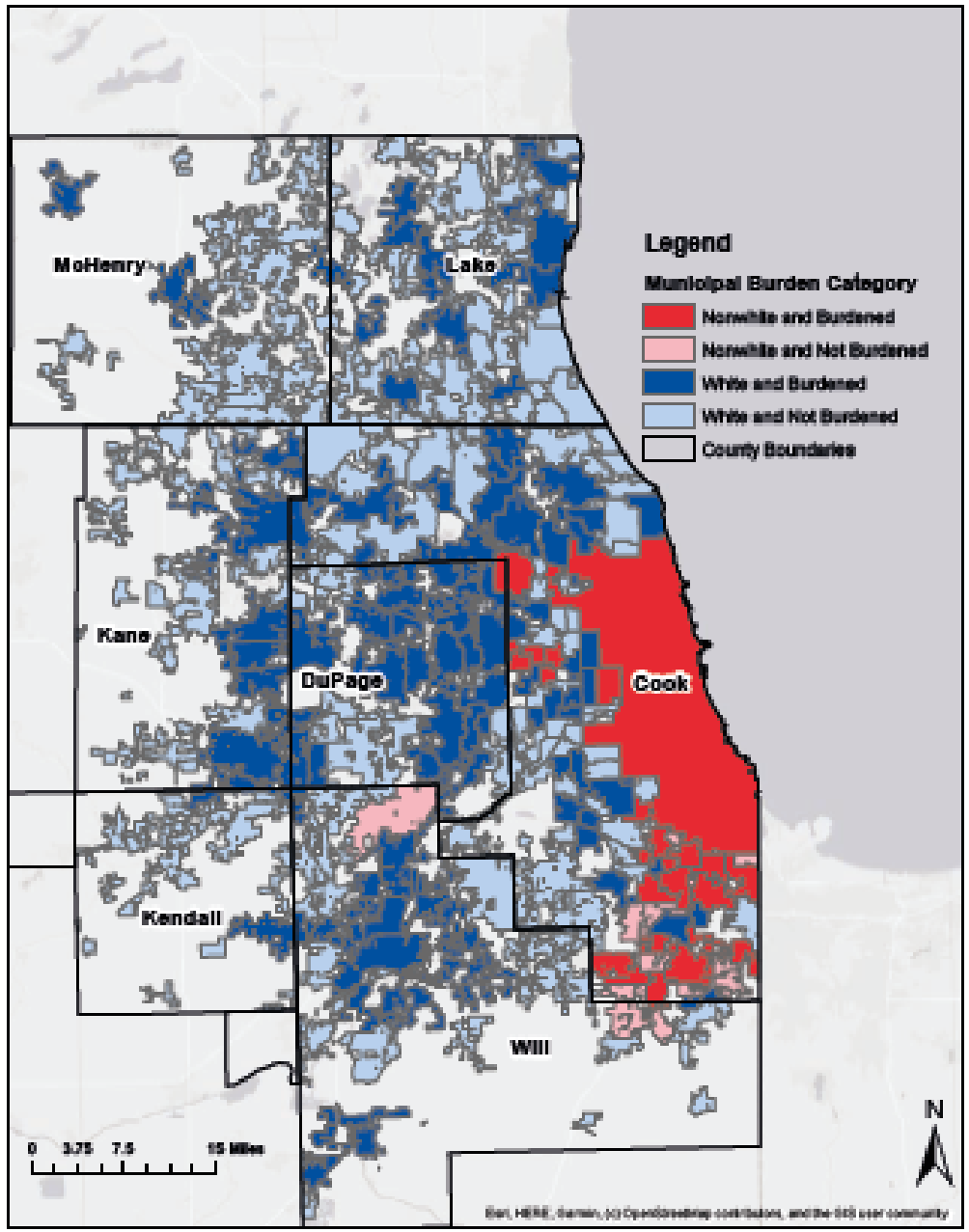
Figure 10. An Equity Issue: Map of Water Burden for Majority White and Majority Non-white Municipalities



Key Finding 4: Water affordability is an equity issue*

→ Ensuring water equity will require solutions that go beyond rates and the utility, to include actors and policies outside of water service

•Note: in rate-setting, equity is defined as customers paying their fair share of costs; whereas in this context, water equity refers to everyone: having access to safe, clean, affordable drinking water and wastewater services; sharing in the economic, social, and environmental benefits of water systems; and resilient in the face of floods, drought, and other climate risks. (http://uswateralliance.org/wec/framework)

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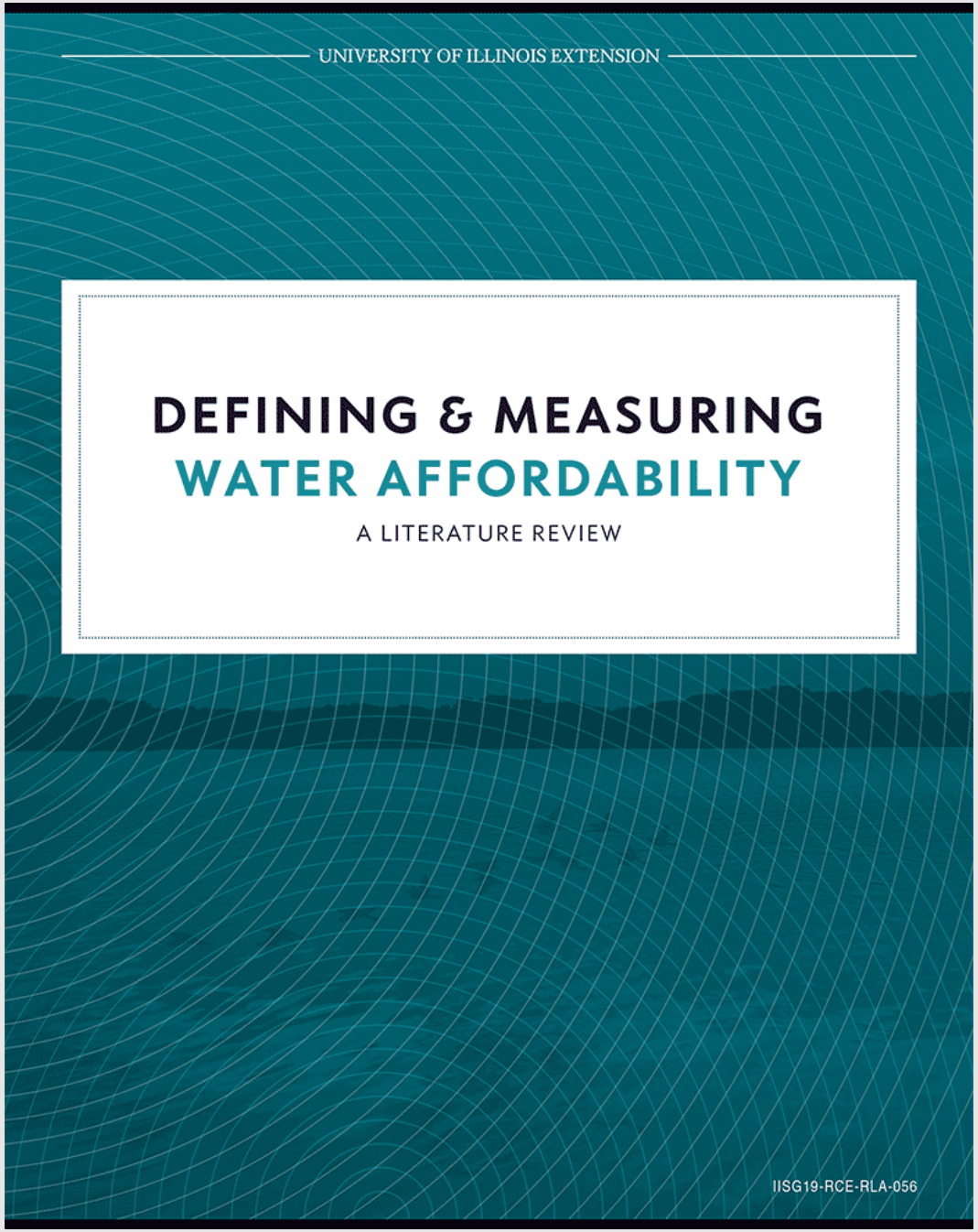
What is water affordability?

