

February 24, 2016

Detroit City Council
 DWSD Board of Water Commissioners
 Detroit Water and Sewerage Department

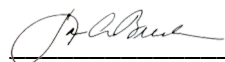
The Detroit Blue Ribbon Panel on Affordability (BRPA) is pleased to submit the attached report on its findings and recommendations to address water affordability issues. Our report reflects our consideration of information on the circumstances in Detroit, the City's ongoing initiatives to improve Detroit Water and Sewerage Department (DWSD) customer service, and options that may be implemented by DWSD to address low-income customer needs.


We have developed recommendations that recognize the acute and immediate needs of low-income customers while also acknowledging practical limitations imposed by DWSD's antiquated billing, collection and customer service systems. Our recommendations also recognize that differences of opinion prevail about the legality of the income-indexed rate component of the proposed Water Affordability Program – and do not rely on resolution of that matter. Legislation to enhance options is recommended and may also rectify legal ambiguities.

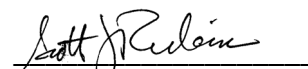
In the short term, we recommend that customer assistance be expanded, to the extent practical, through allocation of non-rate sources of funding. These programs may help address the needs of Detroit's most economically disadvantaged. We also recommend that in-progress customer service initiatives be amplified in collaboration with community stakeholders. Longer term, we recommend implementation (as soon as practicable) of carefully designed increasing block water and sewer rate structures applicable to all residential users (rather than income-indexed rates applicable to income qualified customers). Though we understand that no set of water affordability measures may solve the problems of endemic poverty in Detroit, we assert that our recommendations can mitigate some of its most searing effects.

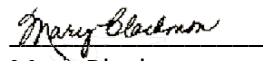
We would like to acknowledge the participation of DWSD's leadership team who provided invaluable insight into the Detroit context and substantive initiatives already in progress. We earnestly hope that our insights, findings and recommendations prove helpful in mitigating the City's daunting water affordability challenges and promoting universal access to water service for all Detroiters.

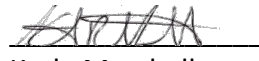
The Blue Ribbon Panel on Affordability:

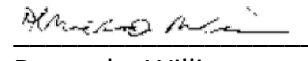

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City of Detroit Blue Ribbon Panel on Affordability

FINAL REPORT

Prepared by Galardi Rothstein Group
Contract #CS-1787

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Executive Summary

One of the most acute consequences of the City of Detroit's historic decline has been the growth in the number of low-income customers encountering difficulties in paying their water and sewer bills. Over the years, these problems in one of the nation's poorest large cities have led to abysmal bill- collection rates and large numbers of service disconnections. In 2005, related concerns led to the proposal of a Water Affordability Program for the City of Detroit that featured an income-indexed rate proposal. Although that proposal was not implemented, in part because of potential challenges under Michigan law, persistent concerns about water affordability remained – and intensified in October 2014, when service disconnection protests gained international attention. Concurrent with these challenges, the southeastern Michigan region is embracing a new institutional structure for water and sewer service in the form of the Great Lakes Water Authority (effective January 1, 2016). The Authority is now responsible for providing water and sewage treatment and transmission service to wholesale customers and the City of Detroit, while the Detroit Water and Sewerage Department (DWSD) retains responsibility for delivering retail water and sewer service to its customers.

In May 2015, faced with meeting its financial obligations to the planned regional authority while also recognizing the financial struggles of Detroit residents, the Detroit City Council expressed renewed interest in investigating the feasibility of the Water Affordability Program originally proposed in 2005. In October 2015, the City of Detroit convened a Blue Ribbon Panel on Affordability (BRPA), composed of national experts and local stakeholders, to collectively identify and evaluate options to address low-income customers' challenges in paying water and sewer bills and the subsequent service disconnections. The panel met four times between October 2015 and December 2015 and made the following findings:

- No single rate design or assistance program can adequately address the diverse, multi-dimensional poverty and water affordability challenges that persist in Detroit, or elsewhere, though progress can be made through a multi-pronged, long-term affordability program. Implementing an array of options may reduce overall system costs and more equitably distribute cost responsibilities by avoiding selected billing and collection expenses and broadening the population of paying customers.
- Among the options considered, increasing-block rate designs for both water and sewer services would be an effective pricing structure for addressing water affordability issues in Detroit. By contrast, an income-indexed rate component, such as that included in the Water Affordability Program initially proposed to DWSD in 2005, would be more susceptible to legal challenge, more difficult to implement and administer, and less broadly based due to the income-qualification provision of this rate design.
- DWSD may be able to augment funding of bill payment and water conservation assistance programs for qualifying low-income customers by directing revenues from activities other

than water and sewer service sales (i.e., non-rate revenues) toward this purpose. These funding allocations require consideration of potential legal and financial implications.

- New DWSD leadership is appropriately prioritizing the improvement of its retail billing and collection systems and practices. These actions should result in improvements for all DWSD retail customers, especially those encountering payment challenges.
- Implementing alternative rate structures and selected changes to billing and collection practices that require billing software and data management changes will require approximately two years, and possibly longer.
- As acknowledged by new leadership, cultural change is needed in DWSD to emphasize responsive and compassionate retail customer service.
- Water affordability is significantly affected by the overall costs of service and the allocation of shares of cost responsibilities across system users.
- Community groups and activists have been instrumental in highlighting the plight of low-income customers in Detroit, and they should play a critical role in ongoing efforts to improve water affordability.

Centering on these and related findings, the BRPA identified a number of recommendations for short- and long-term actions that DWSD may take, as well as opportunities to advocate for state and federal policy measures to help address water affordability. These recommendations include:

- In the near term, DWSD should evaluate and, to the extent practical, expand funding of bill payment and water conservation assistance programs from non-rate funding sources. Expanded assistance program funding and outreach can help address the needs of the most economically disadvantaged customers.
- In the near term, DWSD should dedicate necessary financial and managerial resources to expedite improvement of billing, collection, and other customer services, placing a high priority on converting from address-based accounts to assigning accounts to financially responsible parties. DWSD should continue pursuing opportunities to enhance efficiency and customer service through partnerships with DTE Energy and other utility service providers.
- DWSD should carefully design and implement increasing-block rate structures for water and sewer services as soon as practical, recognizing the limitations of its existing billing system and customer service processes. The rate structures should be based on cost-of-service principles and promote end-use efficiency, while ensuring that minimum levels of service required for health and sanitary purposes are more broadly affordable. Rate structure revisions also must be designed to ensure Detroit continues to generate

adequate revenues to meet all of its obligations, including those to the GLWA as specified under the recently executed leases and service agreement.

- DWSD should address potential financial and legal constraints on expanding its assistance program offerings to provide water conservation and plumbing repair assistance, administered through third-party service providers.
- DWSD should pursue efficiencies in retail operations and advocate for GLWA to realize similar efficiencies. It should actively participate in forthcoming reviews of GLWA cost allocation methodologies and ensure equitable distributions of cost responsibilities.
- The City of Detroit and DWSD should actively engage in developing State of Michigan legislation that would establish new revenues (such as water withdrawal fees) to support water utility affordability programs.
- The City of Detroit and DWSD should actively endorse proposed federal legislation to establish a water and sewer equivalent to the federal Low-Income Home Energy Assistance Program (LIHEAP).

Detroit Blue Ribbon Panel on Affordability

The BRPA was convened in response to the concerns of Detroit City Council, new DWSD leadership, and the general public regarding water and sewer service affordability in the City of Detroit. Supported by DWSD, the BRPA comprised national experts and local stakeholders engaged in water affordability issues. The panel reviewed information about the nature and magnitude of the affordability problem in Detroit and identified a number of potentially responsive mitigating options. The BRPA and DWSD leadership evaluated these options through a structured decision process using well-defined evaluation criteria. They also acknowledged that water affordability measures would serve only to mitigate, and not solve, the plight of endemic poverty. The findings and recommendations of the panel reflect this evaluation process.

Affordability Challenges

Nationally, water and wastewater utilities face the dual challenges of: (1) generating revenues sufficient to support infrastructure development and renewal, and (2) advancing universal access¹ to services considered essential for human health and welfare. This dichotomy is amplified by economic conditions in Detroit, making it in some senses “ground zero” for the national water affordability challenge.² Detroit is ranked as among the poorest major metropolitan areas in the United States according to the U.S. Census Bureau (2015), with an exceptionally high poverty rate coupled with a substantial loss of population. Although housing in Detroit is relatively affordable, the city is also challenged by relatively poorly valued housing

¹ Universal access to service in this context includes not only the extension of service to all households within the service area seeking connection, but also reducing involuntary service disconnections.

² Selected BRPA members noted that water affordability challenges may be viewed as symptomatic of a larger set of problems arising from outmigration from urban centers by higher income populations, leaving fixed costs of municipal infrastructure and services to be borne by remaining, often less economically advantaged, populations.

stock. At the same time, charges for water and sewer (including drainage) services in Detroit are among the highest in Michigan, and relatively high when compared to other major metropolitan communities in the United States. Moreover, legal constraints on water and sewer service pricing, and on the use of system revenues to assist low-income households, are seen to be more acute in Michigan than in many other states.

Water Affordability Options

Options considered by the BRPA were divided into three general categories: rate structures, customer assistance, and billing and collection procedures. Rate structure options affect all customers depending on design, while customer assistance options are targeted and specially funded measures based on income qualification. Billing and collection options focus on improving practices to be responsive to low-income customer needs. The options that the BRPA reviewed and evaluated were:

Rate Structure Options

- Income-indexed rates (as proposed under the Water Affordability Program)
- Fixed charges including a quantity allowance
- Increasing-block rates (with an initial rate to make minimal levels of service more affordable)
- Property-value-based charges to reflect the cost and value of fire protection³

Customer Assistance Options (Income-Qualified)

- Bill assistance
 - General assistance
 - Amnesty program (as proposed by the Detroit Water Brigade)
- Water conservation and plumbing repair

Billing and Collection Options

- Payment plans with disconnection avoidance
- Payment plans with arrearage forgiveness
- Budget billing
- Alternative billing scheduling

Option Evaluation

The BRPA evaluated the identified options using a simple, multi-attribute scoring and ranking procedure. Evaluation criteria included:

- Risk of potential legal challenge

³ A related option would be a property tax for fire protection, with the associated revenue stream dedicated to the utility and made available to fund low-income assistance programs. Another noted option involves limiting flow (through installation of a flow-restricting device) to reduce the effective service size and, therefore, rates and bills applicable to flow-restricted accounts. These concepts were mentioned but not discussed at length by the BRPA nor made subject to the option evaluation process.

- Extent of assistance in terms of the number of households reached
- Extent of assistance in terms of durability
- Water resource efficiency
- Overall fairness
- Practicality in terms of implementation and understanding

Based on the evaluation criteria, the highest-ranking options by category were: (1) increasing-block rates, (2) bill assistance programs, and (3) payment plans with disconnection avoidance. Water conservation assistance programs and budget billing also scored relatively highly. The above-listed findings and recommendations were informed, in part, by this option evaluation.

Acknowledgements

BRPA members and DWSD leadership team staff dedicated numerous hours and extensive effort to this process. Special thanks are extended to national experts Janice Beecher, Julius Ciaccia, and Robert Miller, who volunteered their time. Local insights and perspectives were particularly important to informing this work and were ably provided by Mary Blackmon, Julie Kavanagh, Karla Marshall, and Demeeko Williams. Scott Rubin and Roger Colton not only offered extraordinary insight from their national work on these issues but also, with local assistance, helped the panel understand the Michigan legal framework. Deputy Mayor Carol O’Cleireacain provided invaluable policy insight with regard to implementation practicalities. Meeting summaries and logistics were smoothly handled through the exceptionally capable assistance of the Project Innovations team of Charles Fleetham, Teresa Weed Newman, and JoAnna Trierweiler. Lastly, the participation of the DWSD leadership team staff – Gary Brown, Marcus Hudson, Palencia Mobley, and Robert Presnell with support from Renee Baker – was extremely valuable in informing and setting the stage for implementing the BRPA’s recommendations.

Blue Ribbon Panel on Affordability

Background

The Detroit Blue Ribbon Panel on Affordability (BRPA) was proposed to the Detroit City Council in spring 2015 in the context of considering proposed FY 2015-16 retail water and sewer service rates. The concept, outlined by the City's then-Chief Operating Officer, was to convene a panel of both national experts and regional stakeholders to address continuing concerns regarding water affordability for low-income customers in the City of Detroit. Acceptance of the concept was signaled by the Detroit City Council's adoption, on May 12, 2015 of a resolution entitled: "Resolution Supporting Collection And Analysis Of Adequate Data To Evaluate Creation Of A Water Affordability Plan Before Resuming Residential Water Shutoffs."

The BRPA's review comes at a meaningful time in the history of water and sewer services in southeastern Michigan. On September 9, 2014, the Emergency Manager and the Mayor of the City of Detroit; the County Executives of Macomb, Oakland and Wayne counties; and the Governor of the State entered into a Memorandum of Understanding for the purpose of establishing a regional authority to operate, control and improve the water supply and sewage disposal systems operated by the Detroit Water and Sewerage Department (DWSD). On June 12, 2015, leases for these systems were approved by the Great Lakes Water Authority (GLWA) Board and Mayor of the City of Detroit that contemplate, among other things, for the GLWA to include in its revenue requirements a \$50 million per year allocation to fund capital improvements in the City of Detroit, and a 0.5 percent allocation of GLWA and DWSD revenues to fund a Water Residential Assistance Program (WRAP) for low-income residents in the GLWA service area. The GLWA's Effective Date was January 1, 2016, initiating the conversion of DWSD to serve solely as a retail services provider to City of Detroit customers.

Detroit is required under the terms of the leases to meet all its financial obligations, and it is subject to greater scrutiny of its financial management than any GLWA wholesale customer. For some time, Detroit retail collection rates have been materially below those of other major metropolitan water and wastewater systems, many of which serve substantial low-income populations. Also in recent years, in the face of exceptionally high poverty rates, several plans and initiatives have been put forward to address the affordability of water and sewerage services for low-income customers in Detroit. These have included a number of donation-funded assistance programs, as well as a proposed Water Affordability Program⁴ to redesign DWSD's rate structure.

⁴ "A Water Affordability Program for The Detroit Water And Sewerage Department (DWSD)," prepared by Roger Colton, Fisher Sheehan & Colton, Public Finance and General Economics, January 2005. In a related development, on November 19, 2015, the Philadelphia City Council adopted legislation authorizing a process for creating a similar income-based billing and debt forgiveness program for the Philadelphia Water Department. The law took effect December 1, 2015, and has not yet been implemented by the Philadelphia Water Department. Information requested on the legal basis for and financial implications of these options in Philadelphia is not available at this time.

Given the acute needs in Detroit and prospective obligations to GLWA, the City of Detroit is interested in identifying and considering new and complementary approaches to making water more affordable that are practical and viable within the bounds of Michigan law.

Purpose and Scope

While the findings and recommendations of the BRPA may inform national and regional discussions on water affordability issues, the specific charge of the BRPA was to identify and evaluate the merits of options that may be used to mitigate water affordability challenges facing low-income residents of the City of Detroit. The BRPA's scope of inquiry was to:

- Assess the barriers to, and options for, implementing alternative water and wastewater rate structures to address affordability concerns – including, in particular, the income-indexed rate structure contemplated in the proposed Water Affordability Program considered by the Detroit City Council.
- Identify utility billing, collection and customer service enhancements that may render assistance for low-income customers' management of their water and sewer bill payments.
- Assess the existing array of programs available to Detroit residents, including the forthcoming GLWA Water Residential Assistance Program (WRAP), and identify options for modifying or complementing these assistance programs. Evaluate the viability of assistance programs and other measures used by other water and sewerage utilities across the United States in terms of their potential application in Detroit.
- Evaluate the available data and information sources to characterize the extent of low-income water and sewerage assistance needs in the Detroit (and GLWA) service area and identify future research needs.
- Identify options to enhance funding of available assistance programs through private donations and related fundraising activities.

The BRPA's findings and recommendations will be presented for consideration to the DWSD Board of Water Commissioners and Detroit City Council.

Membership and Review Process

With the intent to identify practical and legally sustainable options to address water affordability concerns for Detroit's low-income customers, BRPA members were selected to provide relevant national expertise and experience, and/or insight into local and regional dynamics. National experts, asked to represent their professional experience and provide their personal perspectives rather than that of their employers, included:⁵

⁵ Paragraph summaries of these national experts' experience are provided as Appendix I. Howard Neukrug, Chief Executive of the Philadelphia Water Department (or a designee), was also asked to participate but was unable to attend the workshops due to scheduling conflicts.

- Janice Beecher, Director, Michigan State University Institute of Public Utilities
- Julius Ciaccia, Chief Executive Officer, Northeast Ohio Regional Sewer District
- Roger Colton, Co-Founder, Fisher, Sheehan & Colton
- Robert K. Miller, Deputy Director, Sewerage and Water Board of New Orleans
- Eric Rothstein, Principal, Galardi Rothstein Group (Chair)
- Scott Rubin, Attorney at Law

Regional members included:

- Mary Blackmon, DWSD Board of Water Commissioner
- Julie Kavanagh, Macomb County Community Services Agency
- Karla Marshall, Policy Analyst, Detroit City Council Member Scott Benson
- Demeeko Williams, Political Director, Detroit Water Brigade

The BRPA conducted its review through a series of four workshops held in downtown Detroit between mid-October and mid-December 2015. Workshop agendas are provided as Appendix II. These workshops featured a number of presentations by BRPA members and DWSD staff as well as facilitated discussions. The BRPA was provided background information, particularly with respect to Michigan law (see listing below).

The discussions centered on identifying and evaluating specific options that could be implemented by DWSD to address water affordability issues. Following initial discussions, options were grouped into three major categories: (1) Rate Structure Options, (2) Customer Assistance Options, and (3) Billing and Collection Options. Each set of options contemplates specific measures to address the plight of low-income customers.

In addition, BRPA members and DWSD staff echoed the point that a general and fundamental way to address water affordability is to effectively manage the overall costs of providing service through efficient operations. Also, for the City of Detroit, it is a fundamental requirement to ensure that their assigned allocation of GLWA cost responsibilities is reasonable, appropriate and reflective of GLWA's costs to provide services to the City of Detroit. This requirement underscores the importance of forthcoming reviews of GLWA cost allocation methodologies and the need to ensure equitable prospective distribution of costs of service across GLWA customers.

Information Reviewed

In light of the considerable advocacy related to the proposed Water Affordability Program and the Detroit City Council's resolution, the BRPA was provided selected legal opinions that have been developed regarding DWSD's ability under Michigan law to implement the proposed program. These opinions, as well as the Bolt vs. Lansing decision they reference, are listed below:

- Memorandum: “Legal authority for low-income affordability discount,” by Roger Colton for Detroit Blue Ribbon Panel on Affordability, October 27, 2015
- Memorandum: “Legality of Water Affordability Plan (WAP),” by David Whitaker, Director, City of Detroit Legislative Policy Division, October 21, 2015
- Memorandum: “Whether the Detroit Water and Sewerage Department Has the Legal Authority: 1) To Establish a Water Rate for Low-Income Residents That Would be Lower Than the Cost of Service; and 2) To Raise the Water Rates of Other Customers to Cover the Revenue Shortfall Created by the Low-Income Rates,” Detroit Law Department (Robert C. Walter, Senior Assistant Corporation Counsel), February 8, 2006
- Memorandum: “Constitutionality of Water Affordability Program for Detroit,” Sean Flynn, Spiegel & McDairmid to Professor Lorry Brown, Michigan Poverty Law Center, September 26, 2005
- Memorandum Re: “Subsidy for Senior Citizen Water Bills,” Richard J. McClear, Dykema Gossett PLLC, September 24, 2001
- Alexander BOLT, Plaintiff-Appellant, v. CITY OF LANSING, Defendant-Appellee, Docket No. 108511.Calendar No. 4 (455 Mich. 152 [1998])

The BRPA was also referred to, or provided, a number of other documents to offer more background information or fuller discussions of issues touched on in the panel’s deliberations. These included:

- City of Philadelphia, Pennsylvania Ordinance (Bill No. 140607-AA), An ordinance amending the Philadelphia Code: §19-1605. Limitation on Action to Enforce Collection; Income-Based Water Rate Assistance Program
 - November 19, 2015 Press Release: “Philadelphia Water Proud to Create Water Affordability Program and Conservation Education for Low Income Customers”
- “Thirty Point Water Quality, Conservation Education & Affordability Policy Recommendations for Residential Customers in Single Family Homes & Apartment Complexes” (DRAFT), by Demeeko Williams, Political Director, Detroit Water Brigade
- “Cleaner Rivers for the National Capital Region: Sharing the Cost,” by Carol O’Cleireacain, Brookings Institution Metropolitan Policy Program, May 2012
- Low-Income Rate Affordability Assistance: 25 Years of Independent Third Party Evaluations (December 2014), a bibliography compiled by Roger Colton
- John Cromwell, et al. (2010). Best Practices in Customer Payment Assistance Programs, Water Research Foundation: Washington D.C.

- U.S. Conference of Mayors, et al. (2013), *Assessing the Affordability of Federal Water Mandates: An Issue Brief*, U.S. Conference of Mayors/American Water Works Association/Water Environment Federation: Washington D.C.

As noted, several of the national experts on the BRPA, as well as DWSD staff, also presented information on a broad array of related subjects ranging from national rate trends to local billing and collection system constraints and initiatives. These presentations are collected and provided as Appendix V.

Affordability Challenges

The BRPA's efforts initially were framed by a discussion of the challenges related to water and wastewater service pricing and water affordability in the United States generally, and Michigan and Detroit specifically. Water and wastewater pricing challenges relate to historical underpricing of these services and rising infrastructure costs, while water affordability challenges stem from the danger of rate increases outstripping low-income customers' ability to pay for an essential service.

National Issue – The Affordability Dichotomy

Water and wastewater services have been, and continue to be, underpriced relative to both their actual cost and value in many U.S. communities. Federal subsidies, earlier through construction grants and currently through low-interest loan programs, offset system infrastructure costs. Asset renewal and replacement rates, though improving with the growing emphasis on asset management, continue to lag system depreciation rates. Prices based on cost accounting also do not reflect environmental and social externalities, negative and positive, in the absence of taxes or fees toward this end.⁶

For the water and wastewater sector to be financially sustainable over the long term, either governmental subsidy will need to continue and increase, or service pricing will need to match industry cost inflation rates (or both).⁷ Given the continued trends of declining rather than increasing national investment in water and wastewater infrastructure, declining per capita

Water Affordability – a subjective term conveying customers' ability to pay their utility bills (and thereby meet the utility's financial needs) without undue hardship. For some, unaffordable bills may reflect a fundamental mismatch between the household's utility bill and available income.

⁶ Issues related to addressing market externalities are discussed in, for example, "Why Public Utilities Should Ignore Market Externalities," by Jan Beecher in *United States Association of Energy Economics Dialogue*, v19, (1) 2011 and "Financing Water Utilities' Sustainability Initiatives: Challenging Institutionalized Governance and Market Failures," by Eric Rothstein and Deborah Galardi, 2012 *Water Sustainability Conference (AWWA)*.

⁷ There are numerous discussions of the national water and wastewater infrastructure funding challenge available including, for example: *Buried No Longer: Confronting America's Water Infrastructure Challenge*, American Water Works Association: Washington D.C.; *Drinking Water Infrastructure Needs Survey and Assessment, Fifth Report to Congress*, USEPA, Office of Water (4606M) EPA 816-R-13-006, April 2013; *Opportunities & Challenges in Clean Water Utility Financing and Management: Financial Survey Highlights*, NACWA, February 2015.

usage, and ever-increasing operating costs (labor, energy, chemicals, and equipment) for water and wastewater systems, it is not unreasonable or necessarily inappropriate for water and wastewater rates to continue to rise for the foreseeable future.⁸ Water rates that reflect the cost of service are considered appropriate in terms of sending price signals that encourage efficient usage.

However, the inexorable (and likely necessary) march toward higher water and wastewater service pricing portends a decline in the affordability of these vital services, particularly for low-income households. Indiscriminate rate increases without regard to water affordability will result in further economic dislocation for community residents, and billing and collection challenges that will compromise intended revenue recovery. Nationally, water and wastewater utilities are challenged with a dichotomy that on the one hand demands increasing revenue generation to support infrastructure development, renewal, and upgrade while on the other hand calls for advancing universal access to essential services.

Detroit Context

The national affordability dichotomy is amplified by circumstances in Detroit, making it in some senses “ground zero” for measures to address water affordability challenges. These circumstances include:

- **Poverty Rate.** U.S. census data show the City of Detroit’s poverty rate at 39.3% for the period 2009-2013, over 2.5 times higher than the U.S. poverty rate and over 2.3 times higher than that for the State of Michigan. Detroit is ranked as the poorest major metropolitan area in the United States.
- **Housing Stock.** Though housing in Detroit is relatively affordable, the housing stock is poorly valued with the median value of owner-occupied housing units at \$45,100 for the 2010-2014 period as compared to \$175,700 nationally and \$120,200 in Michigan. Despite these low values, home ownership lags in Detroit at 50.7% as compared to 64.4% nationally and 71.5% in Michigan.⁹
- **Water and Sewer Rates.**¹⁰ Based on recent national survey data,¹¹ Detroit’s water and sewer (including drainage) charges are among the highest in the United States. Detroit

⁸ Water and wastewater rates have been increasing at roughly double the rate of inflation for at least the last decade and generally are projected to continue to increase at rates well above inflation. See, for example, the annual water and wastewater rate surveys conducted by the American Water Works Association (AWWA) or the National Association of Clean Water Agencies’ (NACWA) bi-annual financial survey reports.

⁹ Unless otherwise noted, all demographic statistics are drawn from: U.S. Census, American Community Survey, Quickfacts for the U.S., Michigan and City of Detroit.

¹⁰ Water service rates include a meter charge (\$6.61 for a standard 5/8-inch meter) and volumetric charges of \$22.76 per 1000 cubic feet. Sewer charges include a charge per bill of \$5.94 and volumetric charges of \$50.21 per 1000 cubic feet. A drainage charge currently based on meter size is also in place and is \$19.66 for residential customers served by a 5/8-inch meter. The drainage charge is to be revised in 2016 and based on impervious area.

¹¹ Water and Wastewater Rate Survey conducted by the American Water Works Association / Raftelis Financial Consultants (2014).

residential users using 500 cubic feet of water per month would be charged \$824.34 annually, or approximately 3.16% of Detroit's median household income of \$26,095 for the period 2010-2014.

- **Water Shut-Off / Payment Plan Experience.** Detroit has experienced a number of acute challenges with billing and collections, particularly over the last decade. Since (at least) 2005, concerns about service disconnections have given rise to different payment plan arrangements,¹² demonstrations and calls for shut-off moratoria, and associated litigation.
- **Prospective Obligations to / Support from the GLWA.** The water shut-off controversies are a symptom of billing and collection challenges that have resulted in Detroit experiencing atypically low collection rates. For FY 2016, service rates were calculated under an assumption of 85% collection on City of Detroit retail billings – imposing significant collection-related expenses that must be shouldered by paying customers. Prospectively, the leases of the City's regional water and sewer system assets are predicated on Detroit retail customers meeting all of their financial obligations to the GLWA. At the same time, eligible City retail customers (as well as other eligible GLWA customers outside the city) will be able to access the GLWA's forthcoming Water Residential Assistance Program (WRAP).
- **Michigan Legal Environment** – Legal constraints on water and sewer service pricing, and on the use of system revenues to render payment assistance, are seen to be more acute in Michigan than in many other states. The Headlee Amendment to the Michigan constitution and the Michigan Supreme Court's decision in *Bolt vs. Lansing*¹³ generally have been interpreted to require that water services be priced based on the costs of service, and not on non-cost factors such as income or ability to pay. Also, Headlee and *Bolt* suggest that revenues collected from all utility customers should be used to pay system costs and may not be used to benefit a specific class of customers.

There are differences of opinion as to the extent to which these attributes of Michigan's legal framework constrain Detroit's rate setting and customer assistance program funding options. For example, some contend that an income-indexed rate option would not sustain a challenge; others contend Michigan law is permissive. While it remains an open question, the reality of these differing viewpoints affects the potential for selected options to be subject to (potentially costly) legal challenge.

Cumulatively, these circumstances make Detroit's challenges more difficult and at the same time more important to address substantively. Approximately 100,000 of the 250,000 households in

¹² Information on the current 10-30-50 payment plan arrangements is available on the DWSD website at: http://www.dwsd.org/pages_n/homelinks.html#10_30_50.

¹³ 459 Mich. 152, 587 N.W.2d 264 (1998).

Detroit are living below the federal poverty line; thousands of additional Detroit residents live with income exceeding the official poverty line, but below the level necessary to meet essential household needs without experiencing hardship. This essentially defines Detroit’s water affordability challenge.

City of Detroit / DWSD Role

Though Detroit’s water affordability challenge is undeniable and as daunting as anywhere in the United States, a fundamental question discussed by the BRPA relates to the appropriate role of the City, and by extension DWSD, in addressing the challenge. BRPA members generally concurred that water rates and shutoff policies cannot solve endemic problems of poverty in the region. However, the BRPA’s national experts noted that utilities across the country have adopted different postures with respect to public water and wastewater utilities’ social responsibilities. Some have asserted that utilities are in place to deliver services efficiently and effectively without regard to customers’ economic or social standing. Others have adopted a view that working to advance universal access to essential life services in their communities is fundamental to their public role. In the case of Detroit, at least two factors suggest an expansive view toward DWSD’s social responsibilities that would embed affordability considerations within DWSD’s mission.

“The people have a right to expect city government to provide for its residents, decent housing; job opportunities; reliable, convenient and comfortable transportation; recreational facilities and activities; cultural enrichment, including libraries and art and historical museums; clean air and waterways, **safe drinking water and a sanitary, environmentally sound city.**”
(emphasis added)

- *Charter of the City of Detroit, Declaration of Rights*

First, the right to expect city government to provide safe drinking water and a sanitary environment is included in Detroit’s City Charter. Second, the Mayor and Detroit City Council have consistently expressed water affordability concerns and instituted a variety of measures – including payment plan options, assistance programs, and creation of the BRPA itself – to help advance universal access to water services.

In addition, because past due and uncollectible billings represent a significant expense for DWSD, developing rate and programmatic approaches to address affordability may improve DWSD’s overall financial performance. For FY 2016, retail water and sewer unit charges were set under an assumption of a 15% uncollectible rate – equivalent to approximately \$55 million per year. DWSD budgeted approximately \$1.6 million in FY 2016 for expenses directly related to delinquent account collections, specifically service disconnections, and additional costs for related administrative expenses (e.g., reconnection and late payment fee collections, payment plan administration). There is a business case for structuring rates and charges, assistance

programs, and collection policies to mitigate fundamental water affordability problems (in addition to ensuring the financial sustainability of system operations).¹⁴

DWSD Billing and Collection

Unfortunately, Detroit is hampered by a legacy of billing and collection processes, practices and systems that will constrain the emerging retail DWSD's ability to enhance customer service in a timely fashion. Perhaps the most problematic of these practices was the association of accounts in the DWSD billing system with the address location where services are provided, rather than

“[G]etting away from billing to ‘resident’ and billing by name directly to the property owner will shift the burden to where it belongs, which is consistent with most water and sewer utilities in this country.”

-Julius Ciaccia,
NEORSO CEO and
BRPA Member

with the party that has financial responsibility for payment. This disassociation has resulted in a host of problems too numerous to catalogue here.

In response, new retail DWSD leadership has established a number of major initiatives to rectify the systemic problems with DWSD billing and collection processes and procedures, and to improve customer service. These include the laborious processes of associating address-designated accounts with financially responsible parties, upgrading software, redesigning business processes, and ensuring consistent application of service disconnection rules. DWSD leadership is committed to staffing billing and collection operations with trained personnel, and expanding the scope of their responsibilities to render higher quality customer service. Selected customer service personnel

will be trained to deliver customer service for low-income ratepayers who may need access not only to payment assistance programs, but also to other social services.

In addition, DWSD is working to enhance customer billing and collection data management and reporting to better assess the magnitude of payment challenges and effectiveness of initiatives. DWSD is looking to routinize diagnostic reporting on billing and collection activities (e.g., number of service disconnections, associated arrearages, number and timing of reconnections, payment plan statistics).

The BRPA, briefed about the challenges before DWSD staff, generally concurred with the priorities identified by DWSD leadership, and acknowledged that these improvements would take considerable time and effort to implement.

¹⁴ The concept of fundamental water affordability problems may be further understood with recognition that, for some customers, there is a mismatch between income and the costs of water and sewer services. In these cases, measures to extend time to pay bills through payment plans, or to ease budgeting of payments, are ineffective. Imposing collection-related fees to recover service disconnection expenses exacerbates the problem. Water affordability for these customers requires practical solutions that recognize constraints on the ability to pay.

Water Affordability Options¹⁵

Though DWSD's billing and collection systems impose practical limitations on timing, and Michigan's legal framework imposes (at least uncertainties about) potential challenges, the BRPA identified a number of options that may provide short- and long-term relief to low-income customers in Detroit. As described below, these options may be placed in three broad categories:

- **Rate Structure Options.** Alternative methods of rates and charges that are used to calculate customers' water and sewer bills. The bills typically include fixed charges that are imposed each billing cycle irrespective of the amount of water delivered, and volumetric charges based on water usage or attributed wastewater flows.¹⁶
- **Customer Assistance Options.** These options include the array of programs specifically designed to render assistance to qualifying low-income customers struggling with water affordability challenges. Program types may be subdivided into direct bill assistance programs that help eligible customers by paying or forgiving their water and/or sewer bills. These programs cover all or a portion of customers' current bills and accumulated arrearages. Efficiency programs are designed to help low-income customers reduce their bills by helping them reduce their water usage. Some programs center on educational efforts and distribution and installation of low-cost water efficiency devices (e.g., low-flow showerheads, faucet aerators), while others may include minor plumbing repairs and replacement of leaking toilets and fixtures.
- **Billing and Collection Options.**¹⁷ These options relate to the various practices and processes by which the water and sewer utility collects payments for services (and disconnects service for non-payment). Options range from making available payment plans in the event of customer arrearages, to timing and structuring of bill issuances (e.g., budget billing, customer selection of bill due dates), to measures that enable customers to avoid service disconnections and associated late payment and reconnection charges.

All of these options relate to restructuring the means by which costs are recovered from City of Detroit ratepayers. It was also acknowledged that a key to water affordability is overall water and wastewater system cost management, and ensuring the equity of cost-of-service allocations.¹⁸ Utility executive management holds a responsibility to ensure efficiency of system operations

¹⁵ Numerous articles and presentations on water affordability options are available to provide further, more detailed descriptions of the options noted here and associated implementation requirements. A brief bibliography of selected articles compiled by the Michigan State University Institute for Public Utilities is provided as Appendix VI.

¹⁶ In addition, all customers pay a drainage charge that is \$19.66 per month for the residential customer. The data to assess the drainage charge is being updated and the City plans for each customer to be charged based on the impervious area of the property effective August 1, 2016

¹⁷ These options are intended to provide assistance to customers that exhibit a fundamental ability-to-pay by easing potential obstacles to effecting those payments. They may work in combination with other options for those absent adequate resources to make payments in full.

¹⁸ See Appendix V, Workshop #3 DWSD Staff presentation: "Preliminary View on Affordability," pp. 3-9, for a discussion of issues related to prospective GLWA cost allocations.

and to establish a process for equitable allocation of cost responsibilities across system users. Given that City of Detroit ratepayers face relatively high service rates, a significant opportunity to address water affordability is through cost management of both GLWA and the retail DWSD system. However, though the BRPA noted the importance of ensuring equitable cost distributions to Detroit, for a variety of reasons,¹⁹ the scope of the BRPA review of options specifically excluded assessment of overall cost-saving opportunities or cost-of-service allocations.

Recognizing the City of Detroit's duty to meet its financial obligations to the GLWA, and residents' charter-defined rights to safe drinking water and a sanitary environment, the BRPA identified the following options (and related implementation issues) to address water affordability within the three categories designated above.

Rate Structure Options

Given the current state of the DWSD billing system, customer account records and customer service processes, DWSD staff estimated that revisions to the Department's current rate structure would require two or more years to implement,²⁰ depending on the complexity of the adopted rate form. Rate structure changes would require modifications to automated billing routines and related customer account records, revised business processes and data collection procedures, customer service personnel training, and a host of other tasks (many of which depend on completion of planned and ongoing system improvements). Nevertheless, the BRPA viewed alternative rate designs as exceptionally important because of the breadth of their potential impact.

- **Income-Indexed Rate Option.** This rate option amounts to establishing a bill for water and sewer services for qualifying low-income customers based on their ability to pay – specifically in terms of a percentage of their established income level. This is the “rate affordability” component of the Water Affordability Program²¹ referenced in the Detroit City Council's May 12, 2015 resolution. Implementation issues relate to setting the percentage of income limitation,²² defining business processes for qualifying (and maintaining appropriate records on) eligible populations, and establishing a separate, income-designated customer class in the DWSD billing system.
- **Minimum Quantity Allowance.** This option incorporates delivery of minimum levels of service required for health and sanitation within the utility's fixed charge structure (while

¹⁹ Reasons include the fact that DWSD has been subject to a number of operational reviews through the course of optimization initiatives and the GLWA mediation, as well as DWSD's extensive, stakeholder-engaged cost-of-service rate setting process.

²⁰ See, for example, Appendix III for a listing of the major steps involved in implementing the recommended increasing block rate structure.

²¹ Colton (2005), pp. 5-7.

²² BRPA discussions noted that while the originally proposed Water Affordability Program document advanced a concept of a 2% of income limitation on water and sewer billings, cited USEPA financial capability guidance employs a 2% of Median Household Income threshold for one or another service such that a combined water and sewer bill limitation would be in the 4% of income range.

not increasing fixed charges to unaffordable levels for low-income populations). Implementation involves less complex modifications to billing system routines and business processes. Because the quantity allowances are incorporated within fixed charges applicable to all customers, their benefit is universally applicable, obviating the need to establish a separate customer class or maintain eligibility data on low-income populations. By the same token, by including a specific usage allowance within DWSD's fixed charges, some customers may be disaffected because they have reduced, or could reduce, consumption below the allowance level. In these likely limited cases, these customers could be paying more for basic levels of service than under a rate that charges for all water used.

- **Increasing Block Rates.** Increasing block rates relate to volumetric rates within a water or sewer rate structure. They impose higher per-unit costs for higher levels of water use within predefined ranges (or blocks) of consumption. An affordability-structured increasing block rate will charge for minimal usage at levels that should be affordable for most low-income customers (for example, 4% to 8% of household income), and will charge for subsequent increments of usage in ways that not only encourage resource efficiency, but also allocate the recovery of costs to those who place more burdens on the system.²³ Implementation issues are substantial due to the relative complexity of the service pricing structure and attendant changes needed to billing system software routines, business processes and customer service protocols, particularly in the event that rates are differentiated by customer classes (residential, commercial, industrial).²⁴
- **Property-Value-Based Fire Protection Charges.** This option would involve revising existing fixed charges, or adding separate fixed charges (with corresponding reductions in revenues from other rate components), to recover the costs of fire protection on the basis of property value protected. This could render water affordability benefits by shifting cost recovery responsibilities to those owning higher valued properties. Implementation issues would be substantial, particularly given that existing account information already must be supplemented to assign financial responsibility to property owners, and this option would further require a tie to property valuation data. In addition, existing cost-of-service

²³ The BRPA acknowledged the importance of several key dimensions of an increasing block rate structure to ensure that it improves, rather than impedes, affordability for low-income customers. In particular, care is required in defining the size (usage volume) and pricing of the initial rate block, the number of blocks, and the pricing differences among the blocks. While the same rate blocks are not necessarily required for sewer service pricing, an increasing block rate structure for water service will have limited impact on water affordability if a corresponding increasing block rate structure for sewer service is not also adopted.

²⁴ While DWSD would not be required to address income qualification, utility systems typically (though not always) establish different customer classifications if billing non-uniform volumetric rates. Rate blocks appropriate for residential use are unlikely to be appropriate for industrial accounts, for example. So, in addition to populating account information with financially responsible party data, effort may be required to assign accounts to typical customer classifications (e.g., residential, commercial, industrial), for which data is currently unavailable.

allocations would need to be revisited to establish the shares of allocated revenue requirements to be recovered through property-value-based charges.

Customer Assistance Options

In contrast to rate designs, which apply to all customers in a customer class subject to the designated rates and charges without requiring customers to enroll or apply, assistance programs are targeted measures that are made available to a limited number of qualifying, low-income customers. No changes to DWSD's basic water and sewer service pricing structure are required for an assistance program, and implementation requirements typically are less involved than altering rates (which require billing system software and process modifications). Like other utilities, DWSD would (continue to) partner with experienced third-party entities to identify, refer and income-qualify assistance program participants and administer such programs. In terms of an enhanced approach to water affordability, customer assistance options could supplement or supplant existing programmatic efforts.²⁵ The BRPA identified three types of assistance programs that could be used to render immediate relief for participants:

- **General Bill Payment Assistance.** Either through new or existing programs, or in collaboration with the forthcoming GLWA Water Residential Assistance Program (WRAP),²⁶ the City may put additional funding in place to provide direct bill payment assistance for qualifying low-income customers. Eligibility criteria and bill payment provisions – frequency, amounts paid, use for arrearages and/or current billings – may mirror or complement existing programs. Substantively different from prior external fundraising efforts, DWSD could, subject to legal and financial feasibility analyses, use selected non-rate funding sources (e.g., utility property lease receipts). Using such non-rate funding sources may address, in part, expressed concerns that available bill payment assistance programs are inadequately funded to provide substantive and sustained relief.
- **Amnesty Program (Detroit Water Brigade).**²⁷ A specific construct of a bill assistance program, presented to the BRPA by member Demeeko Williams, contemplates DWSD offering customers a 20% reduction of their combined past due and estimated bills upon signing up for a payment plan. Citizens with water bill balances over \$5,000, and bills from before 2012, would receive a 70% reduction settlement arrangement. In addition, customers would receive a discount of 30% to 50% off the balance of their final payment. No one would be refused amnesty. The Detroit Water Brigade's information asserts,

²⁵ Detroit ratepayers have received, and continue to receive, assistance through a number of donation-funded assistance programs including the Detroit Water Fund and The Heat And Warmth (THAW) Fund. See <http://liveunitedsem.org/pages/detroitwaterfund-about> and <http://www.thawfund.org>.

²⁶ For more information on the GLWA WRAP program, see the WRAP Design Report accepted by the GLWA Board on October 7, 2015 (Resolution No. 2015-10-09) and the contract for WRAP Program Administrator services to be approved by the GLWA Board in February 2016.

²⁷ For more information on its amnesty program proposal, see the Detroit Water Brigade's Detroit Water Amnesty Program Proposal and Detroit Water Amnesty Fact Sheet. For more information on the Detroit Water Brigade, see: <http://detroitwaterbrigade.org/latest-news/>

without DWSD confirmation, that the system savings that result from shutting off water to vacant homes could pay for the program.

- **Water Conservation.** Similar to bill payment assistance programs, conservation assistance programs that expand or supplement the GLWA WRAP program could be funded, subject to legal and financial feasibility analyses, through DWSD non-rate revenues. Water conservation assistance has particular appeal as there is a relatively higher incidence of leaking or inefficient plumbing fixtures in the housing stock occupied by low-income customers, and remedial conservation education and measures can provide sustained, long-term assistance through associated reductions in participating customers' water and sewer bills. Water conservation may complement other assistance programs that address immediate bill payment and disconnection avoidance concerns, as conservation measures facilitate customers' long-term usage management and resultant bill levels. Conservation programs also can be coordinated with local energy utilities.

Billing and Collection Options

Beyond expansion of targeted assistance programs, DWSD could modify its billing and collection practices to enhance customer service, reduce the incidence of service disconnections, address tenant problems imposed by landlord delinquencies, and be more responsive to the needs of low-income customers. As noted, several initiatives are in progress; some involve relatively simple business process revisions and enhanced customer service personnel training, while others require billing system modifications and are therefore longer term in nature. Most of these initiatives are not applicable to low-income customers alone, but are anticipated to be particularly responsive to their circumstances. A special initiative, offered by DWSD Director Gary Brown, involves training a subset of customer service representatives to specialize in case management for low-income customers. Options identified by the BRPA amplify and suggest expansion of DWSD's ongoing efforts within prevailing resource constraints. The options the BRPA identified include:

- **Payment Plans with Disconnection Avoidance.** This is a feature of DWSD's current billing and collection practices. Customers with past due account balances may avoid shut-off if they enroll in payment plans and honor their provisions. While payment plans may not rectify situations where customers' income levels are simply insufficient to pay monthly bills, they can be instrumental in enabling customers to manage arrearages accrued due to one-time or unusual circumstances. Implementation issues are limited insofar as this option is already in place, yet DWSD may refine and enhance its business processes to better communicate customers' options to avoid shut-offs, and to help customers continue to meet their obligations and overcome adverse events.
- **Payment Plans with Arrearage Forgiveness.** Large arrearage balances are especially challenging for low-income customers who struggle to meet current billings. Payment plans may be structured to forgive (or convey non-customer funding of) these balances. These plans typically reduce the outstanding arrearage for each month of payment under

the payment plan, potentially eliminating a customer's past due balances over the course of 1 to 2 years of payment plan compliance. Arrearage forgiveness under the payment plans may place customers in more tenable positions and promote sustained payment of current billings, thereby potentially increasing DWSD revenue collections and reducing system costs associated with collections of past due balances.

- **Budget Billing.**²⁸ This option simply ensures that customers are not confronted by sharp changes in billings due to variable water usage month-over-month. Projected annual billings (based on past experience) are spread evenly over the year to help customers budget to meet their water and sewer bill-payment obligations. Budget billing avoids variability in billings and allows customers to know in advance what their bills will be so that they can budget accordingly.
- **Alternative Billing Scheduling.** This option may come in a number of different forms, ranging from customer selection of the day of the month when bills are due, to enabling customers to skip a month of billing (with the associated charges spread to other months), to tying billing days to the timing of customers' scheduled receipt of income. Each of these options can facilitate customers' budgeting for water and sewer bill payments, and help them avoid arrearage accruals that might ultimately threaten service disconnection.