https://iiseagrant.org/publications/water-affordability-method-literature-review/



Historic Federal-Level Affordability Guidelines

Clean Water Act FCA Affordability Analysis

Table 4: Burden Level Using the Financial Capability Metric (EPA 1997)

Permittee Financial Capability Indicators (Socioeconomic, Debt and Financial Indicators)	**Residential Indicator** (Cost Per Household as a % of MHI)		
	Low (Less than 1%)	Mid-Range (1%–2%)	High (More than 2%)
Weak (Less than 1.5)	Medium	High	High
Mid-Range (1.5–2.5)	Low	Medium	High
Strong (More than 2.5)	Low	Low	Medium

Historic Federal-Level Affordability Guidelines *Safe Drinking Water Act Affordability Analysis*

Table 5. EPA Framework for Affordability Analysis (Source: EPA 1998)

Category	Focus	Level of Analysis	Selected Indicators
Household Affordability	Rate impact on the capacity of water users (particularly residential users) to support the full cost of water service (including debt repayment) through user charges	Households	› Ratio of user charges to income › Ratio of user charges to income relative to income levels › Percentage rate increase (rate shock)
Financial Capacity	The financial structure of the water system including internal sources of capital, key financial ratios, and business planning capability	Water system	› Ratio of revenues to expenditures › Ratio of net income to revenues › Ratio of assets to liabilities › Debt-service coverage capacity › Composite indicators of financial health › Market test for goods and services (non-community systems)
Access to Private Capital	Ability of the water system to arrange financing (such as a bank loan) through private sector equity and debt markets	System (or parent entity) and private capital markets	› Credit and bond ratings › Debt and debt capacity › Market test
Eligibility for Public Capital	Ability of the water system to secure financing (grants or loans) from local (community) or non-local (SRF and other programs) public sources	System (or parent entity) and public capital markets	› Credit and bond ratings › Priority rankings › Eligibility test
Fiscal Conditions	Fiscal stress on the community related to local government financial conditions and competing demands for capital and operating expenditures	Relevant local government	› Debt as a percentage of market property › Tax revenues as a percentage of market property values › Property tax collection or delinquency rate › Local expenditures per resident › Opportunity costs associated with water system expenditures
Socio-Economic Conditions	General socioeconomic conditions related to household affordability, priority for public funding, and fiscal distress	Service territory	› Median household income › Percent below the poverty level › Percent unemployment › Composite indicators of distressed communities

State-Level SRF Affordability Analysis

Table 6: Illinois Scoring of MHI as Percentage of Statewide MHI

Points	MHI as % of Statewide MHI
0	Above 100%
5	95-99.99%
10	90-94.99%
15	85-89.99%
20	80-84.99%
25	75-79.99%
30	70-74.99%
35	65-69.99%
40	60-64.99%
45	55-59.99%
50	50-54.99%
55	45-49.99%
60	0-44.99%

Table 7: Illinois Scoring of Service Population

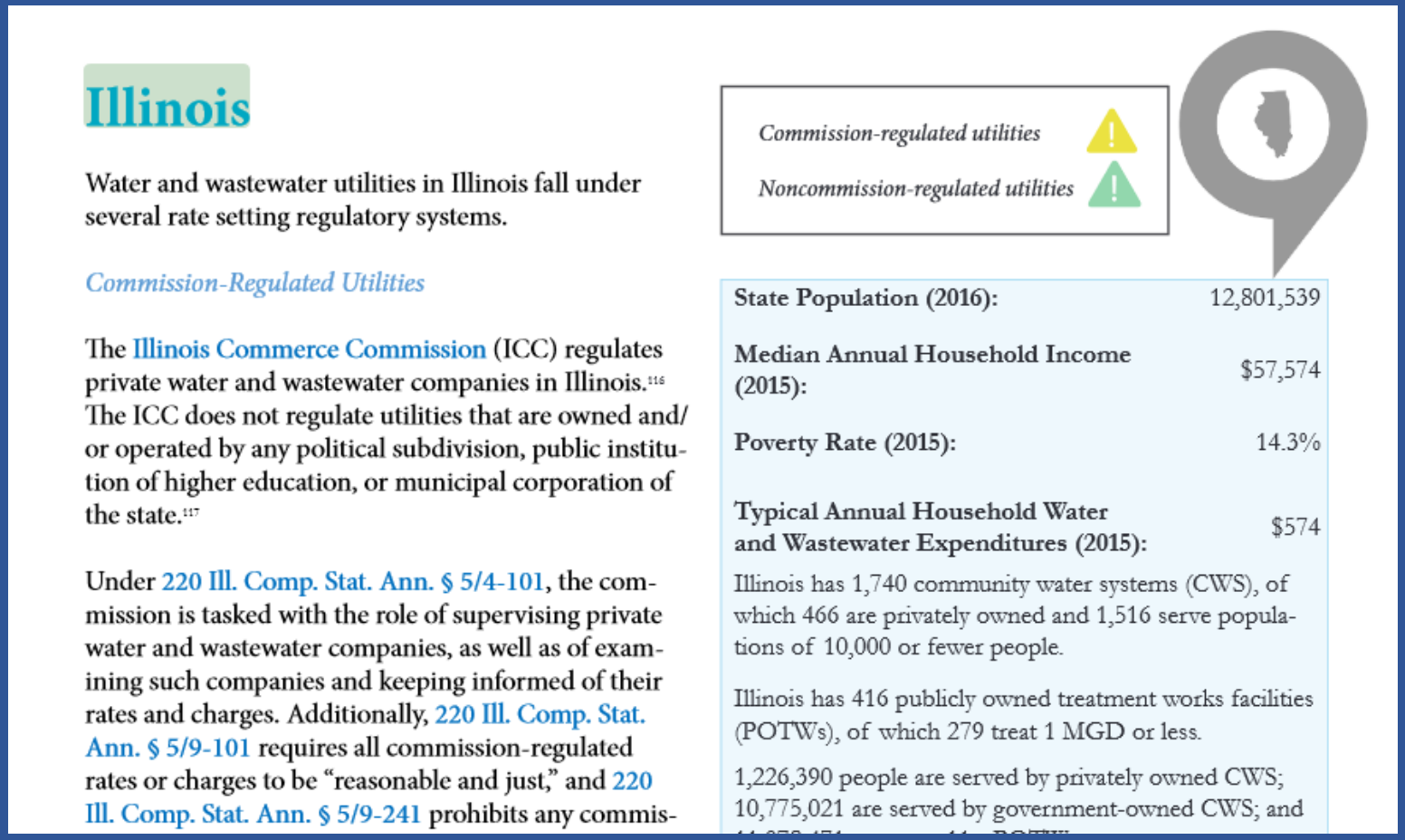
Points	Service Population
5	20,000-30,000
10	15,000-19,999
15	10,000-14,999
20	5,000-9,999
25	2,000-4,999
30	1,000-1,999
35	0-999

Table 8: Illinois Scoring of Additional Criteria

Points	Additional Criteria
1	Unemployment rate is greater than the state average by one percentage point or more
4	Decrease in service population is greater than 5% in the five years from the date of the loan application

Community-Level Rate-Funded CAP Programs

https://efc.sog.unc.edu/sites/default/files/Pathways%20to%20Rate-Funded%20CAPs.pdf



Illinois

Water and wastewater utilities in Illinois fall under several rate setting regulatory systems.

Commission-Regulated Utilities

The Illinois Commerce Commission (ICC) regulates private water and wastewater companies in Illinois.[116] The ICC does not regulate utilities that are owned and/or operated by any political subdivision, public institution of higher education, or municipal corporation of the state.[117]

Under 220 Ill. Comp. Stat. Ann. § 5/4-101, the commission is tasked with the role of supervising private water and wastewater companies, as well as of examining such companies and keeping informed of their rates and charges. Additionally, 220 Ill. Comp. Stat. Ann. § 5/9-101 requires all commission-regulated rates or charges to be "reasonable and just," and 220 Ill. Comp. Stat. Ann. § 5/9-241 prohibits any commis-

Commission-regulated utilities

Noncommission-regulated utilities

State Population (2016):	12,801,539
Median Annual Household Income (2015):	$57,574
Poverty Rate (2015):	14.3%
Typical Annual Household Water and Wastewater Expenditures (2015):	$574

Illinois has 1,740 community water systems (CWS), of which 466 are privately owned and 1,516 serve populations of 10,000 or fewer people.

Illinois has 416 publicly owned treatment works facilities (POTWs), of which 279 treat 1 MGD or less.

1,226,390 people are served by privately owned CWS; 10,775,021 are served by government-owned CWS; and

Water Affordability Measurement Alternatives

EPA (1997)
EPA (1998)
EFAB (2007)
EPA (2014)
EFAB (2014)
USCM/AWWA/WEF (2013)
NACWA (2013)
Pacific Institute (2013)
Mumm (2017)
Irvin (2017)
Teodoro (2018)
Rockowitz, et al. (2018)
Raucher, R.,et al (2019)

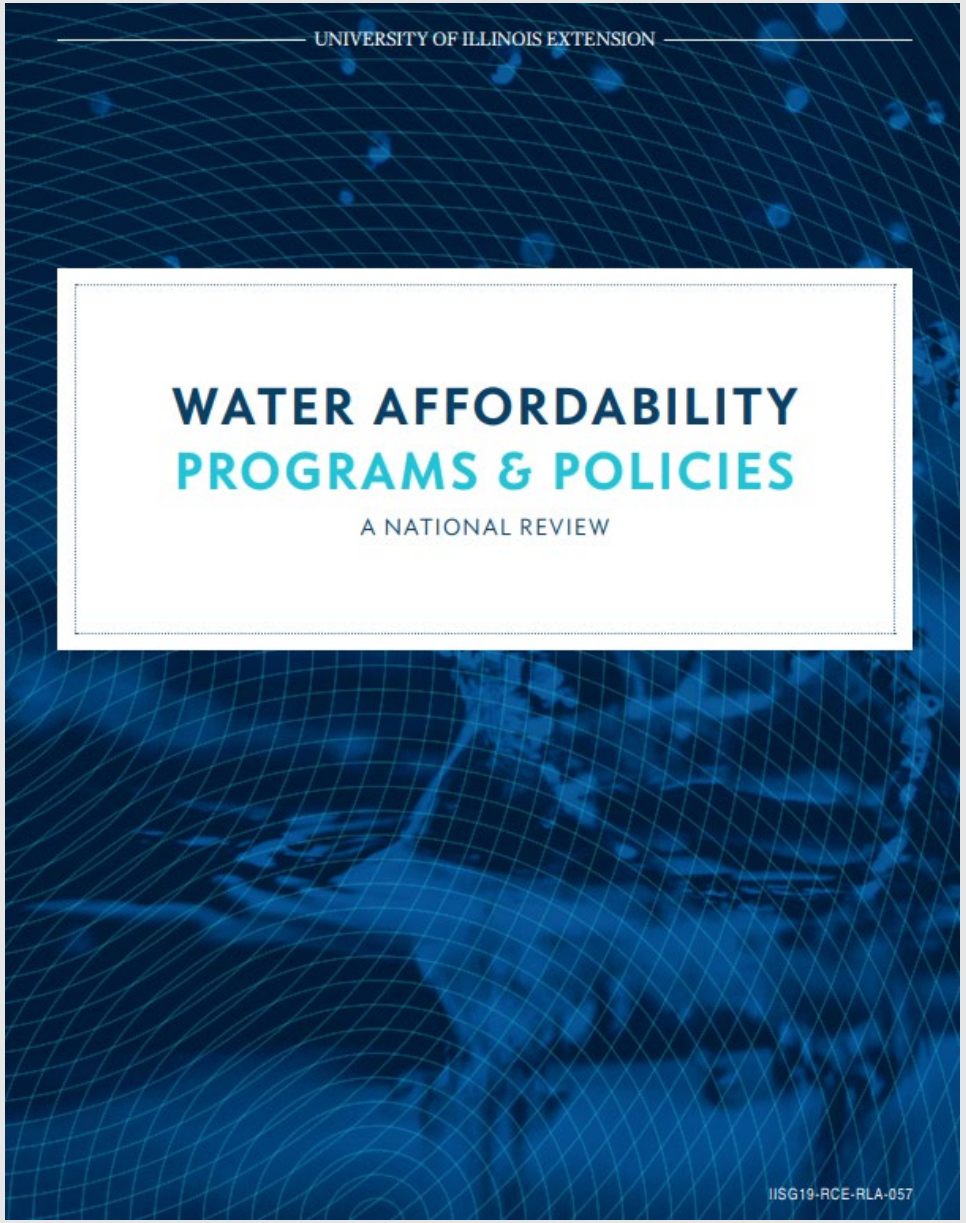
Teodoro, M. (2018)		
$\text{Household Affordability Ratio (Percent)} = \frac{\text{Household Combined Water and Sewer Bill}}{\text{Disposable Income}} \times 100$		
Water rates (monthly base charge, unit charge)	State regulatory commissions, water utilities, ordinances 5/8 meter assumed	CAP program impacts not included.
Monthly water consumption	Assumed value, per capita (50 gpcd)	
Number of people per household	Assumed to be 4	
Income	U.S. Census Bureau ACS	
Essential expenses	Bureau of Labor Statistics 2015 Consumer Expenditure Survey Regression-based estimates—variables included in the regression: household size, single family home, education (high school graduate, college graduate), married, race, income, homeowner, urban.	Less water and sewer expenses; includes taxes, housing, food, medicine, health care, home energy If the utility lacks the expertise to do regression analysis, local data or knowledge can be used.
Disposable income	Calculated	Income less essential expenditures
$\text{Hours of Labor at Minimum Wage (HM)} = \frac{\text{Household Combined Water and Sewer Bill}}{\text{Minimum wage}}$		
Water rates (monthly base charge, unit charge)	State regulatory commissions, water utilities, ordinances	
Monthly water consumption	Assumed value	
Minimum wage	Bureau of Labor Statistics	
Rockowitz, et al. (2018)		
Self-assessed ability to pay	Survey of utility customers	
Water affordability gap	Survey of utility customers	Calculated as the difference between the current bill and what the bill would be if the federal standard of 4.5% of monthly's household income was met