In addition, several BRPA members noted that DWSD could expand its customer service roles to address needs of low-income customers. BRPA members generally endorsed the concept, offered by DWSD Director Gary Brown, of a skills-based customer service unit specially trained to handle calls from customers claiming an inability to pay. They noted the importance of enabling tenants to maintain service when landlord delinquency threatens service disconnection. Recognizing DWSD's perception as a creditor in low-income communities as it responds to unpaid bills, DWSD could work collaboratively through community-based organizations to help customers negotiate payment plans. DWSD also could reach out to customers in arrears to help them secure non-utility assistance such as Earned Income Tax Credits (EITC), recognizing that some taxpayers use these benefits to pay utility bills. A closer collaboration with community-based organizations could enable DWSD to be more responsive to demographics that rely on different resources for help with unpaid bills. DWSD can work with those who customers turn to as their first source of assistance to more effectively and rapidly address needs.²⁹

BRPA Option Evaluation

These options generally are not mutually exclusive and, in fact, the BRPA highlighted that a substantive and effective approach to water affordability will require an array of measures that

²⁸ Consideration of budget billing does not imply that affordability issues would be surmounted if low-income users improved their household budgeting practices. Rather, it recognizes the impact of month-to-month bill variability, particularly for customers with fixed incomes or limited budget margins.

²⁹ National Regulatory Research Institute (April 2003), Where Consumers Go For Help Paying Utility Bills, NRRI: Columbus (OH) (presenting results from NRRI's Consumer Utility Benchmark Survey).

will evolve over time. In particular, given the current limitations of DWSD’s billing and customer service functions, the BRPA identified both short- and long-term recommendations.

Evaluation Criteria

The BRPA evaluated the above-described options using a simple, multi-attribute scoring and ranking procedure. The evaluation criteria, discussed and agreed upon by BRPA members, were as follows:

- Risk of Potential Legal Challenge
- Extent of Assistance: Number of Households
- Extent of Assistance: Durability
- Resource Efficiency
- Fairness
- Implementability / Understandability

“Program understandability is key to communication and implementation. Simplicity is best in the long term.”

Robert Miller,
Deputy Director
Sewerage and
Water Board of
New Orleans

Descriptions of these criteria and the performance scales relative to each are provided in Appendix IV. Member scoring was informed by the presentations and discussions held throughout the four BRPA workshops conducted between October and December 2015.³⁰ Several topics were considered particularly important, summaries of which are offered below:

- **Implications of the Michigan legal environment.** The BRPA recognized the importance of providing recommendations that fall within the framework of Michigan law. While not offering formal legal opinions, they evaluated legal constraints and the potential for legal challenges to be mounted in some detail.³¹ Unsurprisingly, there are differences of opinion as to the permissibility of the options discussed, and what would sustain particular options in the face of a legal challenge. Specifically, with respect to the income-indexed rate design, at least two differing legal opinions have been developed³² and were distributed to the BRPA. Given the objective of defining practical and implementable options, the evaluation criteria were structured to acknowledge that legal questions will remain open for the foreseeable future. Accordingly, the criterion relating to legality was cast in terms of the likelihood of legal challenge, recognizing that options subject to strong (and potentially sustained) legal challenge may be less able to deliver needed low-income relief, particularly in the near term, than options that are less likely to invite legal objections.
- **Culture Change.** The BRPA and DWSD staff addressed a number of concerns related to organizational culture change. DWSD leadership staff acknowledged that cultural

³⁰ Workshop agendas are provided in Appendix II, and presentations are provided in Appendix V.

³¹ See Appendix III for a summary of selected BRPA members’ discussions of the Michigan legal framework.

³² Whitaker (2015) and Walter (2006) as listed in the *Information Reviewed* section.

change is needed in DWSD to place a higher emphasis on retail customer service. At the same time, there is recognition that past inconsistent and dysfunctional customer billing and collection practices, particularly regarding service disconnections, has precipitated a culture of non-payment among some segments of the customer population. Requisite cultural changes will require time, consistency, and demonstrated good faith on the part of both the Department and its customers.

- **Fairness.** BRPA members noted that cultural change would also be required should the City and DWSD leadership affirm that a fundamental objective of the Department is to advance universal access to essential water services. New fairness considerations would permit tailored responses to individual customers' circumstances – perhaps allowing for arrearage forgiveness or conservation assistance to enable economically strained customers to continue to pay for and receive services.
- **DWSD billing and collection.** DWSD's billing system constraints affect the viability and relative merit of selected options, particularly in defining short-term remedial measures. For example, while budget billing was generally viewed as a helpful potential enhancement, the BRPA found that it should not take precedence over other higher priority initiatives. Accordingly, BRPA recommendations are shaped by practical considerations in the Detroit context that may be different in other communities.

BRPA Member Evaluations

A structured option evaluation exercise was conducted to help achieve consensus on practical, implementable recommendations to address water affordability in Detroit in both the short and long term. Each option was scored by BRPA members and DWSD leadership staff against the criteria listed above on a 0 – 10 scale, with 0 representing the lowest and 10 representing the highest score. Composite scores and rankings were calculated for each BRPA member, across different criteria weightings, and averaged across BRPA members alone, across DWSD leadership staff alone, and across both BRPA members and DWSD staff.³³ Results were noteworthy, and are summarized in the following observations:

Rate Structure Options

- Of the rate structure options evaluated, the Increasing block design was scored and ranked highest by all but two scorers. Across both BRPA members and DWSD staff, it scored and ranked highest among all evaluated water affordability options.

“A move to an increasing block rate, designed with affordability as one of its explicit objectives, is a reasonable and appropriate ‘compromise’ between those who argue for an explicit income-based affordability program and those who argue that any such explicit income-based affordability program is contrary to law.”

- Roger Colton, co-Founder, Fisher Sheehan & Colton, and BRPA Member

³³ A summary of BRPA and DWSD leadership team scoring and rankings is provided in Appendix IV.

- Income-indexed rates were scored and ranked relatively poorly – among rate structure options and all options generally – by all but two scorers.
- The minimum quantity allowance rate option was evaluated as the second best rate structure by all but two scorers, generally scoring relatively closely to the highest ranked increasing block option.
- Property-value-based charges for fire protection were near uniformly scored and ranked least favorably, not only among rate design options but also across all options. These poor rankings generally were regarded as indicative of potential legal challenges to such charges as an unauthorized tax, and to acute implementation challenges.

Customer Assistance Options

- Bill payment and water conservation assistance programs scored and ranked closely across both BRPA members and DWSD staff. Bill payment assistance scored marginally higher due in large part to the relative ease of implementation and understandability. These types of programs scored closely to the preferred payment and collection practice options – signaling the conclusion that an array of options is needed to address water affordability.
- The proposed Amnesty Program scored and ranked relatively poorly across assistance program options, and more generally across all evaluated water affordability options. Averages of scoring across BRPA and DWSD staff placed it above only property-value-based charges for fire protection.

Billing and Collection Options

- Among the identified options, the two types of options requiring longer-term billing system routine modifications scored and ranked highest and lowest – with noteworthy differences between BRPA member and DWSD staff scoring. Budget billing ranked second among all options considered by BRPA members, yet sixth among DWSD staff – largely reflecting DWSD staff’s relatively low scoring of this option in terms of implementation / understandability considerations. Alternative bill scheduling generally was less preferred by both BRPA and DWSD staff members.
- Between the two types of payment plan options considered, options featuring disconnection avoidance scored higher than those enabling arrearage forgiveness – generally reflecting higher scoring of disconnection avoidance with respect to the fairness and risk of potential legal challenge criteria.

In summary, BRPA members (and DWSD staff) concurred that no single measure can adequately mitigate Detroit’s water affordability challenges. Moreover, DWSD may only contribute in small measure to addressing the larger, vexing problems presented by endemic poverty in Detroit. Unfortunately, DWSD’s options that hold the most potential for sustained, broad-reaching relief (with more limited potential for legal challenge) require a longer time horizon for

implementation. A carefully crafted, increasing block rate design is recommended, as is eventual implementation of budget-based billing. In the shorter term, continuing and enhancing DWSD's current practices to enable disconnection avoidance through payment plan enrollment is critical. These plans, in combination with (adequately resourced) bill payment and water conservation assistance programs, potentially funded through selected non-rate revenue sources, are merited. Options that contemplate significant shifts in customer bill payment responsibilities (e.g., amnesty programs) are not favored.

These recommendations reflect, in part, a general assessment that the City of Detroit has, in recent months, taken positive steps toward addressing water affordability. Recent evolutions of payment plan provisions and shut-off policies, and pending billing and collection practice improvements, are important changes that can provide needed relief to customers with a general ability to pay for services. DWSD's current payment plan options, and assistance programs that are available to those lacking an ability to pay for services, are relatively generous compared to many other major metropolitan utilities across the country. However, Detroit's populations in poverty are daunting and DWSD, working with community groups, can and should do more.

Community Action

In pursuing improvements to DWSD's affordability programs, the BRPA notes that it is important for the City to continue to recognize and embrace the critical role of community groups and local advocates in seeding meaningful change. These groups have been instrumental in highlighting the trials and difficulties faced by low-income customers, have implemented assistance programs, and worked in partnership with social service agencies to deliver needed relief. These groups have bridged historical (real and perceived) constraints on the extent to which DWSD could design rates or fund assistance programs – and should play critical roles in a more expansive approach to water affordability.

DWSD's billing and collection practices and programs too often have suffered from byzantine procedural requirements and inadequate customer service engagement. Community groups and activists are positioned to enhance DWSD outreach about programs and procedures that are evolving to alleviate customer concerns and avoid service disconnections. They may continue to raise funds for customers in dire circumstances, which typically are not limited to water affordability issues, and to work directly with individual customers. They can help DWSD identify customers in acute circumstances, and they can hold DWSD to account through the slow process of culture change. DWSD should partner proactively with community groups and social service agencies to simplify delivering assistance, and to make relief more accessible to those in need.³⁴

³⁴ While community-based organizations have a role to play in advancing and supporting water affordability measures, per the City's charter, the institutional obligation to deliver affordable service lies with the City and the Department.

Research Needs

The BRPA notes that community partnering can and should also extend to gaining a better understanding of water affordability issues through a number of research agendas. This includes efforts to quantify the magnitude of the problems, assess the effectiveness of individual options, and accurately project financial impacts. Understanding more about the vexing problems faced by those living in poverty, and the compounding impacts of water affordability challenges, is needed to better design and implement assistance programs. The questions calling for quantitative data – some of which is already available – and in some cases qualitative studies are identified below.

Demographics

- What are the numbers of customers (households, people) subject to a high burden in paying their water and sewer bills – not necessarily indicated by census data that does not capture adverse circumstances (e.g., medical costs, loss of employment)?
 - What are the characteristics of these customers (as compared to the DWSD service area population) in terms of age, ethnicity, household size, income level and security, and employment status?
 - How have these numbers changed over the last decade – what are the trends and what are the drivers / influences of these changes?
- What are the conditions of typical low-income (and general) DWSD customers' internal plumbing infrastructure (e.g., fixture water use efficiencies, plumbing leaks, lead fixtures, etc.)?

DWSD Customer Data³⁵

- What is the distribution of customer water use – by month, by zip code or census tract, by household size?
- What are the characteristics of DWSD customer payment patterns – percentages of customers paying on time, with account arrearages (and the distribution of those arrearage balances), methods of payment (cash, check, credit card)?
- What are the numbers of customers with account balance arrearages greater than \$200? What is the distribution and aging of these arrearage balances?

³⁵ Most of the customer data that can be retrieved from inquiries to billing system records is available or may be retrieved through customized data queries. Qualitative customer data regarding, for example, home water use infrastructure quality, will require extensive research.

- What percentages of customers are current with their plans? Are there noticeable differences in success by demographics?
- What is the distribution of payment amounts (and plan terms) under these payment plans?
- How do the terms of payment plans (e.g., downpayment, length, payment amount relative to current bill) affect the success or failure?
- What percentages of customers are under their first payment plan vs. repeat plan participants?
- Where do people turn for assistance in addressing unpaid bills?
- Why do people in arrears not respond to entreaties from DWSD to make contact with the Department for assistance prior to a service disconnection?
- What are the numbers of residential customers subject to service disconnections?
 - How many have enrolled and violated payment plans?
 - How many are first time vs. repeated disconnections?
 - How many are renters vs. homeowners?
 - What are the income demographics of those subject to service disconnections?

Option Evaluation

- What are the impacts of different rate structures on utility revenue collections, uncollectible rates, and service disconnection rates?
 - To what extent do increasing block rate structures enhance the affordability of water and sewer services for low-income customers?
 - To what extent does non-utility public assistance (e.g., EITC) result in payments to the utility?
- How effective are different assistance program designs in enabling customers to remain current on water and sewer billings, and in aiding customers' return to financial sustainability?
 - How effective are water conservation assistance programs in aiding low-income customers' ability to reduce their water bills? Do these bill reductions enable participating customers to pay their resultant bills without further assistance?
- What are the barriers to customer participation in assistance programs, and what strategies have been successful in reducing these barriers?

- Where do customers go when they need assistance? How do they get information and/or assistance with obtaining support?
- What are the characteristics of other utilities' assistance programs and results of evaluations of their effectiveness?
 - What are the specific attributes, and projected financial impacts, of the income-indexed rate structure approved by the Philadelphia City Council?³⁶

Miscellaneous

- What are household bill payment priorities (by household types / demographics)? What bills would they skip one month, and what bills would not be missed?
- What are the water service characteristics (usage and bill payment behavior) of current energy assistance recipients?
- What are practical, successful strategies that have been used to engage community groups facilitate delivery of assistance to low-income customers – e.g., through serving as intermediaries in negotiating deferred payment arrangements?

BRPA Findings and Conclusions

The research needs cited above build on a foundation of understanding and insight gained through the BRPA workshop process, which included wide-ranging presentations and discussions. Through that process, the BRPA outlined a number of findings and conclusions that inform their recommendations for Detroit and hopefully contribute to state and national policy discussions centering on water affordability. These findings and conclusions include:

1. The Charter of the City of Detroit, Declaration of Rights, provides that “the people have a right to expect city government to provide for its residents . . . safe drinking water and a sanitary, environmentally sound city.” DWSD, therefore, has a mandate to advance universal access to water and sewer services.
2. No single rate design or program can adequately address the diverse, multi-dimensional water affordability challenges that persist in Detroit. A substantive and effective approach to mitigate water affordability challenges requires an array of measures that will evolve over time. Options to mitigate water affordability will not, and cannot, fully address the problems of endemic poverty. Implementing an array of options may reduce overall system costs and more equitably distribute cost

³⁶ Information on the specific characteristics and projected financial impacts of Philadelphia Water’s planned rate structure and water conservation program was requested but was not available at the time of report issuance.

- responsibilities by avoiding selected billing and collection expenses and broadening the population of paying customers.
3. New retail DWSD leadership is appropriately prioritizing the improvement of its billing and collection systems and practices. These actions will render improvements for all DWSD retail customers, especially those encountering payment challenges. Recent payment plan and shut-off policy changes, as well as pending billing and collection improvements, will provide needed relief. In addition, DWSD's current payment plan options and available assistance programs are relatively generous compared to many other major metropolitan utilities across the country.
 4. Alternative rate structures and selected changes to billing and collection practices that require billing software and data management changes will require approximately two years and possibly longer to implement.
 5. DWSD may be able to enhance funding of bill payment and water conservation assistance programs for qualifying low-income customers by applying non-rate revenues. Different non-rate revenue sources may be more or less susceptible to legal challenge. Given timeframes required to implement different rate structures, building the legal and financial planning foundation for use of non-rate revenues to expand assistance program funding is a high priority.
 6. Increasing block rate designs for both water and sewer services would provide an effective pricing structure (among considered alternatives) in addressing water affordability issues. By contrast, an income-indexed water affordability rate component, such as that included in the Water Affordability Program initially presented to DWSD in 2005, is more susceptible to legal challenge, would be more difficult to implement and administer, and would be less broadly based due to the income-qualification attribute of this rate design.
 7. A culture change is needed within DWSD (as acknowledged by new DWSD leadership) to emphasize compassionate retail customer service. At the same time, there is recognition that past inconsistent and dysfunctional customer billing and collection practices, particularly regarding service disconnections, have precipitated a culture of non-payment among some segments of the customer population, which must be addressed over time.
 8. Given that City of Detroit ratepayers face relatively high service rates, a significant opportunity to address water affordability may be through cost management – prospectively at both GLWA and the retail DWSD system. Equitable distribution of GLWA cost responsibilities across system users is paramount to effective management of DWSD service rate levels.
 9. The City of Detroit is not unlike other U.S. cities in that it faces an affordability dichotomy, wherein continuing infrastructure investment and reinvestment needs

- may require general pricing increases that, at the same time, impose significant challenges to low-income customers requiring access to essential services.
10. The legal framework in Michigan is particularly difficult for addressing water affordability issues, by virtue of the interpretations of *Bolt vs. Lansing* and the Headlee amendment. One opportunity for future advocacy may be in seeking new legislation that authorizes utility pricing and funding strategies that are responsive to water affordability issues, recognizing the time and resources required to effect new legislation and weather any subsequent legal challenges.
 11. Community groups and activists have been instrumental in highlighting the trials and difficulties faced by low-income customers; these groups and individuals can play critical roles in a more expansive approach to water affordability.

Recommendations

The BRPA offers a number of specific recommendations, some of which may be implemented in the near term, while others will require multiple years to put in place. Several BRPA members offered additional comments and recommendations that were not discussed by the group and may be offered separately. Provided below are recommendations that reflect the discussions and consensus obtained during the BRPA workshops.

Near-Term / Immediate Actions

- The City / DWSD Board of Water Commissioners should affirm and explicitly state that their responsibilities include advancing universal access to water and sewer services, and pricing these services to help ensure that customers are able to afford minimum usage required to promote public health and sanitary conditions.
- DWSD should evaluate and, to the extent practicable, expand funding of bill payment and water conservation assistance programs through allocation of non-rate revenues. Expanded assistance program funding and outreach may help ensure availability of assistance for the most economically disadvantaged customers.
- DWSD should dedicate necessary resources and provide governance support to expedite billing and collection and customer service improvements. DWSD should maintain a high priority on converting from address-based account assignments to having accounts assigned to financially responsible parties.
- DWSD should refine and enhance its business processes to better communicate customers' options to avoid shut-offs and to help customers continue to meet their obligations.

- The City should continue to recognize and embrace the critical role of community groups and local advocates in seeding meaningful change. DWSD should work to establish and further collaborative relationships with these groups to improve customer communications and rebrand DWSD as an organization dedicated to compassionate customer service.
- DWSD should evaluate the implementation of a skills-based customer service unit to provide case management services to low-income customers as needed.

Long-Term Actions

- DWSD should carefully design and implement increasing block rate designs for water and sewer services taking into account cost-of-service principles, water use efficiency objectives, and affordability concerns. These designs should offer broadly affordable minimum levels of water and sewer service that are required for health and sanitary purposes.
- DWSD should continue to enhance billing practices, including offering budget billing and bill payment options in a manner that is responsive to low-income customer needs.
- DWSD should continue to enhance shutoff avoidance practices and options, including deferred payment plan options, in a manner that is responsive to low-income customer needs.
- DWSD should pursue achieving efficiencies in retail operations and help ensure the GLWA realizes similar efficiencies. It should actively participate in forthcoming reviews of GLWA cost allocation methodologies and ensure equitable distributions of cost responsibilities.
- DWSD should expand its assistance program offerings to include water conservation and plumbing repair assistance, administered through third-party service providers.

State / National Advocacy

- The City of Detroit / DWSD should participate – in collaboration with local community groups – in national and state policy discussions and advocacy to highlight increasing water affordability challenges.
- The City of Detroit / DWSD should continue to enhance its collaboration with local community groups and charitable organizations to raise funds for low-income water affordability assistance.
- The City of Detroit / DWSD should participate in the development of State of Michigan legislation that would establish new fee revenues (e.g., water withdrawal fees) to support water affordability programs.

- Additional legislative measures could address landlord-tenant bill payment responsibilities to, for example, help ensure that landlords may be compelled to repair leaking plumbing or pay their tenants bills.
- The City of Detroit / DWSD should actively endorse proposed federal legislation to establish a water and sewer equivalent to the federal Low-Income Home Energy Assistance Program (LIHEAP).

Appendix I: BRPA Member Information

National Experts

Janice A. Beecher, Ph.D, Director, Institute of Public Utilities at Michigan State University

Dr. Janice Beecher has served as Director of the Institute since 2002, bringing more than thirty years of applied research experience to the position. Established at MSU in 1965, the Institute's mission is to support informed, effective, and efficient regulation of the network industries providing essential utility services. Dr. Beecher's research areas include regulatory theory, institutions, principles, and concepts; regulatory commissions and jurisdiction; ratemaking methods; expenditures, price, and demand trends; regulatory adaptation; and ethics.

Julius Ciaccia, Chief Executive Officer, Northeast Ohio Regional Sewer District

Mr. Ciaccia served the City of Cleveland's Clerk of Courts office for two years before his appointment as Assistant Director of Public Utilities in 1977. He was promoted to Acting Water Commissioner in 1979, Assistant to the Commissioner in 1981, and eventually Commissioner in 1988. He was appointed Director of the city's Department of Public Utilities in 2004 and began his tenure as Regional Sewer District Executive Director in November 2007. Mr. Ciaccia's professional affiliations include the American Water Works Association and other state and national committees and organizations.

Roger Colton, Co-Founder, Fisher Sheehan & Colton

Mr. Colton provides services in a variety of areas including: regulatory economics, poverty law and economics, public benefits, environmental and natural resource economics, fair housing, community development, energy efficiency, utility law and economics (energy, telecommunications, water/sewer), government budgeting, health care economics, and planning and zoning. He has testified in state and federal courts in the United States and Canada, as well as before regulatory and legislative bodies in more than three dozen states. He is particularly noted for creative program design and implementation within tight budget constraints. Mr. Colton is the author of "A Water Affordability Program for The Detroit Water And Sewerage Department (DWSD)," January 2005.

Robert Miller, Deputy Director, Sewerage & Water Board of New Orleans

Robert K. Miller has more than 32 years experience in the water and wastewater utility field. Prior to his appointment as Deputy Director, Mr. Miller served as a consultant to that industry and municipal governments, following 17 years of executive leadership as Chief Financial Officer of the Louisville (Kentucky) Water Company (LWC). At Louisville he also served as vice president-treasurer and as corporate secretary. He has had responsibility over the years for financial management, information technology, risk management, business planning and human resources. Among his many achievements at LWC were financial management practices improvements, resulting in the upgrade of bond ratings to AA1/Aa+, development of a rate mechanism to support a water main replacement and renewal program and played a major role in establishing an award-winning minority business development program.