Proposed 2020 FCA Assessment

HBI - Water Costs as a Percent of Income at LQI	PPI - Percent of Households Below 200% of FPL		
	>=35%	20% to 35%	<20%
>=10%	Very High Burden	High Burden	Moderate-High Burden
7% to 10%	High Burden	Moderate-High Burden	Moderate-Low Burden
< 7%	Moderate-High Burden	Moderate-Low Burden	Low Burden

https://www.epa.gov/sites/production/files/2020-09/documents/epa_proposed_2020_financial_capability_guidance_september_2020.pdf

How can we address water burden?



How can we address water burden?

Water affordability solutions can be broadly categorized as:

STRATEGY 1	REDUCE COSTS
STRATEGY 2	PROMOTE WATER EFFICIENCY
STRATEGY 3	DESIGN RATES
STRATEGY 4	STRENGTHEN CUSTOMER ASSISTANCE PROGRAMS
STRATEGY 5	TARGET THE HARD TO REACH

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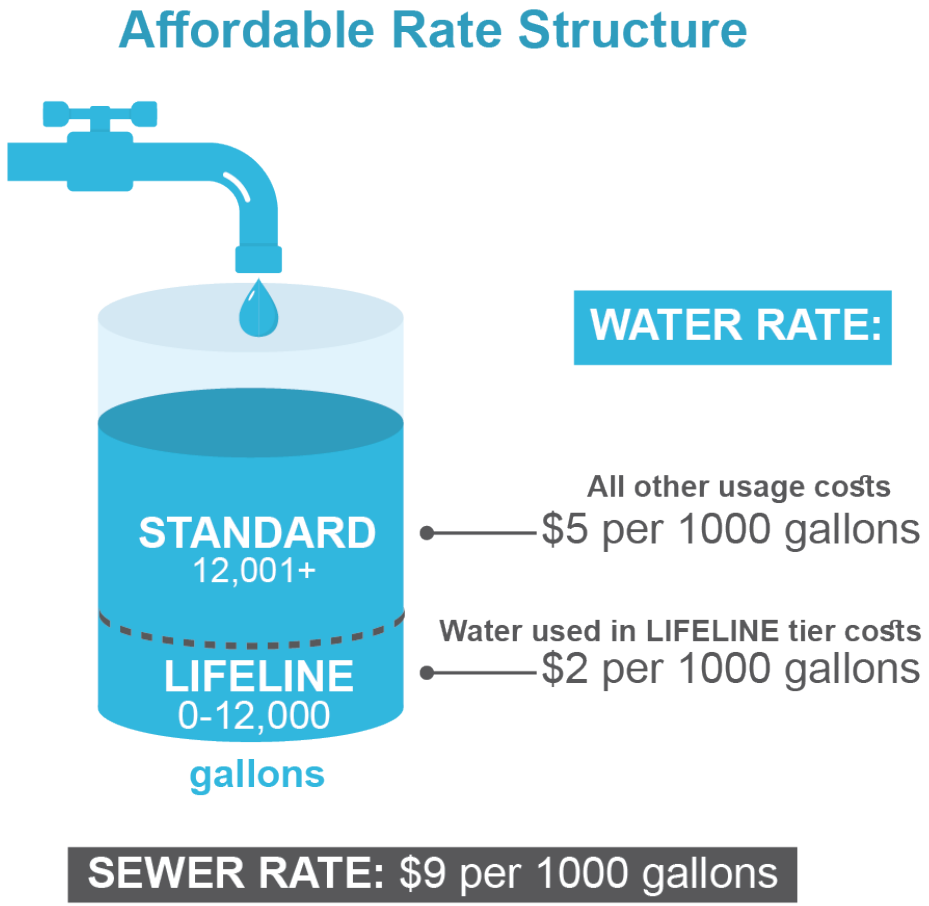
Rate Design

Lifeline Rates
Income Indexed Rates
Conservation Rates
Water Budgets
Moderate Rate Increases
Property-Value Based Charges

Lifeline Rate



https://engage.arlingtonva.us/content/i-want-rate-structure-makes-everyday-uses%E2%80%94drinking-cooking-and-washing%E2%80%94more-affordable

Income-Based Rate Structure

TAP Reconcilable Surcharge Equation

$$TAP\text{–}R = \frac{(C) - (E + I)}{S}$$

TAP-R - Surcharge Rate ($/MCF)

C – Cost in dollars of the estimated TAP Billing Loss for the projected period

E - The net over or under collection of the TAP-R surcharge amount for the Most Recent Period