Eric Rothstein, Principal, Galardi Rothstein Group (Chair)

Eric Rothstein has established strategic financial plans and designed rates for some of the nation's largest, most complex infrastructure programs and has secured acceptance of major, multi-year rate increases in politically charged environments. He is an expert in regionalization, facilitation of complex decisions affecting diverse stakeholder groups, evaluation of public/private partnerships, and strategic business planning. Eric's professional affiliations include the Water Environment Federation (WEF), American Water Works Association (AWWA) and National Association of Clean Water Agencies (NACWA). He has authored numerous papers and presentations including "The Business Case for Low Income Affordability Programs," (AWWA-WEF, 2012), and "Affordability Tools," Section 8: Affordability Special Publication, (WEF, 2007). In 2013, Mr. Rothstein served as the Jefferson County (AL) Environmental Services Department's Municipal Advisor for its \$1.7 billion financing to exit from bankruptcy. He is currently serving as the Great Lakes Water Authority Implementation Planning Program Manager.

Scott Rubin, Attorney at Law

Mr. Rubin is an attorney and consultant working exclusively on research and cases that affect the public utility industry. He worked for 10 years with the Pennsylvania Office of Consumer Advocate. He is the author of numerous articles and research projects including: "Thinking Outside the Bill: A Utility Manager's Guide to Assisting Low-Income

Water Customers,” (American Water Works Association, 2005) and “The Relationship Between Household Financial Distress and Health: Implications for Drinking Water Regulation,” (National Rural Water Association, 2007).

Regional Members

Mary Blackmon, DWSD Board of Water Commissioner

Mrs. Blackmon retired from Ameritech as a Director of Public Affairs. She also served 10 years as a citywide elected member of the Detroit Board of Education, serving as its Vice President and Chair of the Community Relations Committee. She is currently Vice President of the Wayne County Regional Educational Service Agency (WRESA) where she has served since 1981 and held all of its officer positions. Active in the National School Boards Association, she is the former Chair of the Central Region for the National School Boards Black Caucus. Mrs. Blackmon has achieved Master Platinum Award Status from the Michigan Association of School Boards.

Serving as a member of the Southeast Michigan Council of Governments (SEMCOG) Executive Board, where she is also a Past President, she is a member of the Metropolitan Affairs Coalition (MAC) Executive Board and is the former chair of SEMCOG's Education Advisory Committee.

Mrs. Blackmon has been a member of the City of Detroit's Board of Water Commissioners since 1988. She has served as its President and is now its Vice Chair.

Past affiliations include President of the Detroit Area Pre-College Engineering Program (DAPCEP); member of the Executive Board of the Detroit Branch NAACP and is a graduate of Metropolitan Detroit Chamber of Commerce's Leadership Detroit Program. In 1991, Mrs. Blackmon Co-Chaired the Detroit Branch NAACP Fight For Freedom Funder Dinner where the dinner raised over \$1 million for the first time in its history.

Julie Kavanagh, Program Manager, Macomb County Community Services Agency

Julie Kavanagh has held several positions at Macomb County Community Services Agency, the Community Action Agency for Macomb County, over 14 years with the organization. She is currently a Program Manager overseeing the operations of emergency utility assistance, emergency housing assistance, and supportive services programs for low-income residents. Mrs. Kavanagh is chair of the board of directors for the Good Shepherd Coalition, a local non-profit. Mrs. Kavanagh also served on the Great Lakes Water Authority Water Residential Assistance Program Advisory Group in 2015.

Karla Marshall, Policy Analyst, Detroit City Council Member Scott Benson

Karla Marshall, JD acted as Policy Analyst for the office of Detroit Council Member Scott Benson in 2015. Having joined the Council Member in 2014 as a legislative analyst, her work has included researching redevelopment opportunities to increase economic value and improving accessibility and leverage adjacent to institutional/corporate assets. Her recent work with the Urban Land Institute's Larson Center for Leadership, in 2015, resulted in a technical assistance report for redevelopment in West Dearborn, MI, featured in Crain's Detroit Business. In addition to working for the Detroit City Council, Karla holds a Real Estate License, Public Adjusters License, and Residential Builders License. With these credentials, she founded an insurance remediation firm specializing in water remediation and structural restoration. Karla is also a Planning Commissioner with the City of Highland Park, Michigan. Karla holds a J.D. from the Brooklyn Law School and a B.A. in Bio-Anthropology from Indiana University.

Demeeke Williams, Chief Director, Detroit Water Brigade

DeMeeko Williams is a born-and-raised Detroiter from the North End neighborhood. A child of Woodward Avenue, Meeko worked for the Detroit Public School system in Parental Community Involvement, participating in various community events and engaging with the city of Detroit before committing himself full-time to social justice. With a High School diploma from Northern High School and currently attending Wayne County Community College pursuing a degree in business, Meeko believes education is very important while serving the community. Meeko is a writer, researcher, and community organizer while being featured as The Circle of Blue Water Warriors in 2014. Meeko has also been to Ireland as part of the Right2Water anti water charges movement speaking about Detroit experiences with water being shut off. Meeko is founder and chief director of the Detroit Water Brigade, a rapid relief organization providing emergency water, consultation and advocacy for citizens in the city of Detroit disconnected

from their water services. What motivates him to participate in the Detroit Water Brigade is his passion for saving the city of Detroit by waging love for those who have been disenfranchised and forgotten. Meeko believes water is an essential human right and that no individual should be refused or denied a resource that we are all blessed to share this vital resource to live. Meeko likes listening to funk music, going to the movies and traveling in his spare time.

Appendix II: Workshop Agendas

Workshop #1 October 13, 2015			
No.	Timing	Agenda Item	Presenter
1	9:00 – 9:30 a.m.	BRP Member Introductions	All
2	9:30 – 9:45 a.m.	BRPA Charge and Approach	Brown / Rothstein
3	9:45 – 10:00 a.m.	Communications Protocols / Definitions of Terms	All
4	10:00 – 10:15 a.m.	Detroit / GLWA Service Area Background	Brown / Rothstein
5	10:15 – 10:30 a.m.	Case Study: New Orleans	Bob Miller
	10:30 – 10:45 a.m.	BREAK	
5	10:45 – 11:15 a.m.	National Perspectives	Beecher / Rothstein
6	11:15 – 11:30 a.m.	National Advocacy	Ciaccia / Rubin
7	11:30 – Noon	U.S. / Michigan Legal Framework Bolt vs. Lansing Review	Wolfson / Hollowell
	Noon – 12:30	LUNCH	
8	12:30 – 1:15 p.m.	Proposed Detroit Water Affordability Plan	Roger Colton
9	1:15 – 1:40 p.m.	Local Perspectives: Case Studies / Assistance Providers' experience	TBD Representative
10	1:40 – 2:00 p.m.	Work Plan Review / Next Steps	Rothstein

Workshop #2 October 27, 2015			
No.	Timing	Agenda Item	Presenter / Facilitator*
1	9:00 – 9:15 a.m.	Work Plan Overview - Structure	Rothstein
2	9:15 – 9:45 a.m.	Perspectives on Background Info	Rothstein*
3	9:45 – 10:00 a.m.	Legal Framework: Alternative Views	Colton*
4	10:00 – 10:30 a.m.	Rate Design Options Discussion	Beecher*
	10:30 – 10:45 a.m.	BREAK	
5	10:45 – 11:00 a.m.	GLWA WRAP and Other Assist Programs	Rothstein
6	11:00 – 11:30 a.m.	Proposal: Detroit Water Brigade	Williams
7	11:30 – Noon	Discussion: Assistance Program Options	Rothstein*
	Noon – 12:30	LUNCH	
8	12:30 – 12:45 p.m.	Detroit Billing & Collection, Payment Plans Customer Service initiatives	Brown / Presnell
9	12:45 – 1:15 p.m.	Discussion: Billing, Collection & Customer Service Options	All – Rubin*
10	1:15 – 1:45 p.m.	Decision Process: - Option Evaluation Criteria - Recommendation Development	Rothstein*
11	1:45 – 2:00 p.m.	Research Needs Discussion	Beecher*
<i>* Indicates designated facilitator for group discussion</i>			

Workshop #3 November 17, 2015			
No.	Timing	Agenda Item	Presenter / Facilitator*
1	9:00 – 9:15 a.m.	Option Evaluation Criteria Review	Rothstein*
2	9:15 – 9:45 a.m.	Legal Framework Review	Rubin
3	9:45 – 10:30 a.m.	Account - Service Area - Use Correlations	Hudson
	10:30 – 10:45 a.m.	BREAK	
4	10:45 – 11:15 a.m.	Rate Design Options: Legal / Implementation	Rothstein*
5	11:00 – 11:30 a.m.	Billing & Collection Options: Legal / Implementation Issues	Presnell*
6	11:30 – Noon	Assistance Options: Funding / Legal / Implementation Issues	Kavanaugh*
	Noon – 12:30	LUNCH	
7	12:30 – 12:45 p.m.	Option Evaluation Framework	Rothstein*
8	12:45 – 1:15 p.m.	<u>Policy Discussion:</u> Balancing Social Responsibilities and Business Imperatives	Colton / Brown*
9	1:15 – 1:45 p.m.	Water Affordability Issues Communications / Messaging	Brown / Ciaccia *
11	1:45 – 2:00 p.m.	Assistance Program Fund Raising	Blackmon / Marshall*
<i>* Indicates designated facilitator for group discussion</i>			

Workshop #4 December 15, 2015			
No.	Timing	Agenda Item	Presenter / Facilitator*
1	9:00 – 9:15 a.m.	Implementation Considerations: Options / Constraints / Priorities	Brown/Presnell
2	9:15 – 9:45 a.m.	Legal Framework Review: Options / Constraints / Michigan Issues	Rubin / Colton
3	9:45 – 10:30 a.m.	Option Evaluation Scoring & Ranking: Informing Findings & Recommendations	Rothstein
	10:30 – 10:45 a.m.	BREAK	
4	10:45 – 11:15 a.m.	Rate Design Options: Findings and Recommendations	Beecher / Colton
5	11:15 – 11:45 a.m.	Billing & Collection Options: Findings and Recommendations	Miller / Presnell
6	11:45-12:15	Assistance Options: Findings and Recommendations	Blackmon / Kavanaugh*
	12:15 – 12:45	LUNCH	
7	12:45 – 1:00 p.m.	<u>Policy Discussion:</u> Research Needs	Marshall / Beecher
8	1:00 – 1:15 p.m.	<u>Policy Discussion:</u> Leveraging Community Action	Williams / Mobley
9	1:15 – 1:45 p.m.	Communications / Messaging: BRPA Findings & Recommendations	Ciaccia / Brown
10	1:45 – 2:00 p.m.	Report Development / BRPA Process Review	Rothstein*
<i>* Indicates designated facilitator for group discussion</i>			

Appendix III: Increasing Block Rate Structure Implementation

Implementation of the recommended Increasing Block Rate Structure is anticipated to require at least 2 years because of the need to implement several high priority initiatives and the complexities involved in designing and implementing the block rate structure. The high priority initiatives will provide the foundation for more effective billing and collections as noted in the BRPA report; the rate design complexities involve billing system programming, financial analyses and customer service training.

PRIORITY INITIATIVES:

- Interactive Voice Recognition (IVR) System
- Name (Responsible Party) Based Billing
- Customer Service Initiatives:
 - Development of Customer Service Scripts
 - Customer Service Representative Assessments
 - Customer Service Training
 - Collector Unit Additions and Upgrades
- Billing Data and (Enquesta) System Enhancements / Upgrades
 - Data Cleanup (Customer Reclassification, Billing cleanup, etc)
 - Reconcile Estimating Accounts vs Enquesta Billing Data
 - Credit and Collections Module implementation (Enquesta functionality)
 - Enquesta System Version Upgrades
 - Develop Data Dictionary for Billing System
 - Build in-house reporting capabilities in house

INCREASING BLOCK STRUCTURE REQUIREMENTS

- Analyze / verify customer classifications (residential, non-residential)
- Develop and test bill frequency distribution reporting by customer class
 - Enables customer segmentation by usage block
 - Customers into various structures
- Develop financial model to support increasing block rate structure
 - Develop revenue forecasting capability under alternative structures
 - Assess consumer price elasticity
 - Analyze relationship between cost of service and rate blocks
- Develop analyses of potential customer bill impacts by usage level
- Develop and test requisite modifications to billing system and business processes
 - Design and test reports on revenue performance under new rate structure
- Train customer service / financial management personnel
- Develop public / consumer information to provide foundation for implementation

Appendix IV: Option Evaluation

Water Affordability Options Evaluation Criteria & Performance Scales

The Detroit Blue Ribbon Panel on Affordability has identified the following options to address water affordability challenges in the City of Detroit. These options are categorized into options that alter the structure of charges for water and sewer services (rate design), the ways that water and wastewater billings are collected, and those that involve separate programmatic efforts to render assistance. These options are described briefly below; criteria and associated performance scales used to evaluate the relative merit of each option are provided in the tables below:

Rate Design Options:

- **Income-Indexed Rates** - this option involves limiting eligible low-income customers billings to a specified percentage of household income (Colton Water Affordability Plan)
- **Minimum Quantity Allowance** – this option incorporates delivery of minimum levels of service required for health and sanitation within the utility’s fixed charge structure (while not increasing fixed charges to unaffordable levels for low-income populations)
- **Affordability Structured Inclining-Block Rates** – this option prices minimal levels of service at affordable levels (e.g., 4-8% of household income) for most low-income customers and prices subsequent increments to encourage resource efficiency and full cost recovery.
- **Property Value Based Fire Protection Charges** – this option reflects alternative cost allocation procedures that recognize fire protection benefits of service availability and impose related charges on basis of property value protected.

Billing & Collection Practice Options

- **Payment Plans**
 - **Disconnection Avoidance** – this option (currently employed by DWSD) allows customers to avoid disconnection given faithful participation in a payment plan.
 - **Arrearage Forgiveness** – this option provides for the forgiveness of outstanding account arrearages in the event that customers’ are faithful to payment plans in which they are enrolled.
- **Level (Budget) Billing** - this option facilitates customers’ budgeting for bill payment by establishing a fixed bill amount to be paid on a monthly basis. Under or over – payments (based on established rates) are used to set subsequent year budget amounts.
- **Alternative Bill Scheduling** – these options involve different timing of the issuance of bills to facilitate customers’ ability to budget for them and make payments. Alternatives include customer selected monthly billing date, 10 or 11 month billing,

Assistance Program Options (Income Qualified)

- **Bill Payment Assistance**
 - **General** – these options include a broad array of arrangements (e.g., monthly, one-time) for payment of income-qualified customer bills -- arrearages and/or current billings – and/or crisis payments.
 - **Amnesty Program (Detroit Water Brigade)** – this option provides for relief of outstanding account balances by providing a 20% reduction off water bills when customers sign up and enroll in a three month payment plan, and if they pay under their plan, an additional 50% off the remaining balance.
- **Water Conservation Assistance / Plumbing Repair** - these options include a variety of approaches to helping (qualifying low-income) customers' ensure that they use water efficiently and are not subject to high bills due to leaks or inefficient fixtures. Assistance options may range from education and home audits to provision of plumbing repairs and efficient fixtures.

Evaluation Criteria

- **Risk of Potential Legal Challenge³⁷** – whether the proposed option is clearly and unambiguously allowable under federal and Michigan state law, the extent to which and likelihood that the option may be subject to viable legal challenge, and the requirements for and difficulty in insulating the option from potential legal challenge.
- **Extent of Assistance**
 - **Number of Households Impacts** – reflecting the breadth of the option's impact considering the magnitude of affordability challenges in Detroit.
 - **Durability** – reflecting the extent to which the assistance provides for long-term redress of affordability challenges as opposed to having limited, short-term impacts
- **Resource Efficiency** – the extent to which the option promotes the efficient use of water resources by participating customers.
- **Fairness** – the extent to which the option requires non-participating customers to (involuntarily) provide benefit or subsidies to other customer groups
- **Implementable / Understandability** – the relative ease and cost of administration and communication about the features of the option

³⁷ Evaluation criteria are to be used to guide scorer's subjective assessments based on their understanding of issues and judgment and in no way represent a legal opinion or legal advice.

Performance Scales

Risk of Potential Legal Challenge	
Score	Description of Performance
0	Option is clearly and unambiguously not legal under Michigan and/or U.S. law and would almost certainly face successful legal challenge.
3	
5	Option is permissible under US law but faces a potential for successful challenge under Michigan law. Risk mitigation is uncertain and would require significant, potentially costly, measures.
7	
10	Option is clearly and unambiguously legal under Michigan and U.S. law with established precedents in place. Risk of potential legal challenge may be readily mitigated.

Extent of Assistance – Number of Households	
Score	Description of Performance
0	Option is unlikely to provide water affordability assistance to Detroit households
3	Option will assist a small subset of income eligible households but not all applicants
5	
7	Option will assist a substantial share of income eligible applicants in service area
10	Option will provide substantive water affordability assistance to all residential households in Detroit service area (irrespective of income level)

Extent of Assistance – Durability	
Score	Description of Performance
0	
3	Option provides immediate arrearage relief and/or assistance, no or minimal impact on households' long-term ability to pay water and wastewater bills for minimal use.
5	Option provides immediate arrearage relief and/or provides long-term support for payment of water and wastewater bills (not only for minimal use)
7	
10	Option helps ensure households' long-term ability to pay water and wastewater bills

Resource Efficiency	
Score	Description of Performance
0	Option has no impact on water use efficiency practices of program participants
3	
5	Option provides limited but substantive assistance achieve water use efficiency
7	
10	Option strongly promotes and provides means to achieve water use efficiency

Fairness	
Score	Description of Performance
0	Option requires one set of customers' to impose costs on other system users and/or compromise the utility's financial stability.
3	Option requires one set of customers' to subsidize another group of customers without their obtaining tangible benefit and has a limited financial impact on utility.
5	Option imposes limited inter-customer subsidies and immaterial overall financial impact on utility.
7	
10	Options' monetary costs are less than monetary benefits without requiring inter-customer subsidies and/or benefitting the utility's financial position

Implementable / Understandable	
Score	Description of Performance
0	Option is complex, requires extensive administrative support and changes to existing billing and administrative support systems
3	
5	Option is relatively easily understood and implementable with limited modifications to existing billing and administrative support systems
7	
10	Option is easily understood and readily implemented with available billing and administrative support systems

Detroit Blue Ribbon Panel on Affordability Water Affordability Option Scoring											
Averages across all scorers - BRPA and DWSD Leadership											
Risk of Potential Legal Challenge*	Extent of Assistance				Resource Efficiency	Fairness	Implementable / Understandability	Ranking	Weighted Total	Weight	
	Number of Households	Durability	20%	20%						5%	15%
RATE DESIGN OPTIONS											
	4.7	6.5	7.5	2.6	4.5	4.4	9	5.44			
Income - Indexed (Water Affordability Plan)											
Fixed Charges Include Quantity Allowance	6.3	8.4	7.4	5.4	7	6.2	3	6.99			
Inclining Block - Initial Block Affordability	7.7	8.8	8.5	8.4	7.5	7	1	7.98			
Property Value Based Charges - Fire Protection	4.4	4.3	2.9	2.8	3.9	4.2	11	3.90			
BILLING & COLLECTION OPTIONS											
	8.2	6.9	5	3.5	7.5	7.8	4	6.90			
Payment Plans with Disconnect Avoidance											
Payment Plan with Arrearage Forgiveness	6	5.7	5.3	3	4.8	7.3	8	5.67			
Budget Billing	8	6.7	6.1	3.8	8.1	7.4	2	7.08			
Alternative Billing Scheduling	8.3	5.1	5.2	3.1	8.8	6.8	6	6.63			
ASSISTANCE PROGRAM OPTIONS (Income Qualified)											
	7.4	6.8	5.8	5	6.8	7.7	5	6.80			
Bill Assistance											
- General											
- Amnesty Program (Detroit Water Brigade)	5.4	6.1	3.8	1.8	4	6	10	4.92			
Water Conservation / Plumbing Repair	6.8	5.8	6.9	8.3	6.4	6.5	7	6.59			

* Scoring reflects the scorers' subjective assessments based on their understanding of issues and judgment and in no way represents a legal opinion or legal advice, irrespective of the background and qualifications of the individual scorer.

Appendix V: Panelist Presentations

The following are slides from presentations made during the BRPA workshops conducted between October and December 2015. Additional information provided by BRPA members is listed in the Information Reviewed section of the report as well as cited in report footnotes.

1. Beecher – Water Rates and Affordability
2. Colton – Business Case for Offering Low Income Services: Detroit Water and Sewer
3. Rubin – Billing, Collections, and Customer Service Options
4. Hudson – Preliminary View on Affordability

WATER RATES AND AFFORDABILITY

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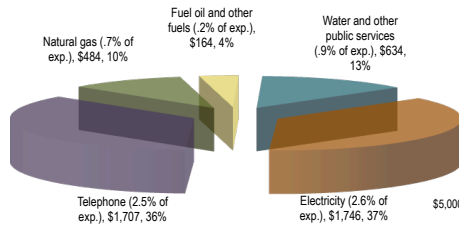
Celebrating 50 years of service to the regulatory policy community

MICHIGAN STATE UNIVERSITY

Household expenditures on utilities (U.S.)

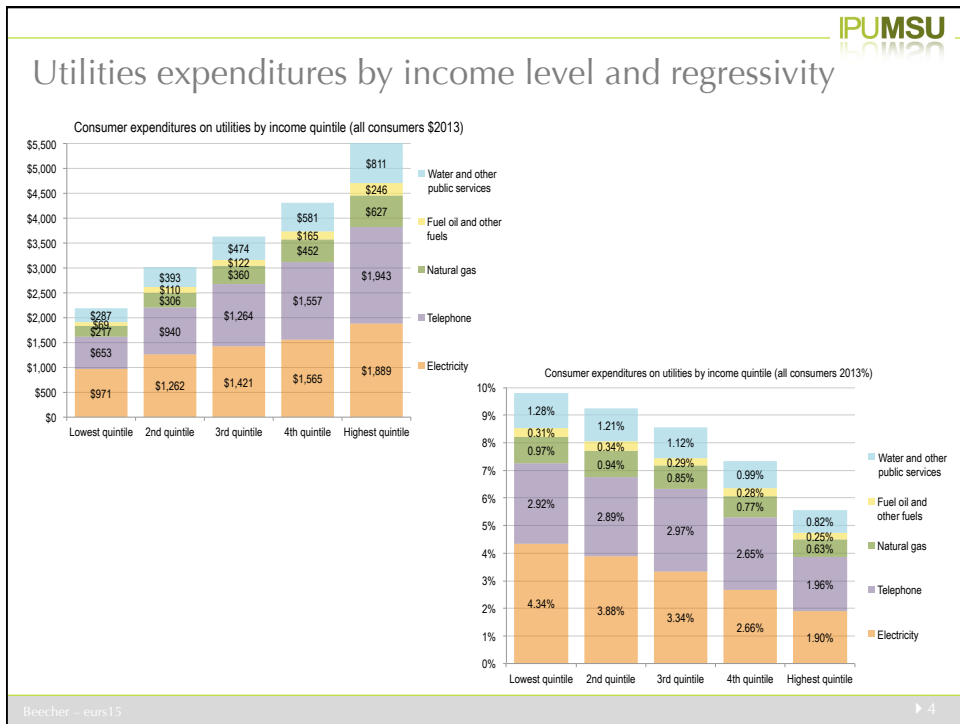
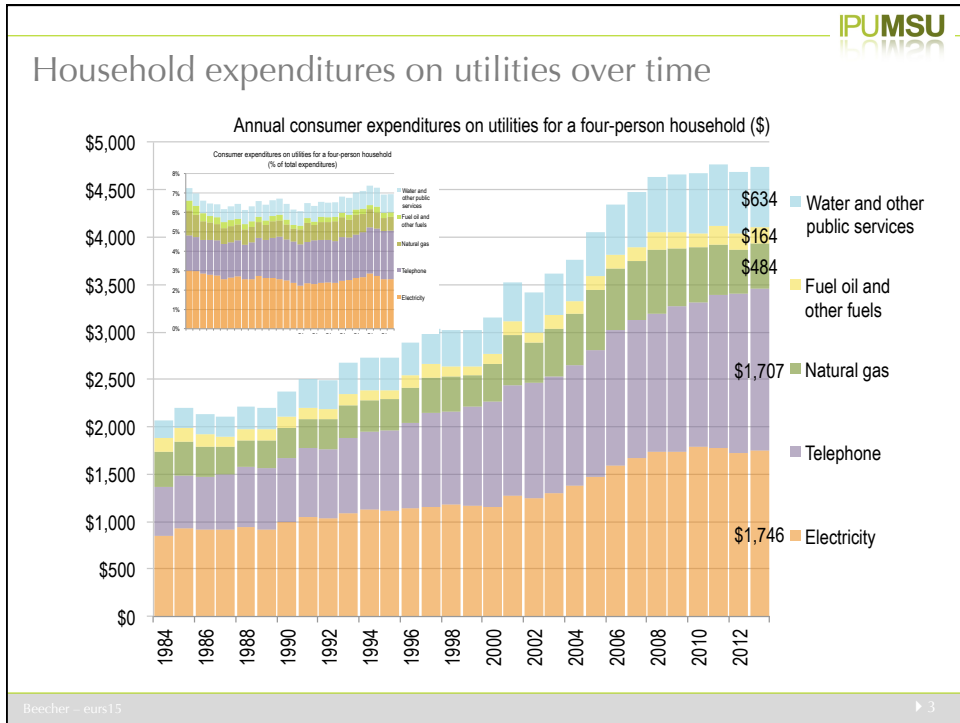


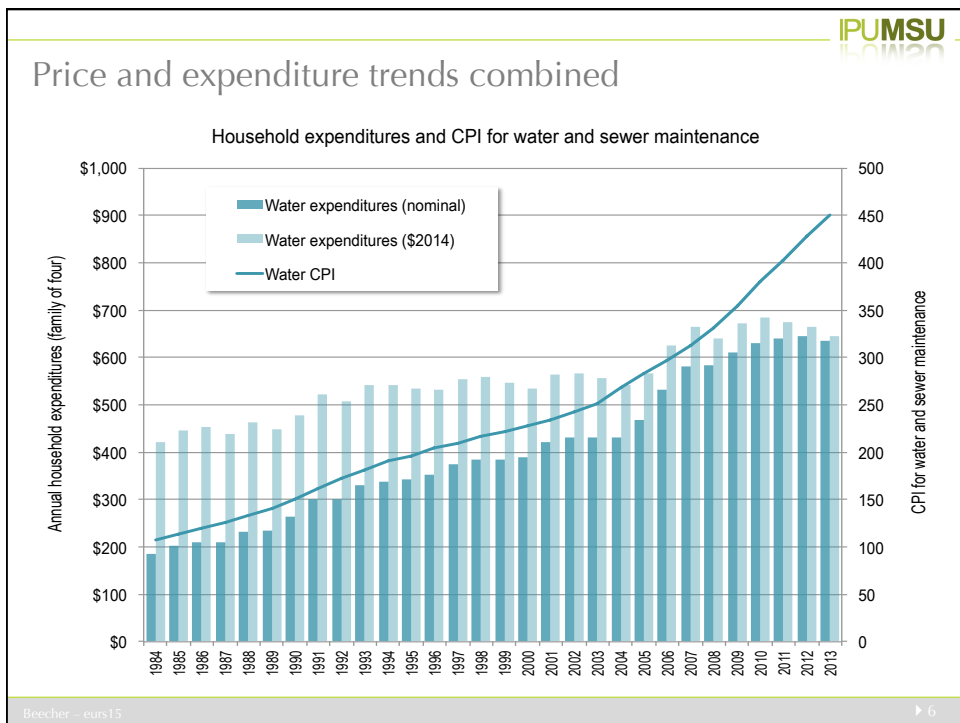
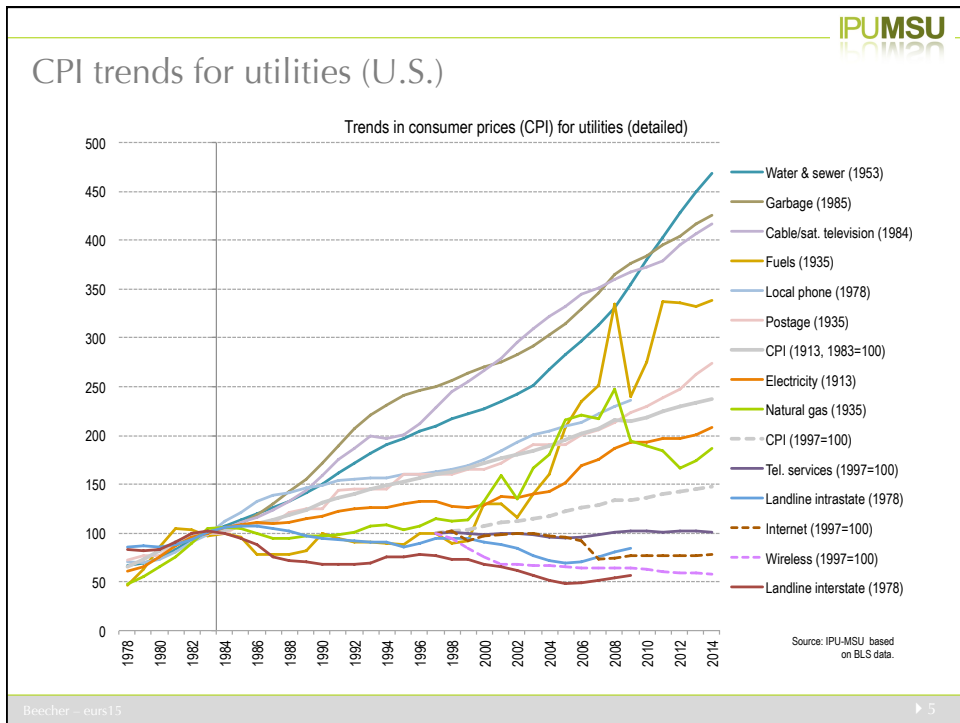
Consumer expenditures on utilities for a four-person household in 2013
 (\$4,735 and 6.9% of total household expenditures)



Consumer expenditures on utilities by household size (2013)



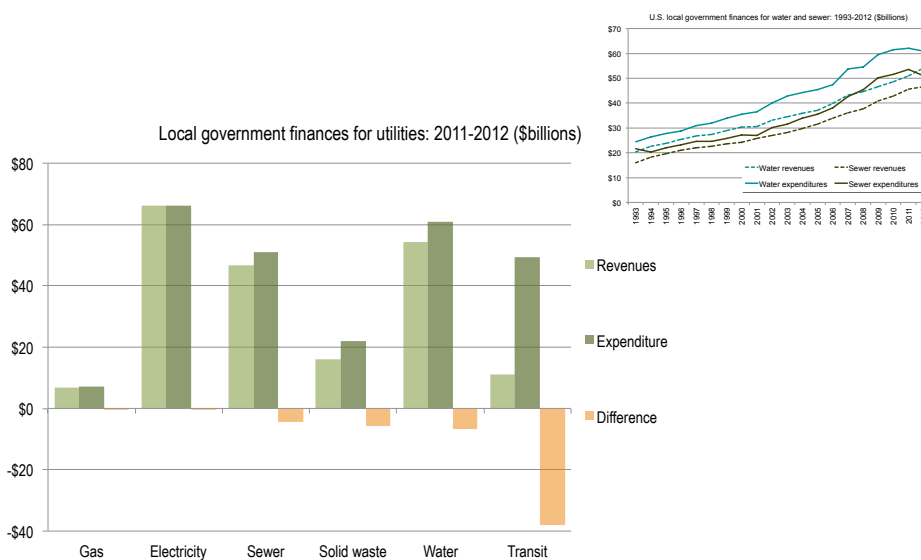


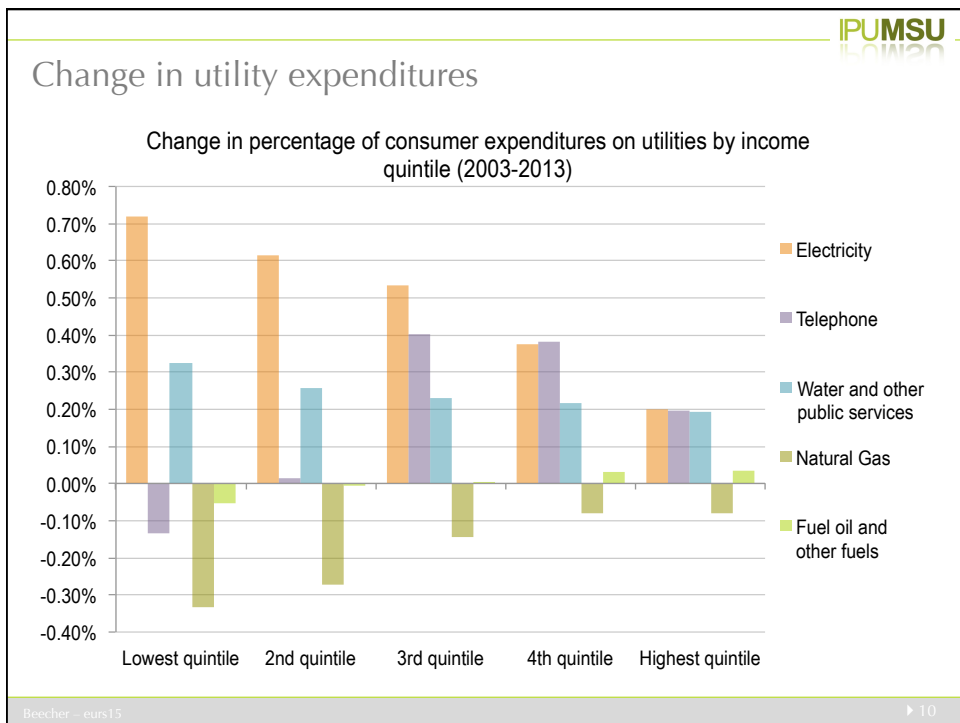
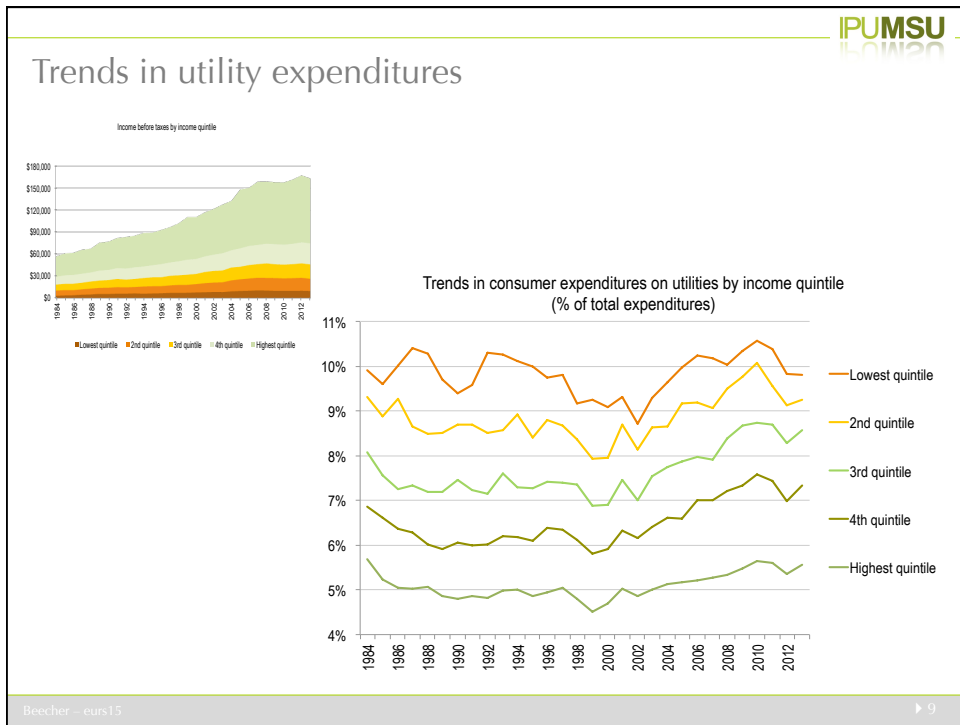


Pressure on water costs and prices

- Water system cost and price profiles vary substantially
 - ▶ By system type, age, and location
 - ▶ Prices of privately owned systems are higher (taxes, returns, practices)
 - ▶ Water, wastewater, and stormwater costs may be combined
- Water prices are rising significantly due to
 - ▶ Combined infrastructure needs of \$1 trillion need over the next 25 years
 - ▶ Operating cost pressures
 - Labor, energy, chemicals, and purchased water
 - Quality standards and compliance costs
 - New contamination threats (pharmaceuticals, fracturing)
 - Water supply constraints
 - Population growth (locational)
 - ▶ Move to full-cost pricing
 - Historic underpricing (“willingness to charge”) & loss of subsidies (publics)
 - Fiscal necessity for local government
 - ▶ Flat or declining demand (pricing, programs, recession)
 - Efficiency makes prices go up but costs make bills go up
 - Cost control is critical – *don't build tomorrow's infrastructure for yesterday's demand*

Publicly owned utilities: local finances





Affordability policy challenges

- Positive externalities of access (public health, safety, welfare)
- Negative effects of service denial and disconnection
- Environmental justice and discrimination
- Poverty, equity, rights, and dignity (including children)
- Regressivity of rates (including taxes)
- Price inelasticity of demand
- Impact of fixed charges
- Illegal service connections
- Access to technology and programs
- Information barriers (including language)



Affordability policy solutions

- Payment assistance programs
- Arrearage forgiveness
- Budget billing
- Bill timing (monthly)
- Lifeline rates
- Disconnection policies
- Service limiters (time, flow)
- Outreach and counseling
- Prepaid meters (self-rationing)
- Smart meters (tamper resistant)
- Minimum bill with usage allowance
- Tailored conservation and dynamic pricing



Federal utility assistance programs

- Energy
 - ▶ Low-income home energy assistance program (LIHEAP)
 - ▶ Weatherization assistance program (WAP)
- Telecommunications
 - ▶ Universal service fund (USF)
 - ▶ Lifeline and Linkup
 - ▶ Lifeline broadband program

Get Internet that's fast and affordable.

CenturyLink™ Internet Basics

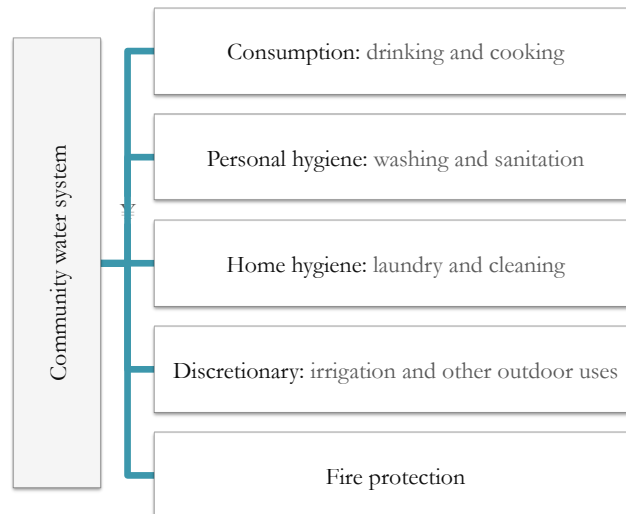
The technology you need at a price you can afford

1.5 MBPS HOME INTERNET

\$9.95
mo.

+ tax and fees
For 12 months

Water systems: five products, one set of pipes



IPUMSU
HOW20

Competing policy goals in utility pricing

- Sufficiency. *To ensure and stabilize revenues.*
- Efficiency. *To shape demand or system load.*
- Equity. *To allocate costs according to causation.*
- Fairness. *To achieve just and reasonable outcomes.*
- Affordability. *To provide a social safety net.*
- Internalization. *To reflect externalities.*
- Sustainability. *To support long-term operations.*

Beecher eurs15 ▶ 15

IPUMSU
HOW20

Pricing and equity

- A compensatory rate is easier to determine than a “just” rate
- Regulatory economics tends to define equity in economic v. social terms
 - ▶ Cost causers should pay to promote efficient resource allocation
 - ▶ Cross subsidies should be minimized
 - ▶ Prices (and policies) should be just and nondiscriminatory
- Some cost differences typically are usually ignored
 - ▶ Old v. new customers, distance from central plant
- Three types of equity
 - ▶ Horizontal equity: intra-class
 - Same costs, same rates
 - ▶ Vertical equity: inter-class
 - Different costs, different rates
 - ▶ Intergenerational equity
 - Should not force one generation to subsidize another (incl. externalities)
 - Challenging issue for capital intensive, long-life assets
 - How and why depreciation and financing matter

Beecher eurs15 ▶ 16

Pricing and fairness

- Issues of utility justice, poverty and disparity are increasingly relevant
 - › Solving these intractable problems is beyond the scope of utilities
 - › Some countries and communities address more deliberately
- Different approaches to rate design reflect different conceptions to fairness
 - › In practice, rate design is a mix of art, science, and politics –“who gets what, when, how”
- The “just and reasonable” standard suggests consideration of “fairness”
 - › An inherent tension exists between efficiency and equity, but also perceptions of fairness
 - › Fairness concerns escalate with rising prices
 - › Values and perceptions about equity can vary by culture, place, conditions and over time
- New issues challenge conventional notions of equity and fairness
 - › How will costs to meet policy goals be allocated?
 - › Can regulators delegate the determination of “just and reasonable” to markets?



Pricing and affordability

- Universal service, affordability, and minimal disconnection are policy goals
 - › Emerging technologies include prepayment, dynamic pricing, and service limiters
 - › Subsidies should target households v. systems
- Affordability is a complex policy issue
 - › Inequity is manifested in energy and water poverty and the digital divide
 - › Utility rates are regressive and rate changes have distributional consequences
 - › Rates must be high enough to cover costs but also low enough to be affordable
 - › Affordability and good payment behavior are good for business
 - › Unaffordability leads to unhealthy and unsafe choices and behaviors (negative externalities)
 - › Economic development is a consideration too (business, jobs)
- For “shrinking cities” and isolated systems policy options are limited
 - › Sacrifice service quality
 - › Subsidize cost via taxes
 - › Abandon service
 - › Relocate the service population

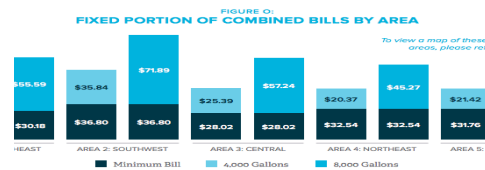
Pricing and sustainability

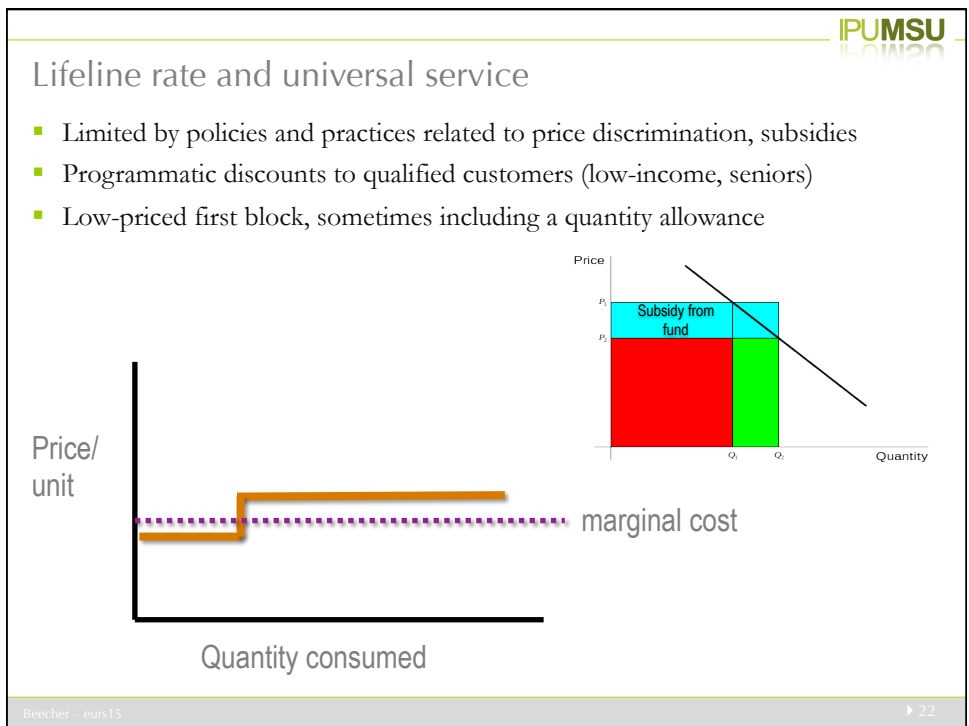
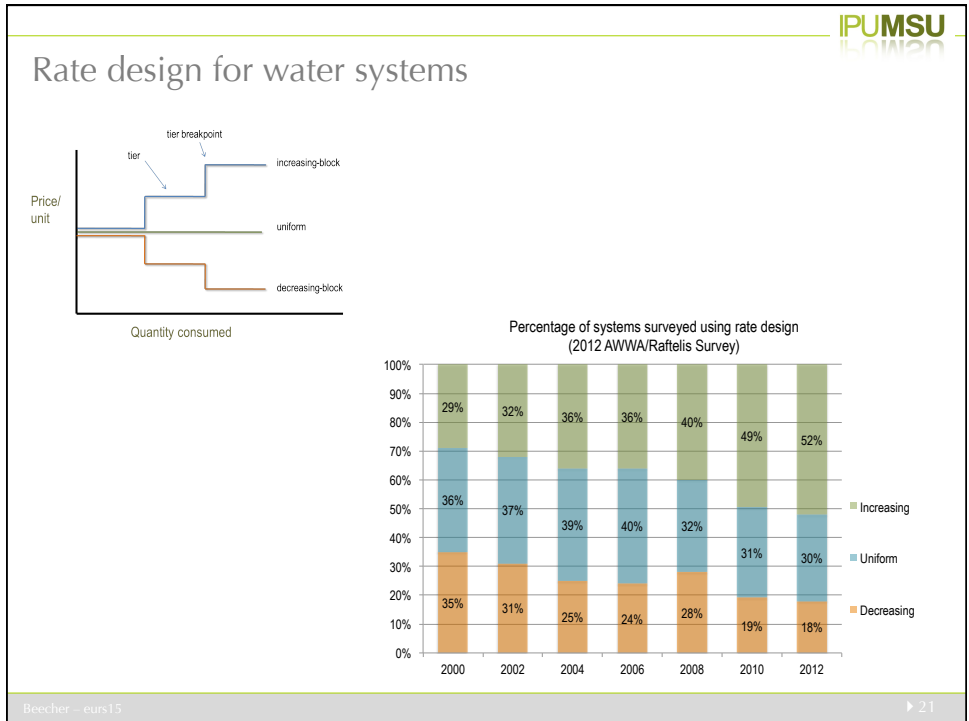
- Sustainable systems live within tolerances over the long term
 - Ecological (natural boundaries)
 - Economic (financial boundaries)
 - Equity (political and institutional boundaries)