I - Interest on any over or under recovery of the TAP-R for the most recent period computed on annual basis

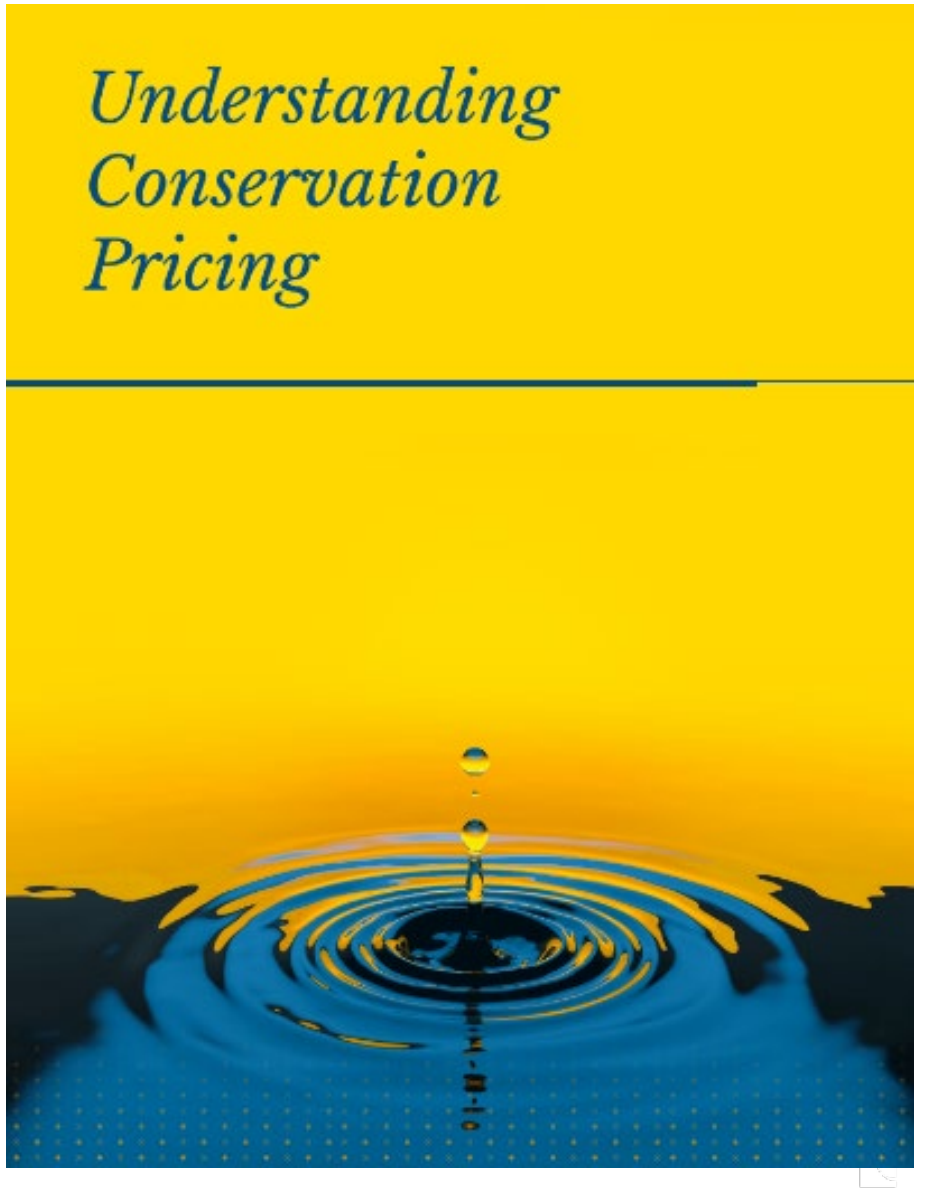
S - Projected sales in MCF for Non-TAP customers

https://ipu.msu.edu/wp-content/uploads/2018/10/Philadelphia-Water%E2%80%99s-Tiered-Assistance-Program-TAP.pdf

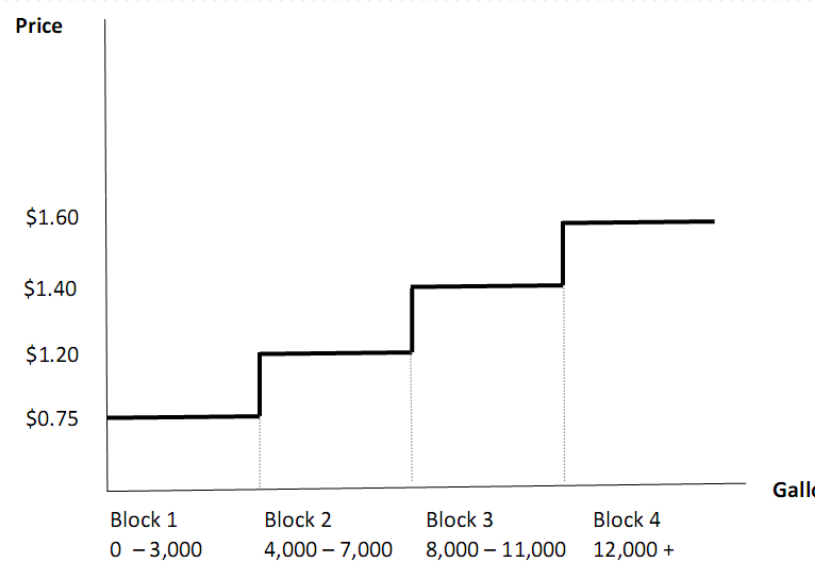
Conservation Rates

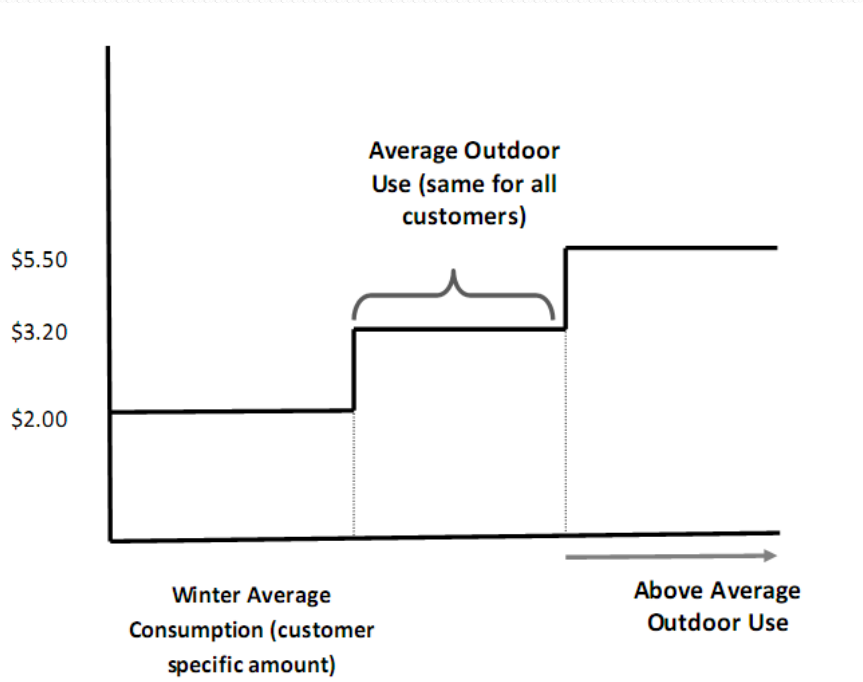
Increasing Block
Seasonal
Time-of-use
Excess Use
Water Budget
Scarcity Pricing
Spatial/Zonal Rates
Humpback Rates

https://iiseagrant.org/wp-content/uploads/2019/01/ISAWWA.pdf



Conservation Rates

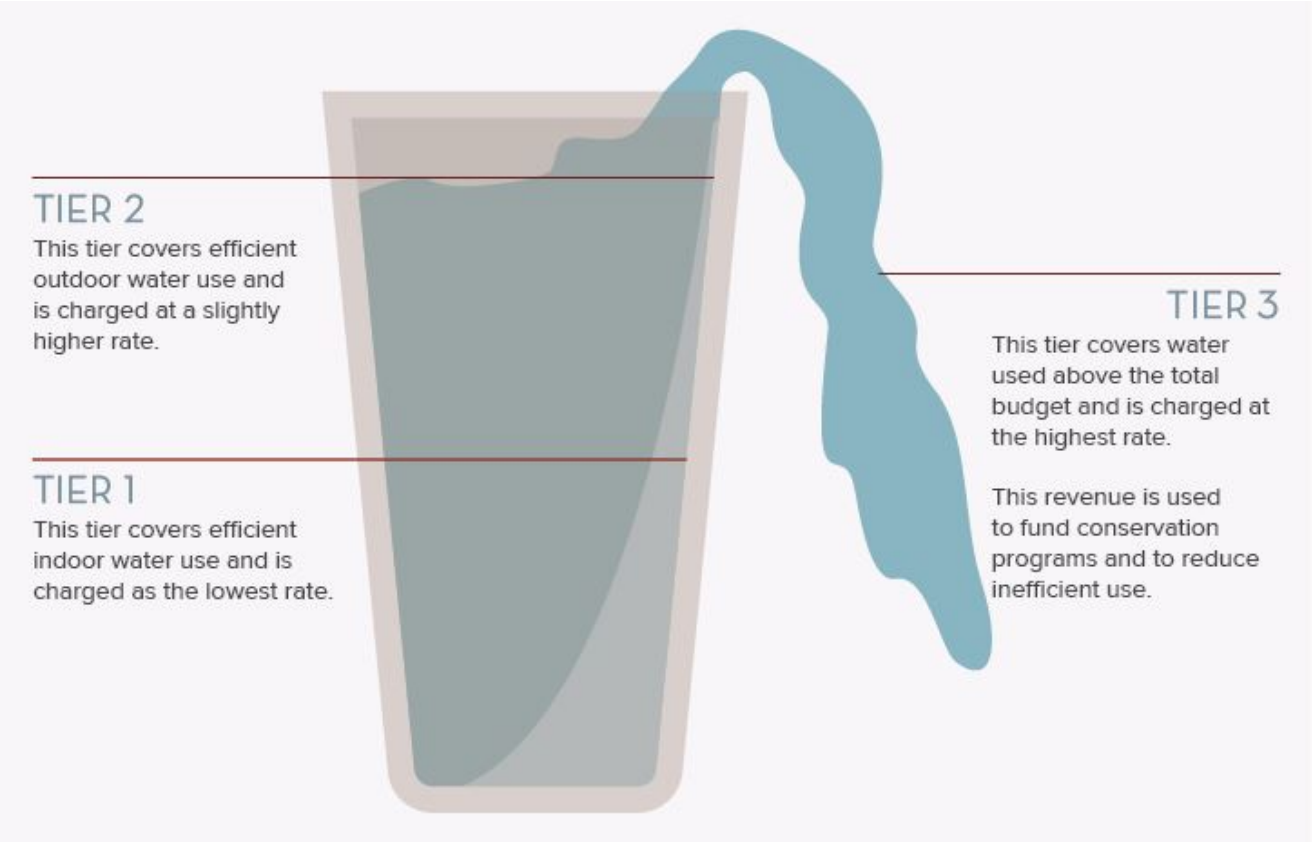




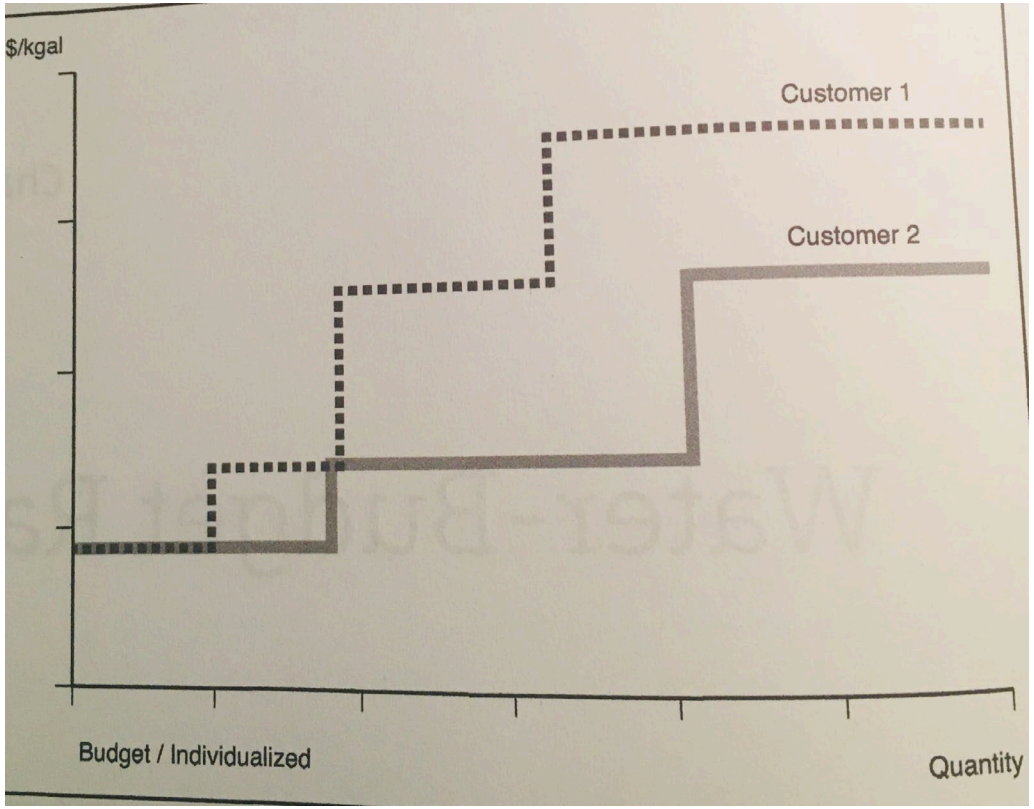
Increasing Block Rates

Seasonal Water Rates

Conservation Rates – Water-Budget Rates

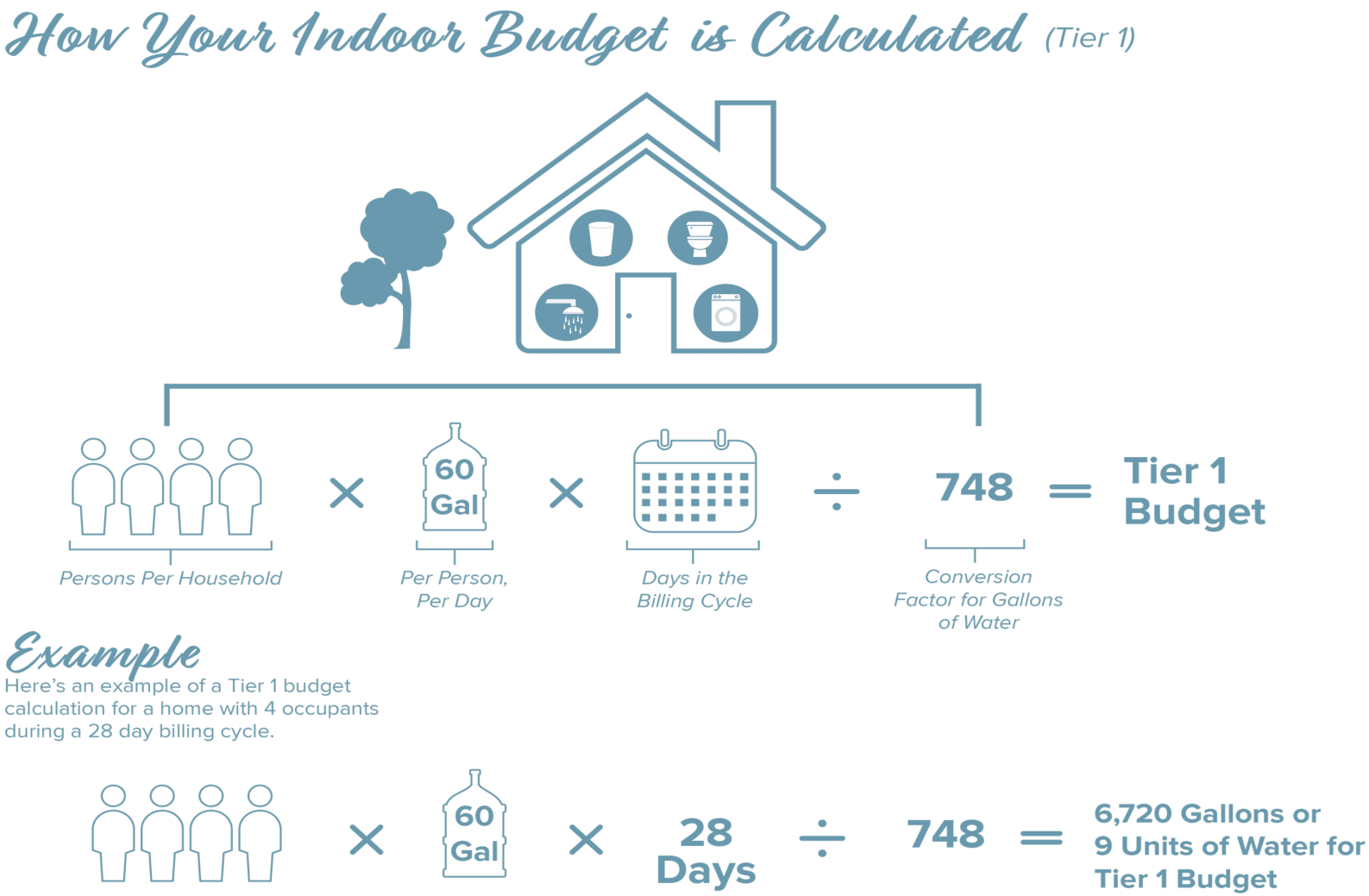


https://www.eastvalley.org/304/Customized-Water-Budget



Source: AWWA M1 Manual

Conservation Rates – Water-Budget Rates

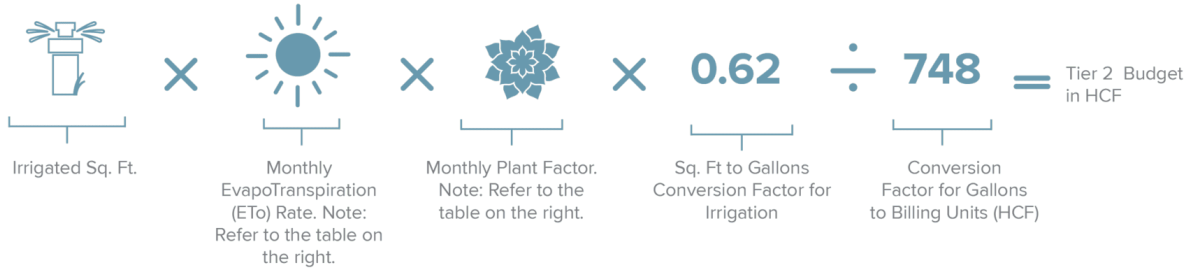