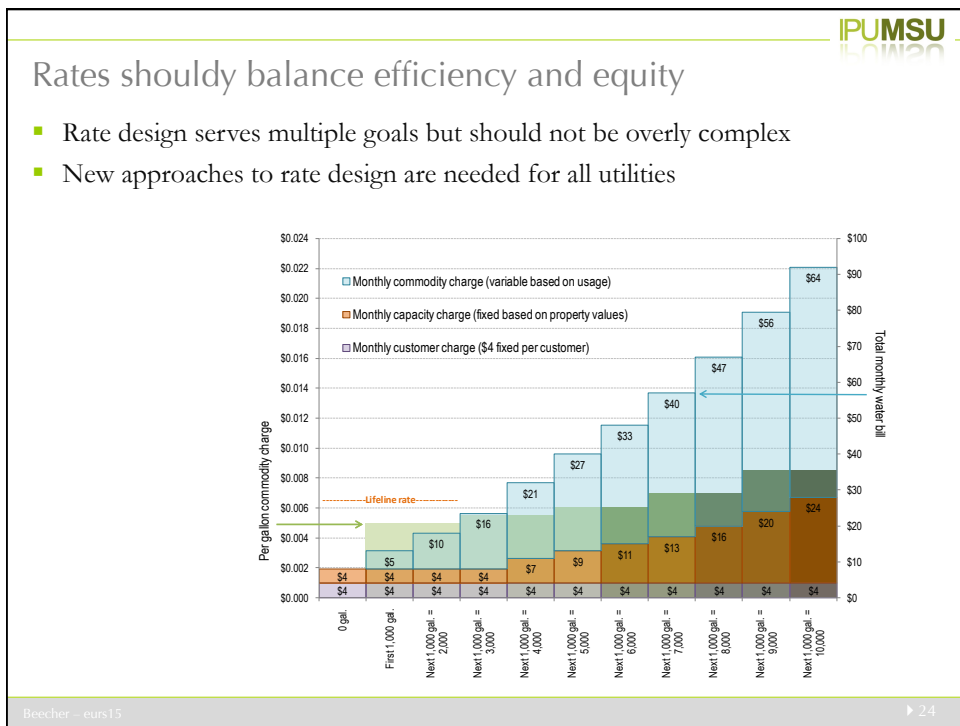
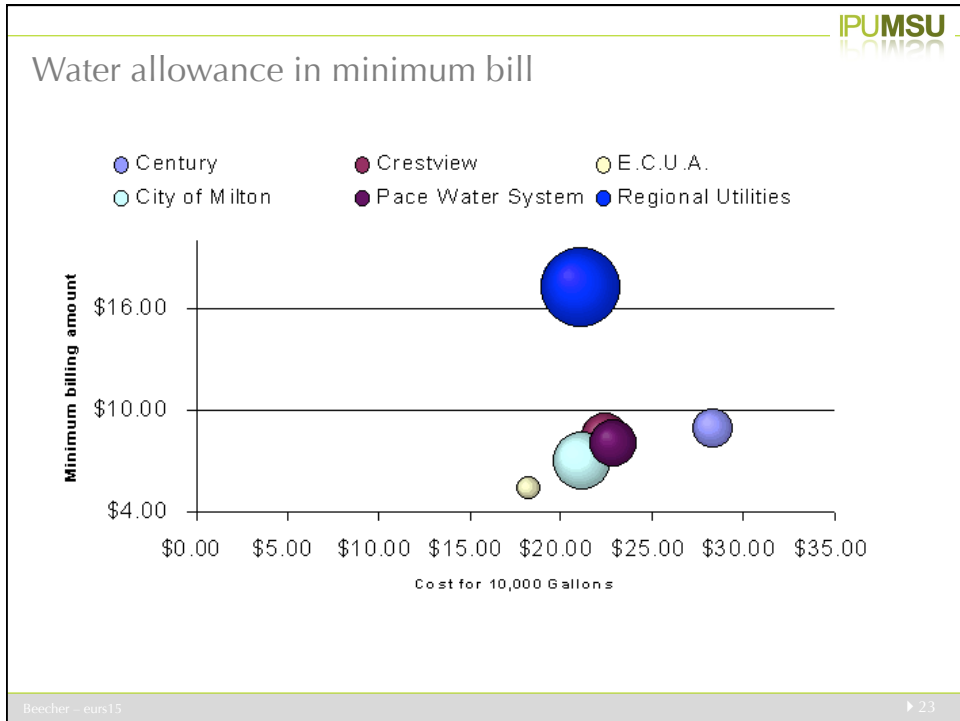
Expenditures relative to optimal service level			
Price revenues relative to expenditures	< 1 expenditures are below optimum ("cost avoidance")	= 1 expenditures are optimal	> 1 expenditures are above optimum ("gold plating")
< 1 price revenues are below expenditures ("price avoidance")	Deficient system	Subsidized system	Budget-deficit system
= 1 price revenues are equal to expenditures	Underinvesting system	SUSTAINABLE SYSTEM	Overinvesting system
> 1 price revenues are above expenditures ("profit seeking")	Revenue-diverting system	Surplus system	Excessive system

Fixed v. variable charges: tradeoffs

Recovering more costs from fixed charges	Recovering more costs from variable charges
In the short run, many costs are fixed (static world view)	In the long run, all costs are variable (dynamic world view)
Enhances revenue stability (less sales risk)	Reduces revenue stability (more sales risk)
Weakens price signals (less resource efficiency)	Strengthens price signals (more resource efficiency)
Less affordable for low-income households (more regressive)	More affordable for low-income households (less regressive)
Possible advantage for combined households (one customer charge)	Possible stability from first blocks (inelastic usage)



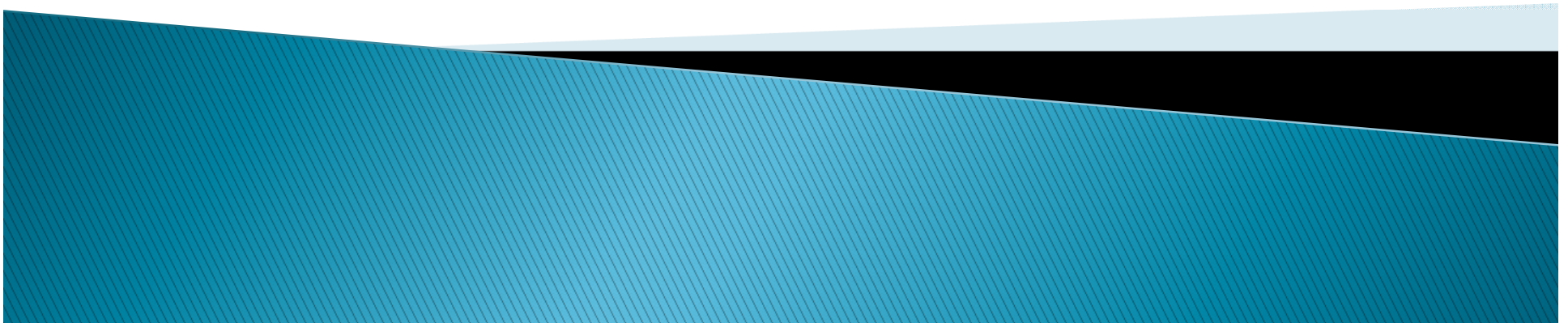




Business Case for Offering Low-Income Services: Detroit Water and Sewer

Roger D. Colton
Fisher, Sheehan & Colton
Public Finance and General Economics
Belmont, MA

October 2015



Detroit Water Affordability Program

- ▶ Program components:
 - Percentage of income based bill for current service.
 - Arrearage forgiveness component
 - Water conservation
- ▶ Program basis:
 - Cost-effective response to inability-to-pay.
 - More cost-effective than existing or proposed responses.
 - For example: Ohio and Penn PIPs arose out of proceedings on how to control uncollectibles.
 - Not a “social” program.
 - Benefits for City of Detroit in its capacity as City.

Business Case for Low-Income Services: Cost-Benefit vs. Cost-Effectiveness

Cost-effectiveness analysis is used to identify the most cost-effective option for achieving a set of defined objectives. Cost-effectiveness analysis is used to ensure the efficient use of resources in instances where benefits are difficult to monetarily value; when the information required is difficult to determine; or in any other cases where an attempt to make a precise monetary measurement of benefits would be tricky or open to considerable dispute.

While cost-effectiveness is related to cost-benefit analysis in that it is one of the four mechanisms for economic appraisal, it differs from cost-benefit analysis in that cost-benefit analysis is used *only* to address those types of alternatives where the outcomes can be measured in monetary terms.

The purpose of cost-effectiveness analysis is to assess whether an intervention provides value for money. Cost-effectiveness analysis is used to determine which of a set of alternative activities achieves the greatest outcome for the costs expended. (See e.g., Laurent Dobuzinskis, et al. (ed.). *Policy Analysis in Canada: The State of the Art*, Institute of Public Administration of Canada, University of Toronto Press: Toronto (2007).)

The two sides of cost-effectiveness

There are two flip-sides to cost-effectiveness analysis. On the one hand, cost-effectiveness is used to identify the alternative that, for a given output level, minimizes the cost of achieving the output. On the other hand, cost-effectiveness is used to identify the alternative that, for a given cost, maximizes the level of output. From each perspective, the purpose of cost-effectiveness analysis is to ascertain which intervention (or program or measure, etc.) can achieve particular objectives at the lowest cost. /1/ Both components of the analysis—the extent to which the objectives are achieved, on the one hand, and the cost of achieving on the other hand—are considered. The underlying assumption is that different alternative actions are associated with different costs as well as different results. By choosing those options with the least cost for a given outcome, society can use its resources most effectively. /2/

/1/ Joseph Wholey, et al. (eds.) *Handbook of Practical Program Evaluation*, 3d ed. (New York: John Wiley & Sons, 2010); Henry Levin and Patrick McEwan (eds.), *Cost-Effectiveness Analysis: Methods and Applications*, 2d ed. (Thousand Oaks (CA): Sage Publications, 2001).

/2/ Cost-effectiveness analysis has always entailed a very practical application. Cost-effectiveness analysis was developed in the 1950s by the United States Department of Defense for assessing the demands of the various branches of the armed services for increasingly costly weapons systems with different levels of performance and overlapping missions. By the 1960s, it had become widely used for analyzing the efficiency of alternative programs outside of the military. Hitch and McKean, *Economic Choice in Military Planning*, at 217, in *Managerial Economics and Operations Research: A Non-Mathematical Introduction*, Edward Mansfield, ed. (New York: W.W. Norton, 1966).

The Use of Cost-Effectiveness in Regulatory Decisionmaking

Cost-effectiveness analysis is not only an “accepted” technique, it is the *preferred* technique in the circumstances presented by low-income inability-to-pay. As the Treasury Board of Canada stated in its “Canadian Cost-Benefit Analysis Guide: Regulatory Proposals” in 2007: “When benefits cannot be expressed in monetary values in a meaningful way, a cost-effectiveness analysis (“CEA”) should be carried out to assist in making effective decisions. A CEA calculates cost-effectiveness ratios so that the most efficient option is chosen. In a sense, a CEA ensures technical efficiency in the process of achieving a desired outcome.” (emphasis added)./1/

/1/ “Cost effectiveness analysis evaluates the costs of different means of achieving a pre-determined goal.” Driesen (2005). A significant body of literature exists distinguishing a “cost-effectiveness” analysis from a cost-benefit analysis. See generally, Diana Fuguitt and Shanton Wilcox. Cost-Benefit Analysis for Public Sector Decision Makers, Quorum Books: Westport (CT) (1999).

Cost-effectiveness and utility regulation

All of these observations relate to utility regulation.

- ▶ One objective of utility regulation is to provide least-cost service, the precise objective which cost-effectiveness is designed to measure.
- ▶ One objective of utility regulation is to achieve the efficient delivery of utility service, the precise objective which cost-effectiveness is designed to measure.
- ▶ One objective of utility regulation is to operate in the most cost-efficient manner to accomplish the desired objectives, the precise objective which cost-effectiveness is designed to measure.

Spending less money to fall short of generating the desired outcome has never been a utility regulatory objective. Cost-effectiveness is explicitly designed to measure costs taking into account the extent to which desired outcomes are achieved.

The “cost-effectiveness plane”

Less effective and more expensive	More effective and more expensive
Less effective and less expensive	More effective and less expensive

Payment Coverage by Bill Burden

Distribution of Effective Coverage Rate by Net Energy Burden
(gas or electric 3%) (New Jersey USF)

	Bill Payment Coverage Rate			
	<50%	50% – < 90%	90% – <100%	100% or more
<2%	0.0%	2.7%	5.3%	92.0%
2% – 3%	0.0%	6.0%	11.5%	82.5%
3% – 4%	0.0%	10.0%	13.2%	76.9%
4% – 6%	0.0%	11.6%	16.6%	71.6%
6% – 8%	0.4%	16.6%	17.4%	65.6%
More than 8%	1.0%	25.6%	16.1%	57.4%

Payment Compliance Timeliness

Percent of Accounts by Number of Months in Arrears
in 24 Month Study Period (PSCO)

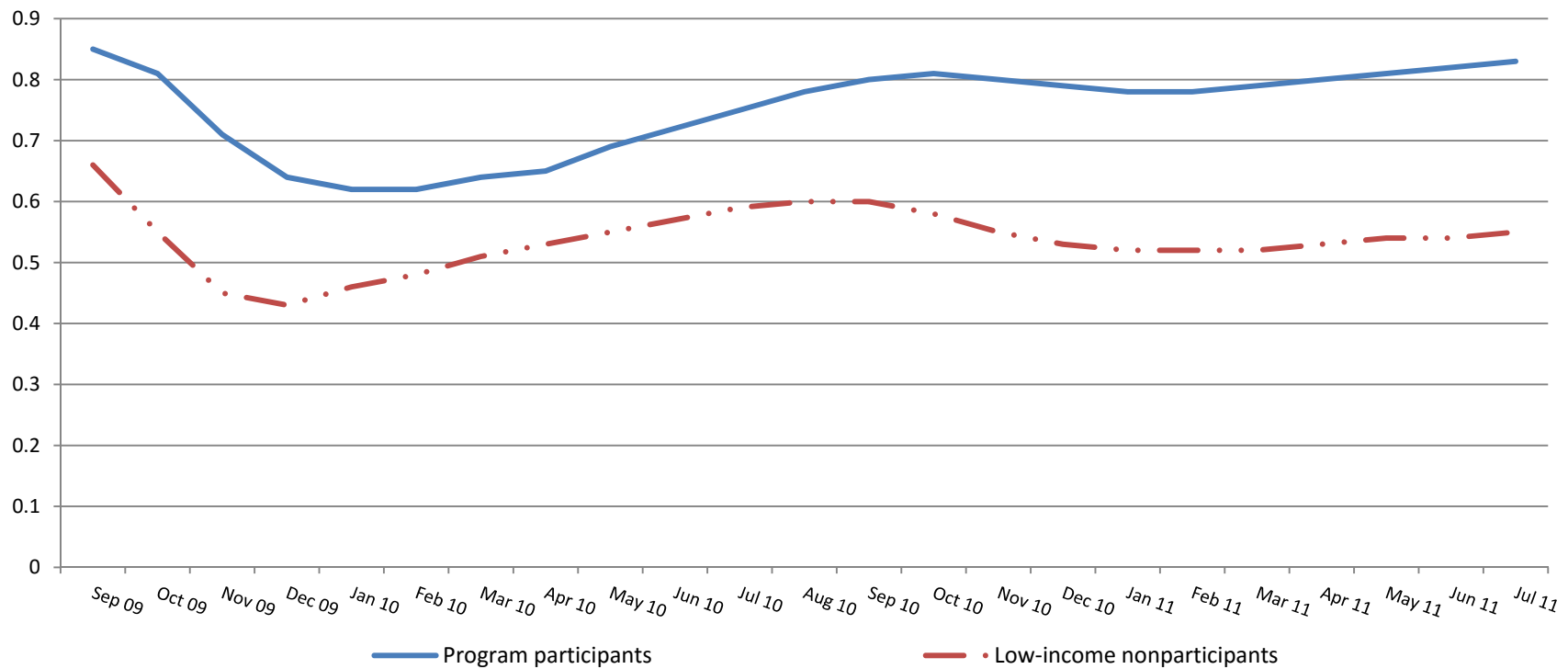
Months in Arrears out of 24 Month Study Period	Program Participant	Low-Income Non-participant
0 months of 24	20%	2%
1-6 months of 24	33%	20%
7-12 months of 24	20%	21%
13-18 months of 24	15%	21%
19-21 months of 24	7%	18%
22-23 months of 24	4%	17%
Total	100%	100%

Payment Compliance: Arrears Accumulation

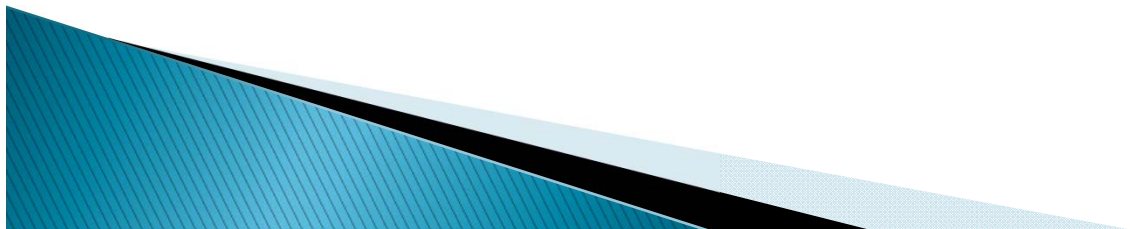
Percent of Accounts by Ratio of Month 23 Arrears to Month 1 Arrears (PSCO)

Ratio: Month 23 Arrears to Month 1	Program Participant	Nonparticipant by Month 1 Arrears			
		\$0	\$1 – \$250	>\$250	Total
0	40%	---	9%	6%	8%
0.01 – 0.49	10%	---	2%	12%	6%
0.50 – 0.99	11%	---	8%	18%	12%
1.00	0%	---	0%	1%	0%
>1.00	38%	---	80%	63%	74%
Total	100%	---	100%	100%	100%

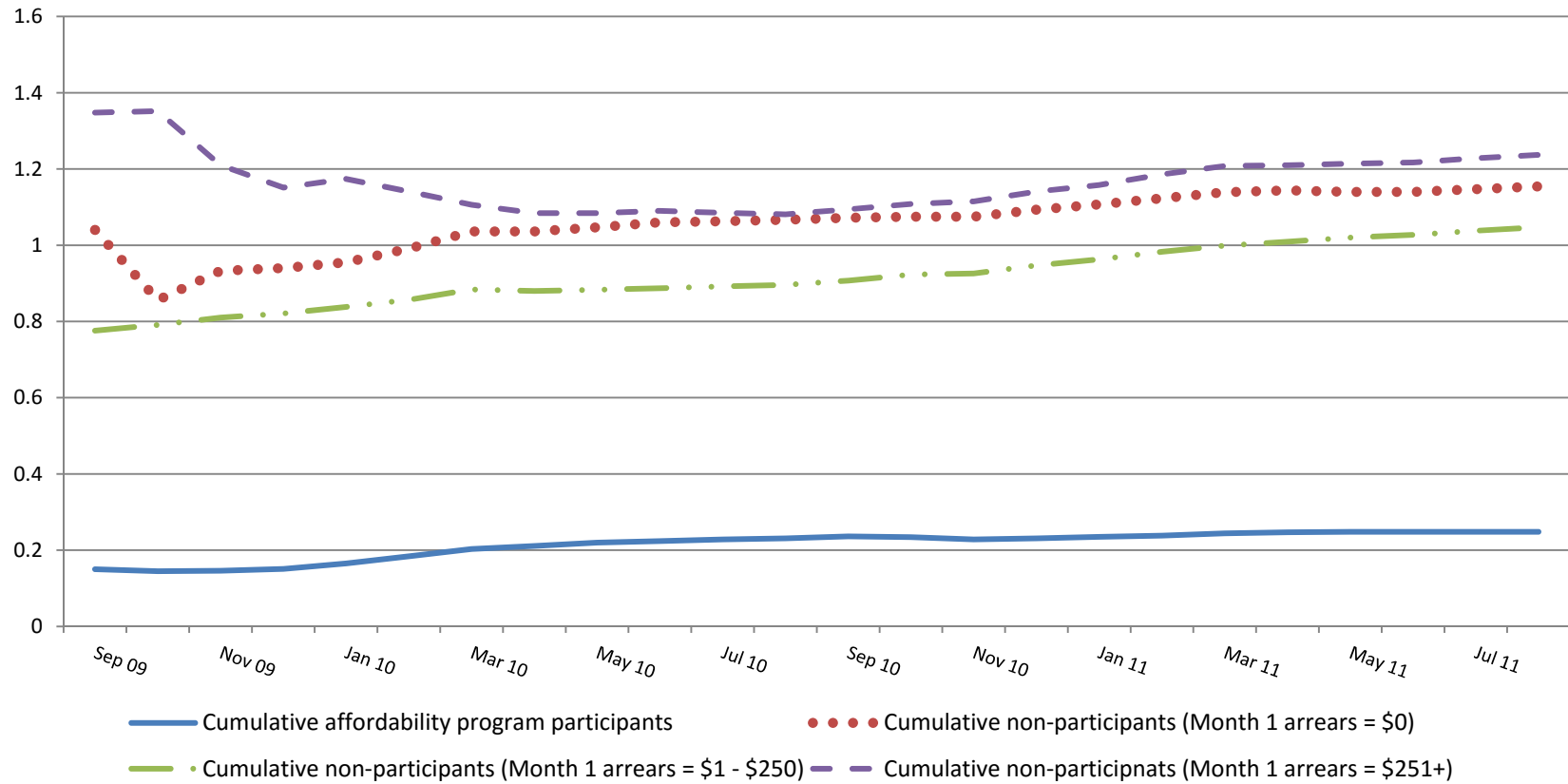
Payment coverage ratios



Cumulative Customer Payment Coverage Ratio for PSCO Low-Income Participants Compared to Low-Income Non-Participants