https://www.eastvalley.org/304/Customized-Water-Budget

Conservation Rates – Water-Budget Rates

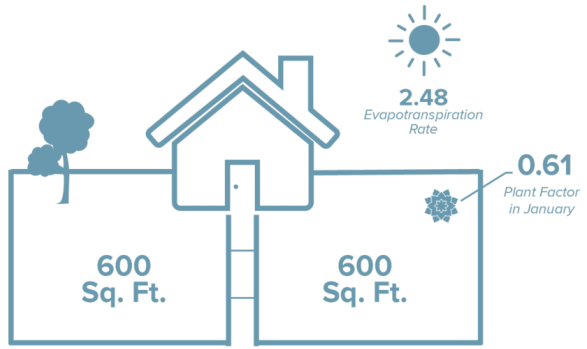
How Your Outdoor Budget is Calculated (Tier 2)

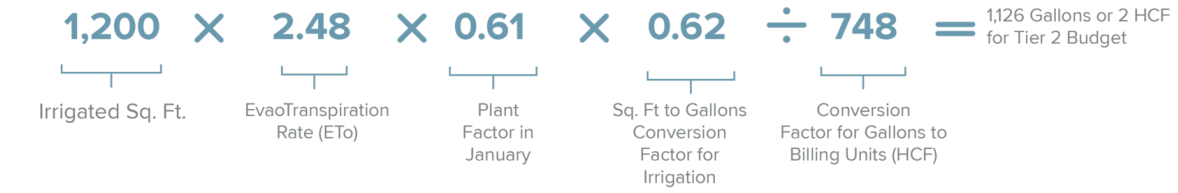
Use the formula below to *estimate* of your Tier 2 (outdoor) budget. Please note your budget adjusts to the weather by increasing during warmer months and decreasing in cooler months. Some formula factors are dependent on the weather and are calculated at the time of billing.



Example

Here's an example of a January Tier 2 budget calculation for a home with 1,200 sq. ft. of irrigable area.





Note: *EvapoTranspiration Rate (ETo) is determined by the weather. The numbers below represent historical data from 2019 and can be used to estimate your budget. Actual ETo rate is calculated at time of billing using current weather data.*

January	2.48
February	2.91
March	4.39
April	5.29
May	6.13
June	6.82
July	6.93
August	7.09
September	5.50
October	4.05
November	2.79
December	2.29

Monthly Plant Factor

January	0.61
February	0.64
March	0.75
April	1.04
May	.95
June	.88
July	.94
August	.86
September	.74
October	.75
November	.69
December	.60

https://www.eastvalley.org/304/Customized-Water-Budget

Conservation Rates - Scarcity Pricing

For groundwater, opportunity cost of foregone aquifer height if we had optimal pumping (as compared to overpumping) This captures the fact that a foot of aquifer height used today cannot be used tomorrow.

For Lake Michigan, avoided costs of seeking alternate supplies (needing to use groundwater because Lake Michigan is fully allocated)

Scarcity Value Estimates

Tucson scarcity value of 58 percent more than existing water prices (Martin et. al).
Water prices should be 80 percent greater than the current level.(Hansen 2009).
Scarcity value to range from $1.04 to $2.39 per 1,000 gallons in Honolulu and Chicago, (Moncur and Pollock, 1988; Ipe and Bhagwat, 2002).

Moderate Rate Increases/Automatic Rate Adjustment

Small rate adjustments are easier to implement and collect than one large increase made necessary by years of neglect.

In order to compensate for inflation, water and wastewater utilities are strongly encouraged to enact an automatic annual rate adjustment.

Ideally, these should be an ordinance or by-law, not just a policy.

One method is automatic adjustment based on the adopted annual budget.
Another method is a fixed percentage increase - 3.0% annual rate increase is recommended.

Cases

Chicago

- Increasing cost of water
- Increasing water utility bill debt
- Water shut-offs
- Disproportionate impact on west and south sides
- MPC 2019 Mayoral Briefing Book policy recommendation

Water affordability report helps inform new Chicago water billing policy

Posted February 27th, 2020 in Featured, News, Water Supply

In northeastern Illinois, from 2008 to 2018, the average residential monthly water rate almost doubled. In fact, water

CITY OF CHICAGO

UTILITY BILLING RELIEF PROGRAM

WHAT IS IT?

In partnership with the Community and Economic Development Association of Cook County (CEDA), the City of Chicago is launching the **Utility Billing Relief Program**, intended to make:

more affordable for qualifying Chicago residents!

HOW DOES IT HELP? PARTICIPANTS WILL RECEIVE:

- **50% RATE REDUCTION** for water charges, sewer charges, and water-sewer tax
- **NO SHUT OFF,** penalties, or debt collection on City of Chicago utility billing debt
- **DEBT FORGIVENESS** after successfully completing one full year in the program

AM I QUALIFIED??

- Your Chicago utility bill is for a **single-family home or two-flat** and is your primary residence
- You meet the household income qualifications, **increased beginning July 27,2020 to at or below 200% of the federal poverty level**

WHAT DO I NEED TO DO?

- Go to **chicago.gov/UBR** to confirm your property is eligible
- Follow the prompts at that link to complete income verification
- If you have questions, please contact the City's Utility Billing & Customer Service Center at **312-744-4426**

CEDA

Chicago

Challenges/next steps:

- Expanding program & enrollment
- COVID Impacts
- Reaching Renters

Evanston

- City Goals
- Political will to make water affordable and shift to tiered water rate structure
- Target program participating household in Evanston would have to spend 12 percent of its disposable income on water and sewer service.

Evanston

GOVERNMENT

New water rates would soak NU and high-rises

BY BILL SMITH ON JULY 13, 2019 - 8:26 PM

Public Works Director Dave Stoneback will ask Evanston aldermen Monday to consider a new water rate scheme for next year that would reduce costs to most households, but dramatically increase fees to the city's largest water users.

Evanston

Challenges/next steps:

- Tier design
- Customer Classes
- Equitability

Rate & Affordability Assessment Tools

- Northeastern Illinois Water Affordability Dashboard
  www.metroplanning.org/waterdashboard/default.aspx
- Water and Wastewater Residential Rates Affordability Assessment Tool
  efc.sog.unc.edu/resource/water-and-wastewater-residential-rates-affordability-assessment-tool
- NEIL Water Rates Dashboard
  efc.sog.unc.edu/resource/northeastern-illinois-water-and-wastewater-rates-dashboard
- Northeastern Illinois Water and Sewer Rate Data, 2009 – 2019
  datahub.cmap.illinois.gov/lo/dataset/northeastern-illinois-water-and-sewer-utility-rate-data
- EPA Proposed 2020 FCA Assessment worksheets
  www.epa.gov/sites/production/files/2020-09/documents/epa_proposed_2020_financial_capability_guidance_september_2020.pdf
- Water Affordability Assessment Calculator
  www.cnt.org/tools/water-bill-calculator
- 2050 Forecast of Water Demand
  datahub.cmap.illinois.gov/dataset/2050-forecast-of-water-demand
- AWWA Affordability Assessment Tool for Federal Water Mandates
  awwa.org/Portals/0/AWWA/ETS/Resources/AffordabilityAssessmentTool.pdf

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Thanks!

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Method Summary

Water affordability measurements used in this analysis:

1. Percent median household income (MHI)
2. Percent of mean household income at the lowest earning quintile
3. Water affordability matrix
4. Number c
5. Online da

Percent household income for lowest quintile		Percent of households in area earning below 80% AMI		
		>=50%	25-49%	<25%
		High	Medium	Low
Greater than 4.5%	High	High	Medium-High	Medium-High
2.25-4.5%	Medium	Medium-High	Medium	Medium-Low
Less than 2.25%	Low	Medium-High	Medium-Low	Low

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