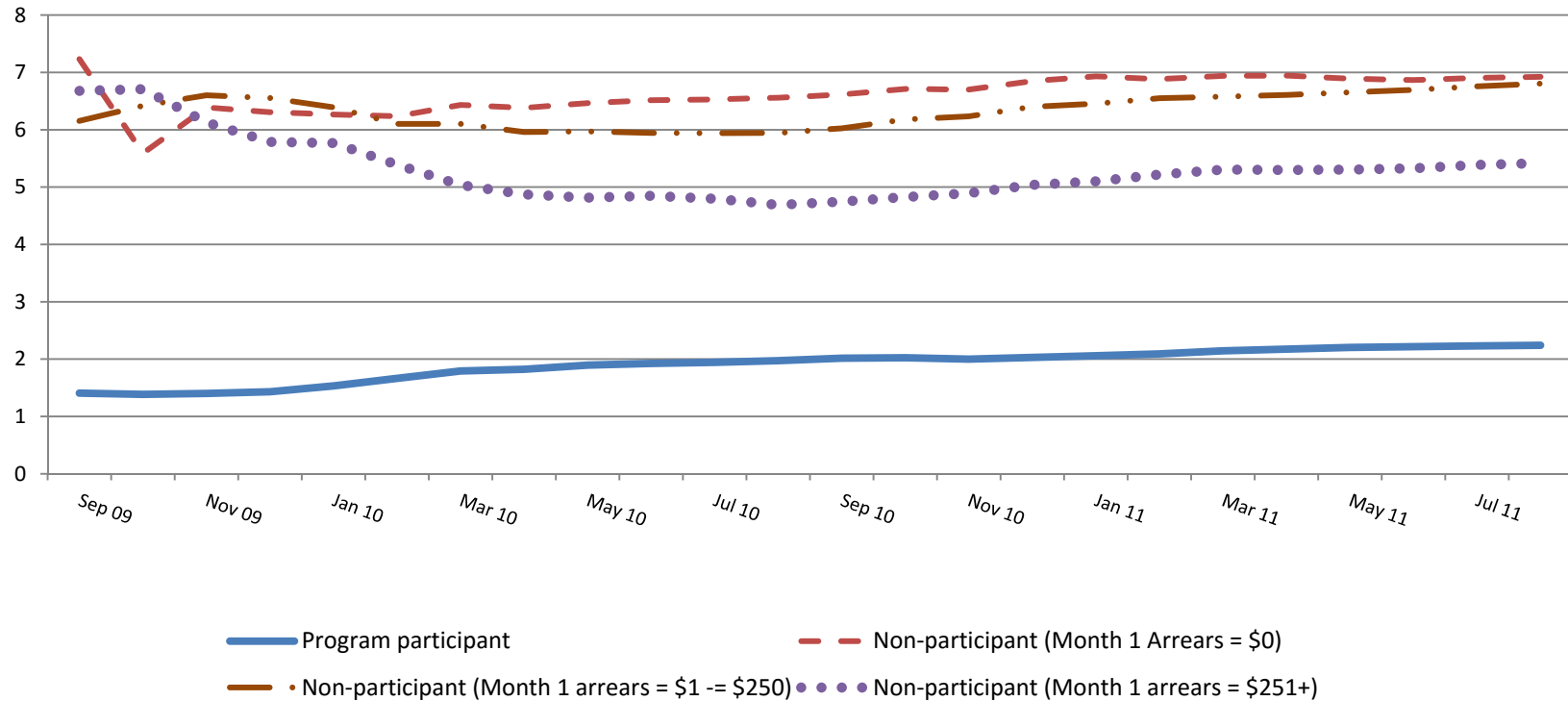


DNP Notices per 1,000 Payments



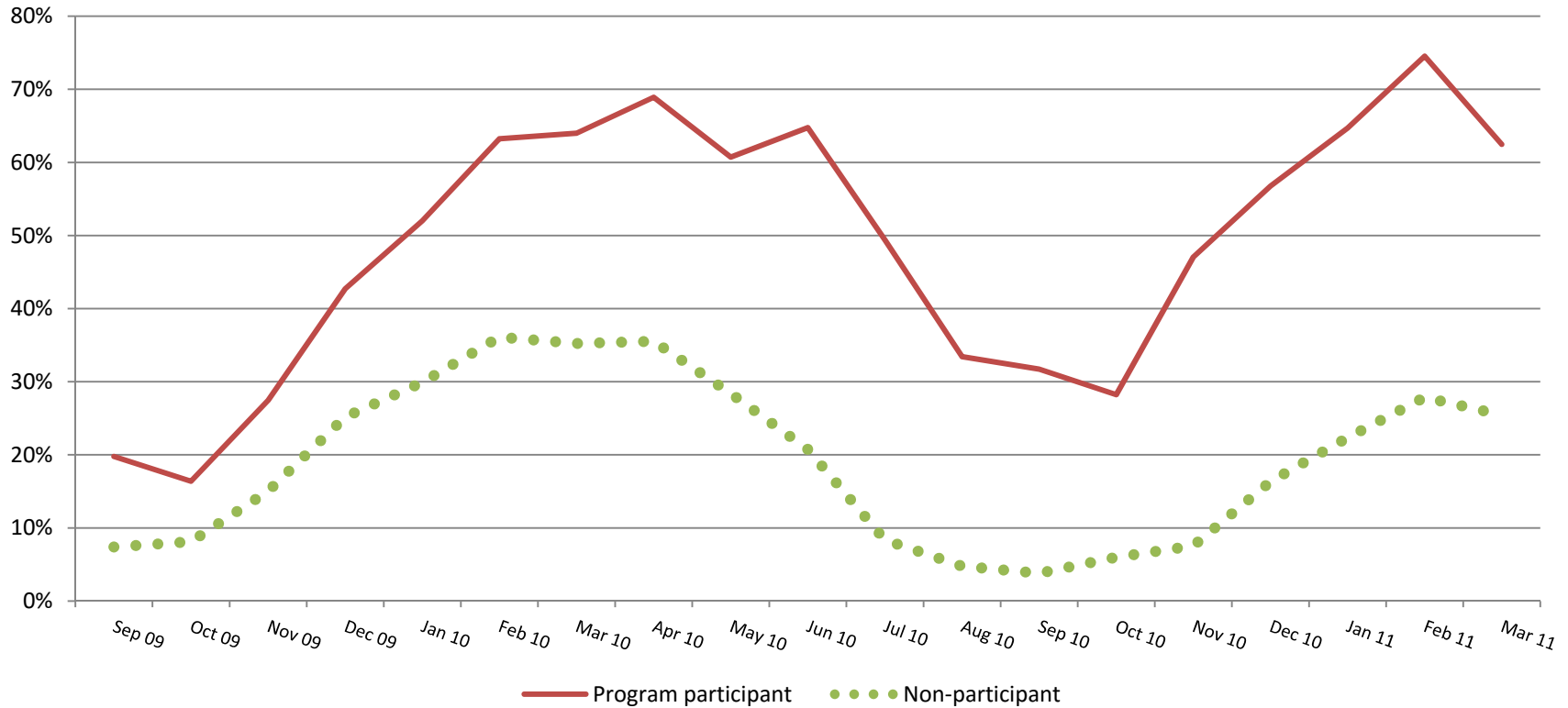
Cumulative Disconnect Notices per 1,000 Customer Payments for Affordability Participants Compared with Non-Participants by Level of Month 1 Non-Participant Arrears.

DNP Notices per \$1,000 Payments



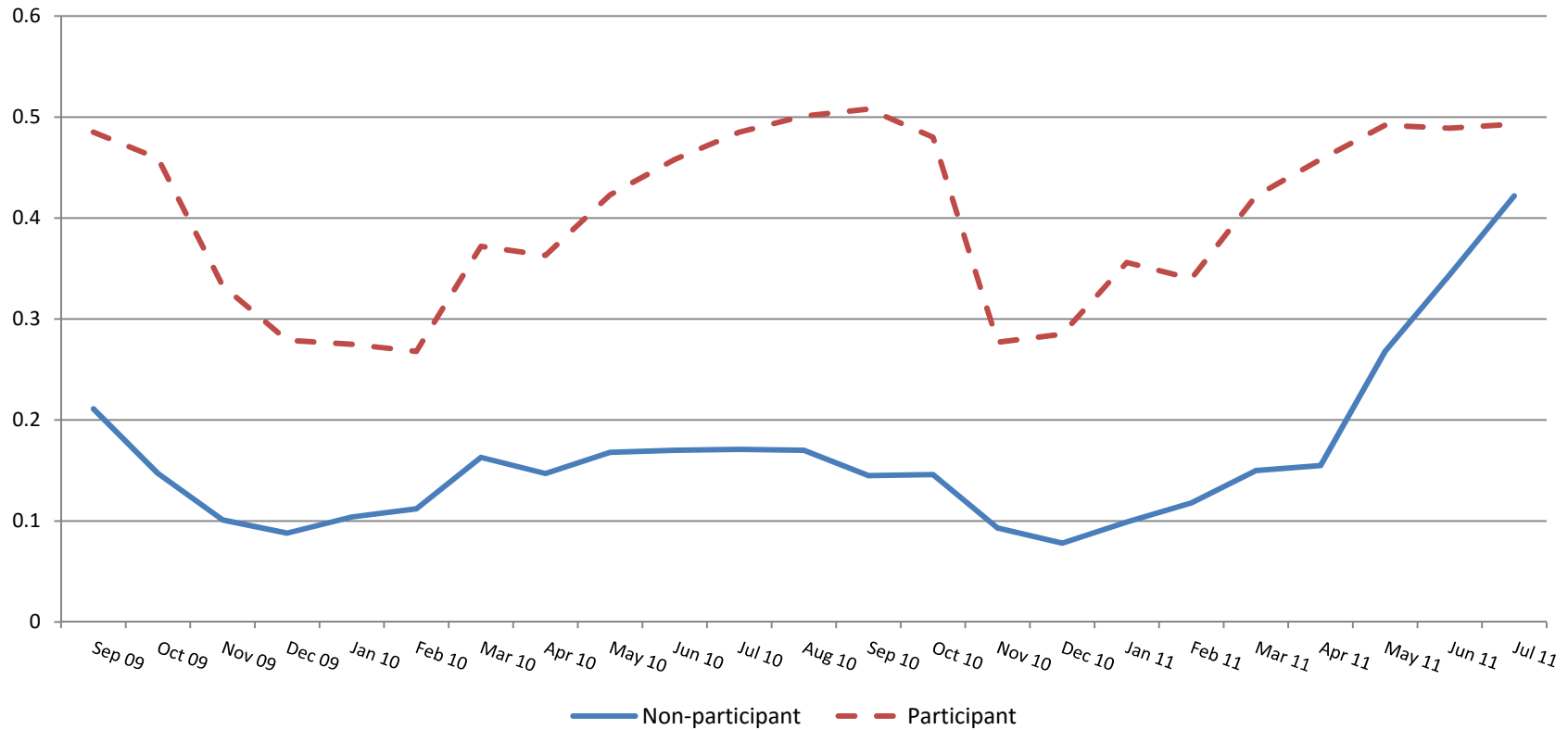
Cumulative Disconnect Notices for Nonpayment per \$1,000 in Customer Payments for Affordability Participants Compared to Non-participants by Level of Non-participant Month 1 Arrears.

Payments after DNP Notice



Percent of Customers Receiving DNP Notices with Customer Payment Coverage Ratio > 1.0 in 4-Months After DNP Notice

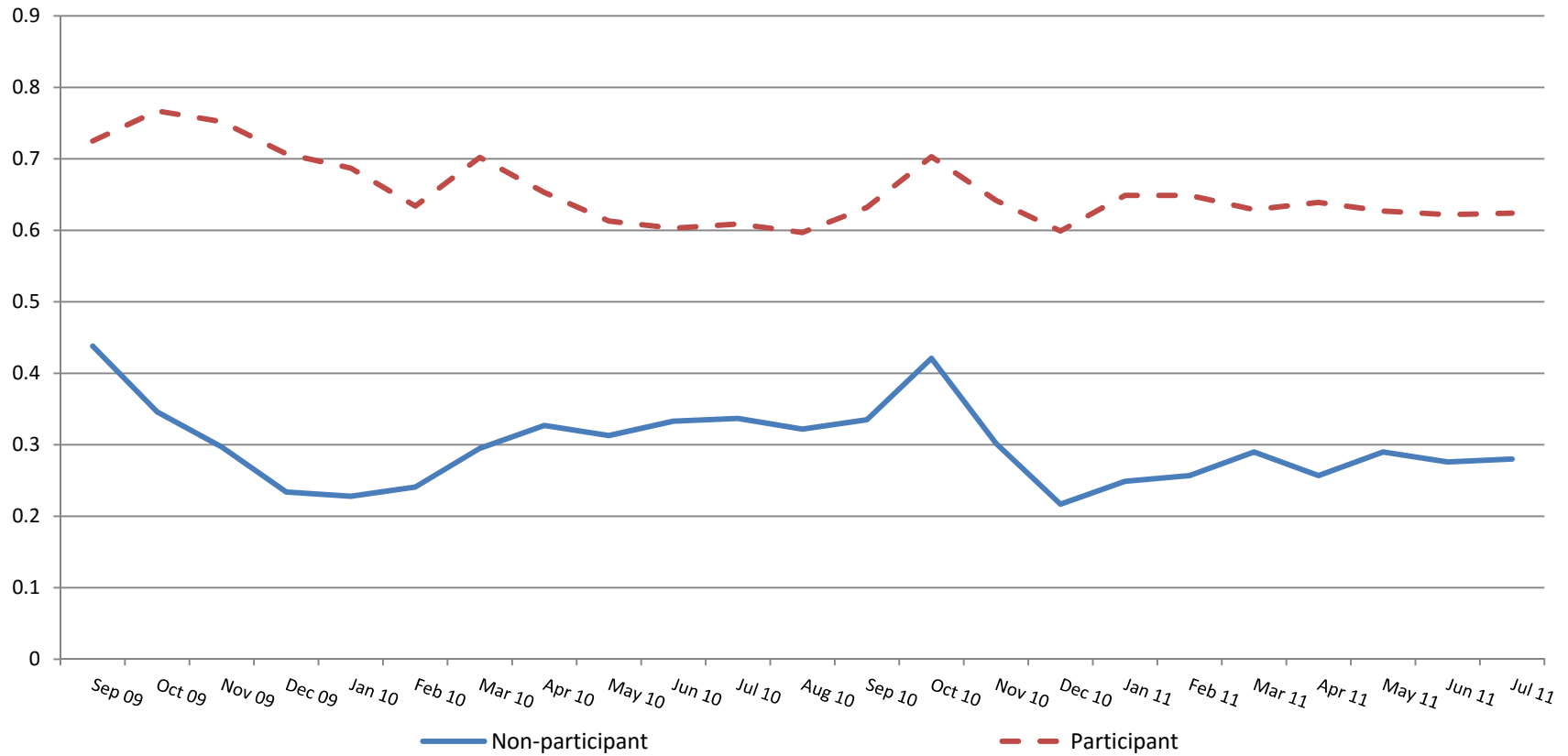
Payments Yielding \$0 Balance by Number of Bills



Ratio of Number of Payments Resulting in \$0 Balance to Number of Bills by Program Participation



Payments Yielding \$0 Balances by Number of Payments



Ratio of Number of Payments Resulting in \$0 Balance to Number of Payments by Program Participation.



Conclusions

- ▶ To the extent that nonpayment is associated with inability to pay, low-income services can be a cost-effective response to nonpayment.
- ▶ A continuing, let alone an increased, reliance on traditional credit and collection activities directed toward inability-to-pay customers is not the most effective, let alone the most cost-effective, nonpayment response.
- ▶ The discussion above neither proposes, nor recommends, a specific low-income service.
- ▶ A suite of nonpayment responses (to be determined) is likely to be the most effective and cost-effective BC Hydro response to inability-to-pay nonpayment.



Billing, Collections, and Customer Service Options



Scott J. Rubin, October 27, 2015

Background

- ▶ Options depend on system capabilities (CIS, etc.)
- ▶ Bad debt, customer service, and collections activities are costs borne by paying customers
 - ▶ Under GLWA agreements, City bad debt and collection costs stay with the City
- ▶ Business decisions should be made based on relevant factors which may include:
 - ▶ Benefit-cost (\$ collected vs. \$ expended)
 - ▶ Perceived fairness (similar customers treated similarly)
 - ▶ Consistent with other goals (e.g., conservation, homelessness)
- ▶ Treat as business process, including feedback loop (continuous improvement)



Know Your Customers

- ▶ Late pay vs. no pay
- ▶ Underlying reasons / customer types
 - ▶ Lack of money
 - ▶ Lack of budgeting skills
 - ▶ Able but unwilling (“gaming”, perceived unfairness)
 - ▶ Crisis (lost job, high medical bills, death in family)
 - ▶ Seasonality (income, other bills, water bill)
 - ▶ Physical payment problem
 - ▶ 27.7% of households with income < \$15,000/yr have no bank account
(2013 FDIC National Survey of Unbanked and Underbanked Households (October 2014))
- ▶ Requires account analysis, segmentation, strategies



Potential Billing Options

- ▶ **Billing on same day of month**
 - ▶ Utility selects
 - ▶ Customer selects (“pick-a-date”)
- ▶ **Budget billing – same bill amount each month**
 - ▶ 12 months with over/under rolled into next year’s budget
 - ▶ 11 months with over/under billed in 12th month
 - ▶ 10 months with over/under spread over months 11 & 12
- ▶ **11-month billing (“skip-a-month”)**
 - ▶ Customer effectively prepays to avoid having to pay in month when other expenses high or income low



Potential Collections Options

- ▶ **Arrearage management**
 - ▶ Incentives / forgiveness
 - ▶ Realistic payment plans
- ▶ **Amnesty programs**
 - ▶ Reduce / eliminate late fees
 - ▶ Partial forgiveness
 - ▶ Time to coincide with customer access to funds (e.g., tax refunds, community grants)
- ▶ **Different collection strategies for different customer segments**



Potential Customer Service Options

- ▶ Targeted reminders (before and/or after due date)
- ▶ Separate CSRs trained to deal with particular customer segments
- ▶ Partnerships with community organizations
- ▶ Referrals to community organizations
 - ▶ Access to funds / other assistance
 - ▶ Budget assistance
 - ▶ Banking assistance (facilitates budgeting, timely payment)



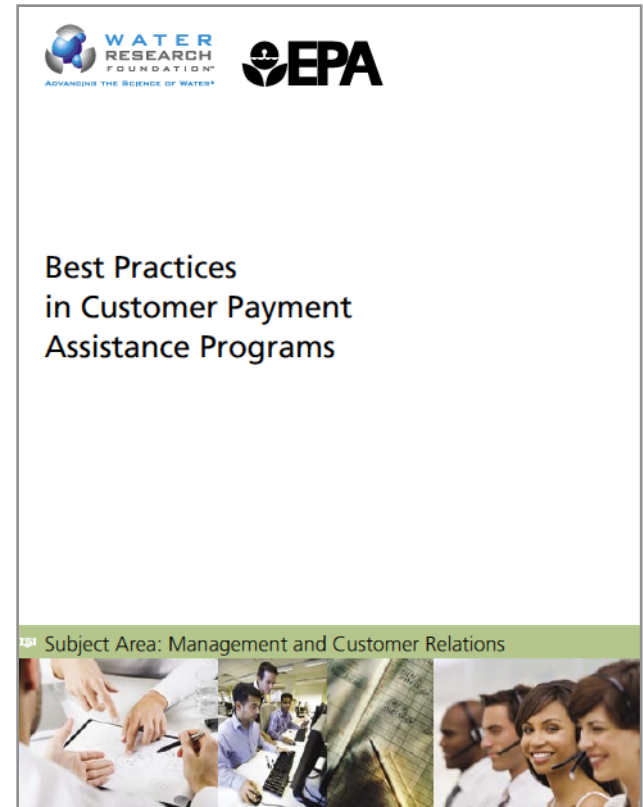
Useful Resource

Best Practices in Customer Payment Assistance Programs,

Funded by the Water Research Foundation and US EPA (2010),

available at no cost: <http://>

www.waterrf.org/PublicReportLibrary/4004.pdf





PRELIMINARY VIEW ON AFFORDABILITY

BLUE RIBBON PANEL DISCUSSION

11/17/2015

The Bottom Line...Three takeaways



- ▶ **When discussing affordability, the first question should be is the cost basis correct – we would argue for Detroit sewer it is not**

- ▶ **An analysis of Detroit’s data suggest an inclining block structure may be a viable alternative**
 - Strong link between income and usage
 - Increased collectability for discount tier customers (partially offset by lower collectability in higher rate classes)

- ▶ **However, the inclining block is not a panacea – more must be done for those on the fringe**
 - WRAP program and other customer financial outreach
 - Increased retrofit



The First Question on Affordability: Is the Costs Basis Correct?

Current CTA O&M allocation methodology between wholesale regions is inconsistent with theories posited in AWWA's M1 manual and MoP 27



- ▶ **Currently, DWSD methodology allocates all CTA costs based off of sanitary and pollutant flow; the logic is costs are distributed based off of system use**
 - After functional allocation, all CTA costs are allocated by a region's sewage flow adjusted for strength
 - Essentially allocates all costs on a variable basis

- ▶ **Implicit in the methodology is that all costs are predominately related to combined flow – this is not the case**
 - Current budget includes \$39 million of A&G costs (\$29 million in CTA) – organization size is the predominant factor; not flow
 - Plant labor costs approximates \$35 million is largely fixed and driven by necessary functions, work rules, etc.; not combined flow
 - Initial analysis suggest more than 70% of the costs is non-flow related
 - Much of the basic infrastructure is driven by sanitary flow (e.g., buildings, piping, etc.); not combined flow

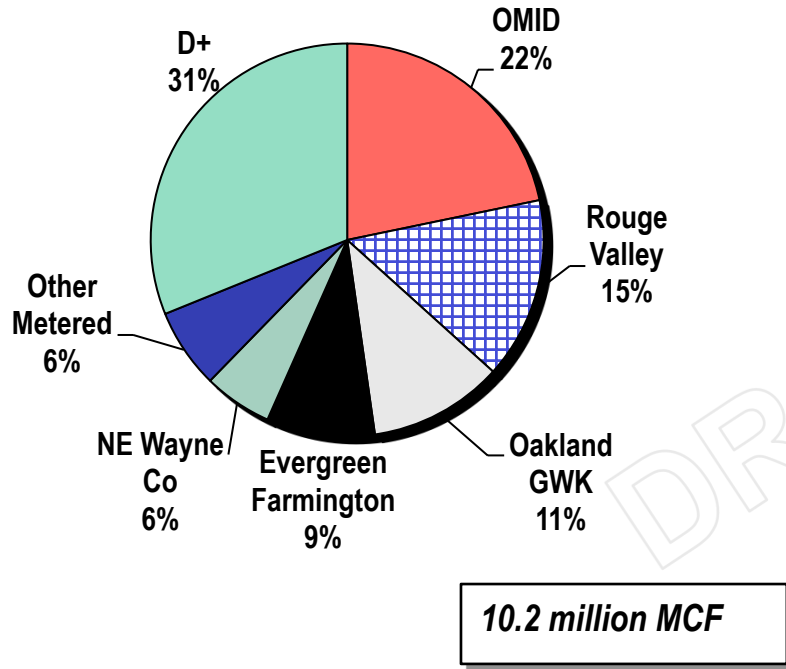
- ▶ **M1 and standard practices suggest cost allocation based on “causative factors”; i.e., what is the “...predominant cost driver”**
 - Both documents imply using a combination of variable (flow) versus semi-fixed / fixed (non-flow) measures to allocate costs
 - Both documents drive toward making allocations consistent with economic theory

- ▶ **Ultimately, the idea is to be fair in rate distribution**

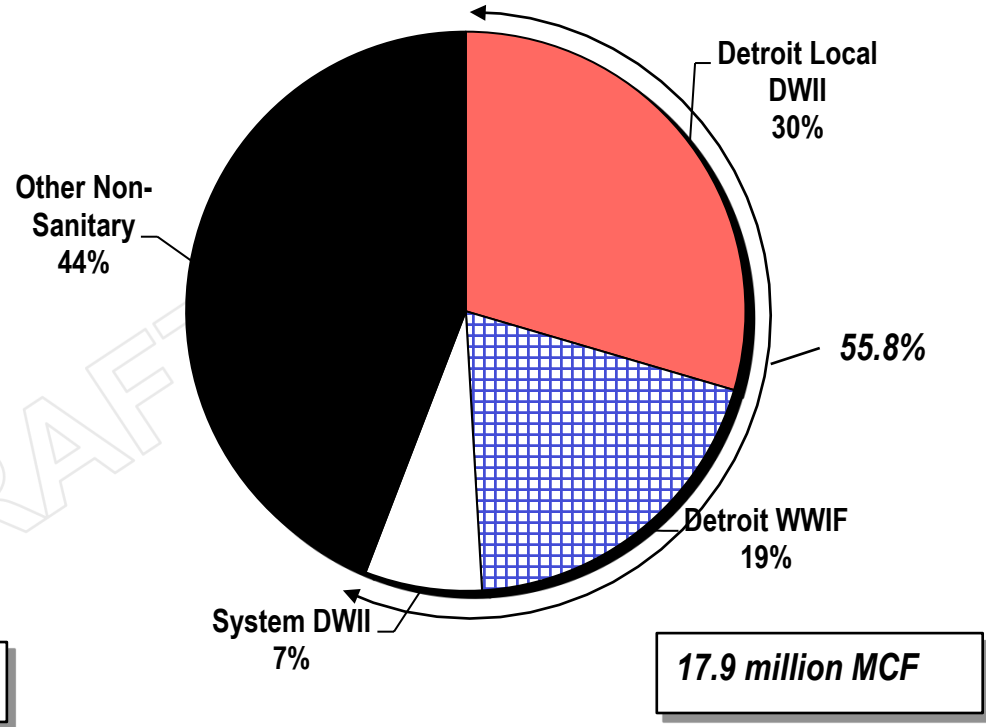
Under the flow method of allocation, Detroit is disadvantaged vis-a-vis suburban counterparts due to combined sewers and infiltration and inflow



Sanitary Flow – Detroit vs. Other Regions



Non-Sanitary Flow – Detroit vs. Other Regions

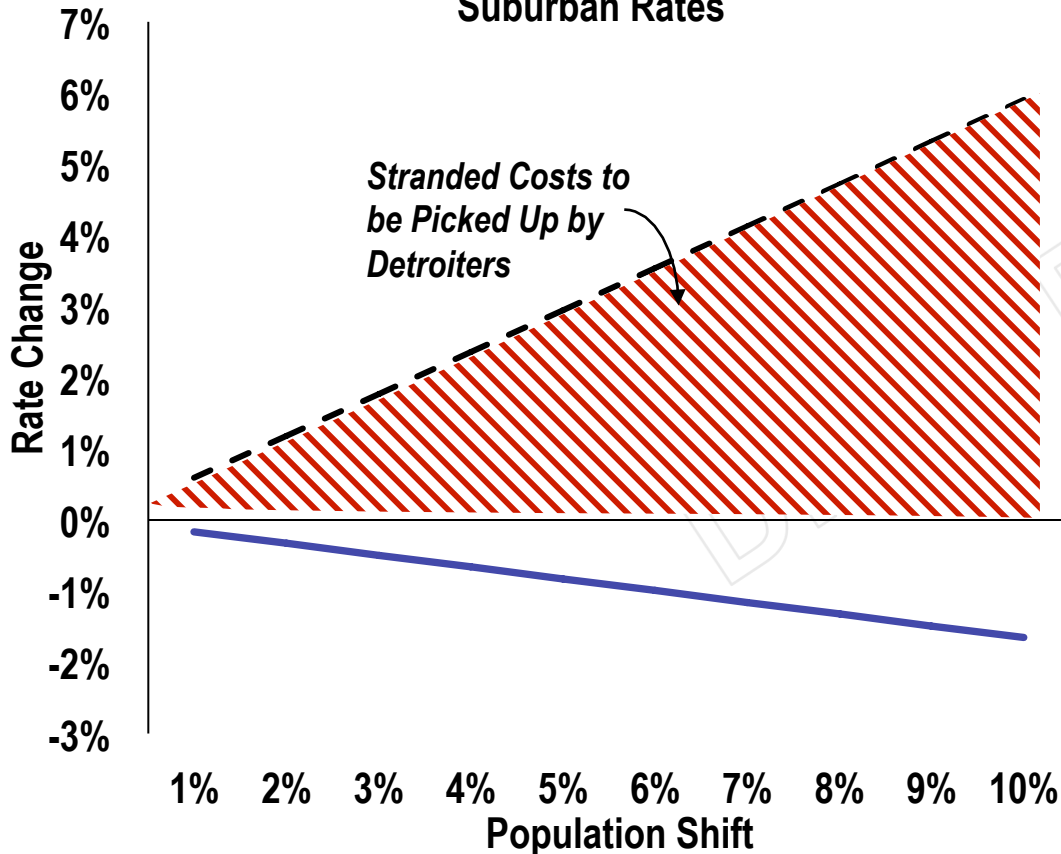


- ▶ **Detroit’s geographic size and aging system infrastructure results in its non-sanitary volumes dwarfing those of other regions**
- ▶ **The result has been a inordinate amount of cost allocated to Detroit due to the flow based allocation methodology**
- ▶ **Rate makers have attempted to blunt the impact of non-sanitary flows by introducing a strength concept; however non-sanitary flows are still disproportionately weighted in the rate calculation**

As migration patterns continue to negatively impact Detroit, a lack of control over non-sanitary volumes will impact its rates disproportionately



Impact of Migration Patterns on Detroit vs. Suburban Rates



— — Detroit Rate Increase — Suburban Rate Decrease

- ▶ Despite population declines, Detroit's **SHARE** of system costs remain the same because of uncontrollable CSO and I&I volumes
 - CSO and I&I volumes dwarf other volumes and are consistent from year to year
 - Suggest CSO is endemic to the system not the collection of users in the City
- ▶ The cost implications should be clear – as Detroit has lost population its cost of sewerage services have increased disproportionately to wholesale allocations
 - A 5% migration from Detroit to suburban communities, **DECREASES** suburban bills by 1% while **INCREASING** Detroit bills by 3%
- ▶ The proof is in the history of rate increases over the last 10 years
 - Over the last decade, wholesale allocations have increased approximately 3.5% while population has grown
 - Conversely, Detroit rates have increased approximately 8% per year over the same time frame

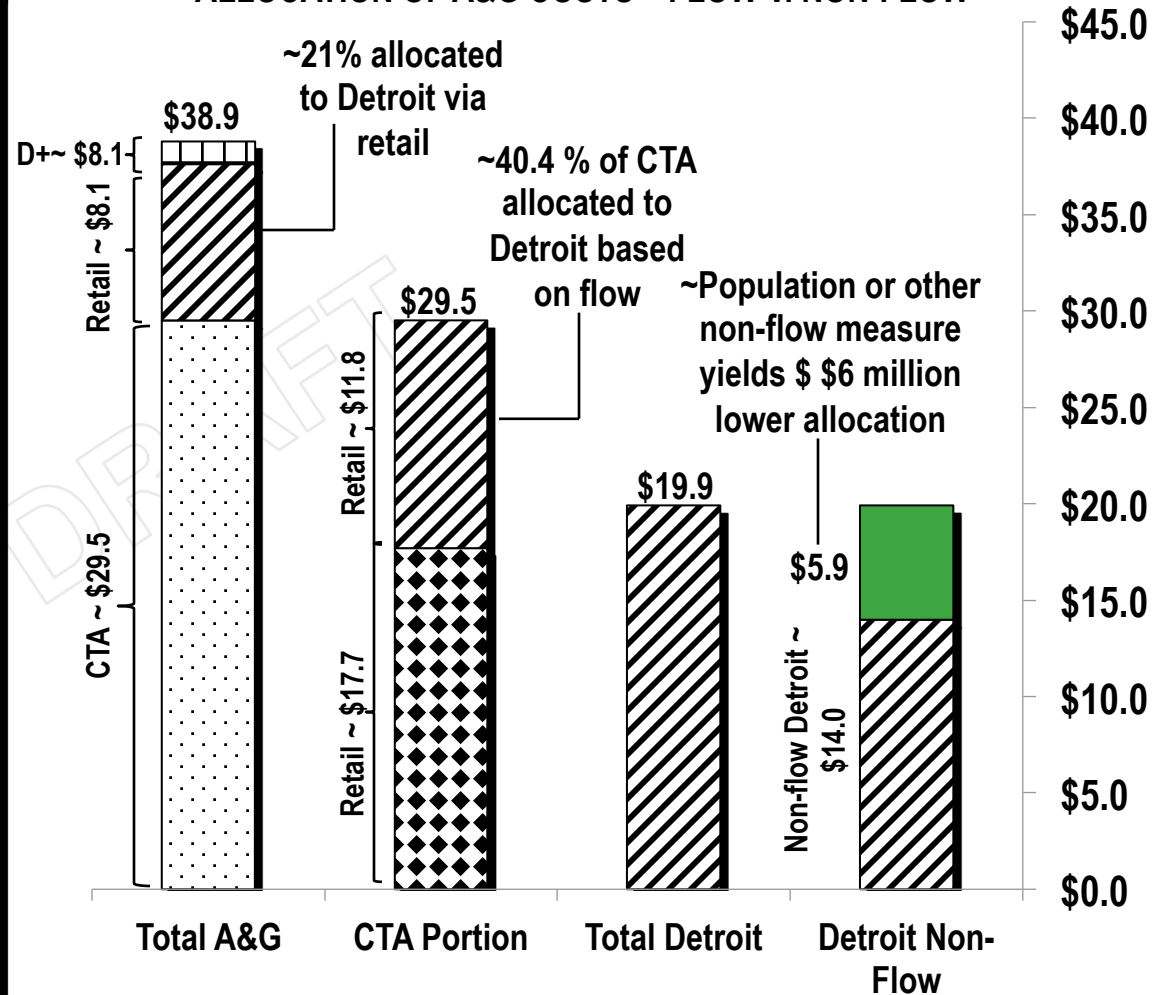
Flow based allocation disadvantages Detroit rates by as much as \$X - \$Y million per year; A&G accounts for \$6 million alone.



ALLOCATION ISSUES

- ▶ **Currently, Detroit receives two allocations from system costs**
 - Directly through Detroit Retail
 - Through Common-To-All
- ▶ **Ultimately, more than 50% of many of these costs resides in the retail system; e.g.**
 - Approximately 51% of system debt is allocated to Detroit
 - Approximately 61% of A&G costs (note 70% or DWSD staff is going to GLWA)
- ▶ **This makes little sense given Detroit's size relative to the service area and nature of system costs**
 - Detroit represents ~ 20% of the service area by population
 - Structural and A&G costs do not change with flow
- ▶ **Non-flow structures on other causation factors suggest Detroit's costs could be lowered by \$X - \$Y million per year; i.e., A% - B% of current charges**

ALLOCATION OF A&G COSTS – FLOW V. NON-FLOW



At a minimum, allocation of CTA costs based on combined flows appears to be a stretch in logic given the construction of the plant and CSO basins



- ▶ **Detroit's plant was built in the 1940's; prior to the introduction of regulation on overflow volume**
 - Sized to process roughly 500 mgd / serve 4 million people
 - Initially focused on primary treatment to remove 50% - 70% of pollutants
 - Secondary treatment added in 1970's to process up to 85% of pollutants

- ▶ **Currently, primary capacity approximates 1,800 mgd / secondary capacity approximates 930 mgd – the secondary capacity is representative of required sanitary capacity**
 - Additional primary capacity added as a result of increased regulation; specifically the need to treat sewage overflow volumes initially purged to the Rouge & Detroit rivers
 - CSO basins serve to store combined flow generated during storm events until capacity becomes available

- ▶ **Capacity drives much of the CSO costs - it should also be noted that 83% of these costs are allocated to Detroit as a separate charge from Common-To-All**

- ▶ **Given the installed secondary capacity appears to be related to population served and primary capacity increments is a result of regulation, allocations based only on flow appear inappropriate**
 - Plants initial design was to process some portion of combined flow and discharge rest to water sources
 - Natural issue with combined sewers built in late 1800's, not a result of customer or City action
 - Supported by economic theory; i.e., marginal cost theory (marginal costs of combined sewer is captured in Basin costs which is already allocated mostly to Detroit.)

At a maximum, the allocation based on flow ignores basic economic logic and should consider CSO basins as a system versus Detroit costs



- ▶ **Currently, the 83% / 17% Detroit split in CSO basin construction costs is based on historical negotiations with limited technical data**
 - Settlement reach in mid '90's
 - Final provision based off compromise between Detroit and surrounding service area customers
 - Loosely represents incremental size required due to Detroit's combined sewer system
- ▶ **Since its inception, further changes in demographics call into question whether a 83% / 17% is still applicable**
- ▶ **Further, basin volumes and required treatment are irrespective of consumer demand; it's a natural inefficiency of a 100+ year old system**
- ▶ **Accordingly, charging a specific customer class system inefficiencies seems to defy economic theory – the cost of inefficiency should be borne by the collective**
- ▶ **What is the magnitude of basin costs - \$31 million per year is allocated to the Detroit retail class**



Detroit Resident Dynamics

DRAFT

In hopes of facilitating an affordability solution, we have analyzed the Detroit customer base to answer several basic questions



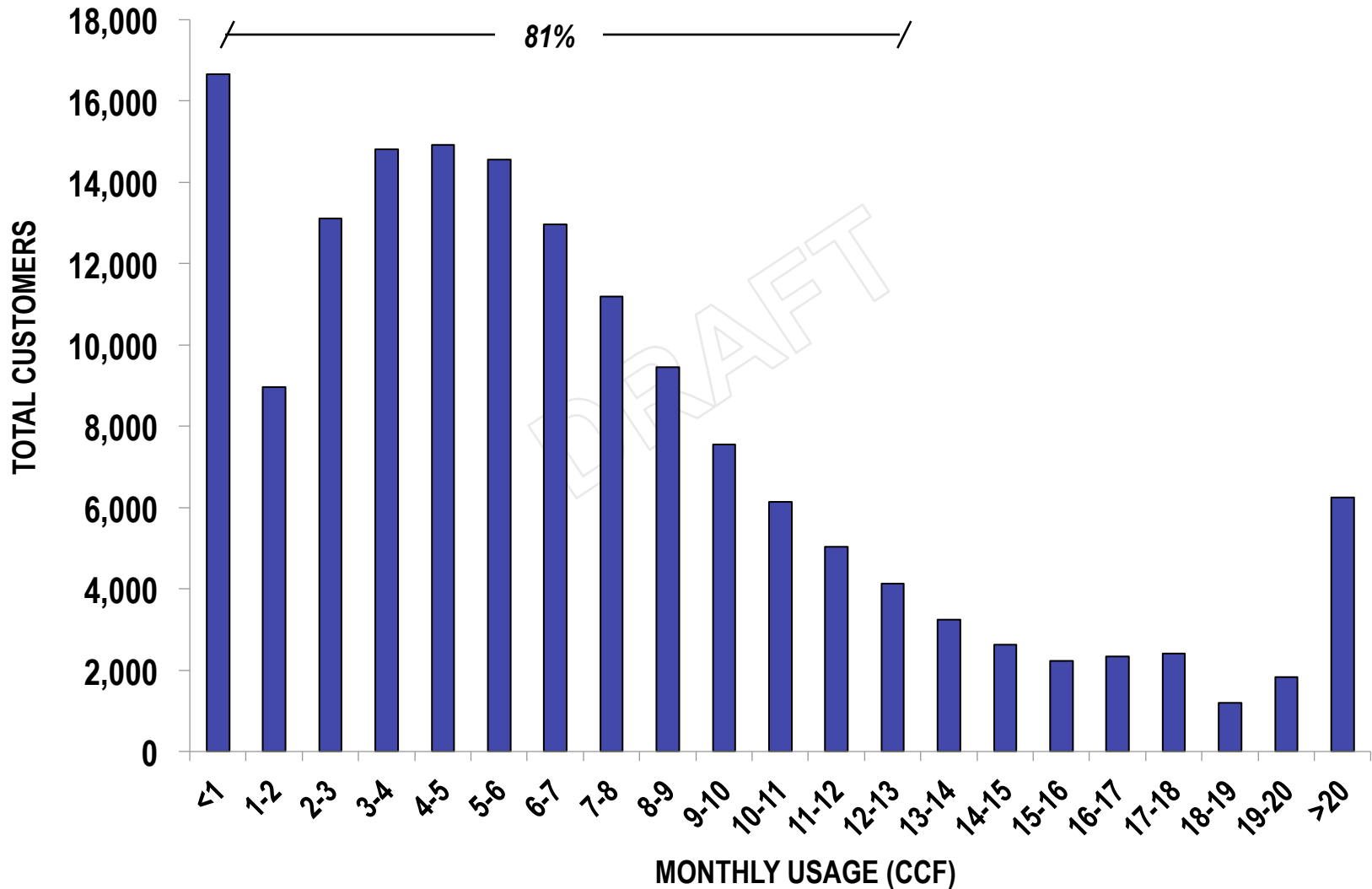
DETROIT RESIDENTIAL ANALYSIS OVERVIEW

<p>The Data</p>	<ul style="list-style-type: none"> • Monthly CCF usage of 128,000 Households out of 217,000 retail customers with focus on 1” pipe size and lower <ul style="list-style-type: none"> – Eliminated churches – Eliminated residential businesses – Eliminated outliers • Households grouped into 1,017 census tracts for regression analysis 	
<p>Questions</p>	<p>Why Its Important</p>	<p>What We Found</p>
<p>What are the drivers of water usage?</p>	<ul style="list-style-type: none"> • Determines focus, design, and potential effectiveness of varying water affordability programs 	<ul style="list-style-type: none"> • Income, household population, structural age major drivers of usage
<p>What is the basic level of water use in the typical Detroit?</p>	<ul style="list-style-type: none"> • Points to most basic level of monthly usage; i.e., lifeline usage • Determines potential starting point for inclining blocks 	<ul style="list-style-type: none"> • Base water usage appears to approximate 2.5 CCF for a household of two at the lowest income levels
<p>What is the distribution of water usage for Detroit customers</p>	<ul style="list-style-type: none"> • Determines reach of potential solutions; i.e., who is aided by water affordability programs and who isn’t • Determines magnitude of potential issues • Highlights other issues that may be important to providing affordable rates 	<ul style="list-style-type: none"> • Wide distribution of water usage across and within income classes suggesting “cheap” water isn’t the sole issue
<p>What is the probability of customer payment given income and water prices?</p>	<ul style="list-style-type: none"> • Highlights other issues that may be important to providing affordable 	<ul style="list-style-type: none"> • Strong relationship between income and probability to pay and days outstanding

Approximately 81% of residential customers use less than 10 ccf in water per month



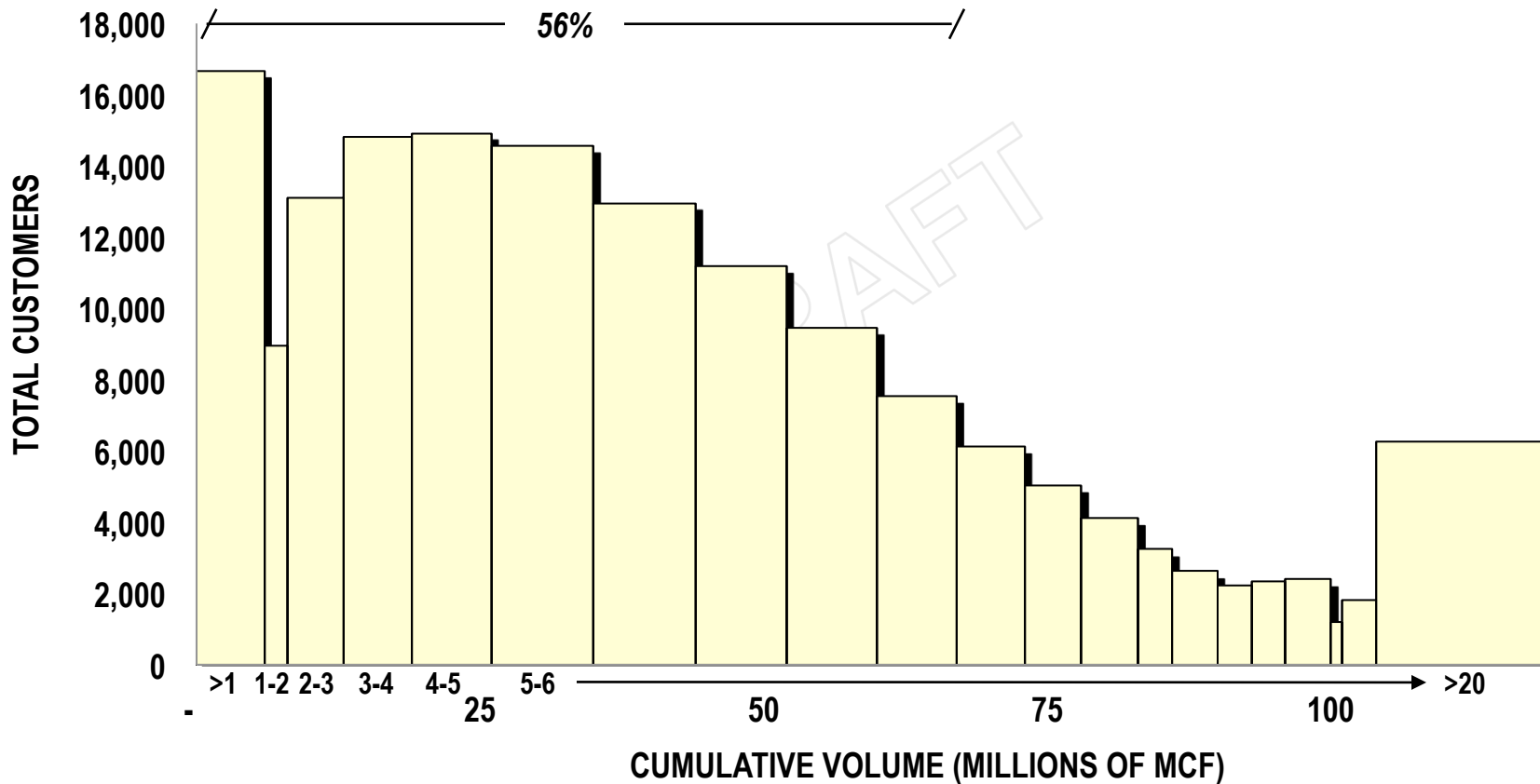
DISTRIBUTION OF MONTHLY WATER USAGE BY CUSTOMERS



The same 91% represent less than 57% of the total volume



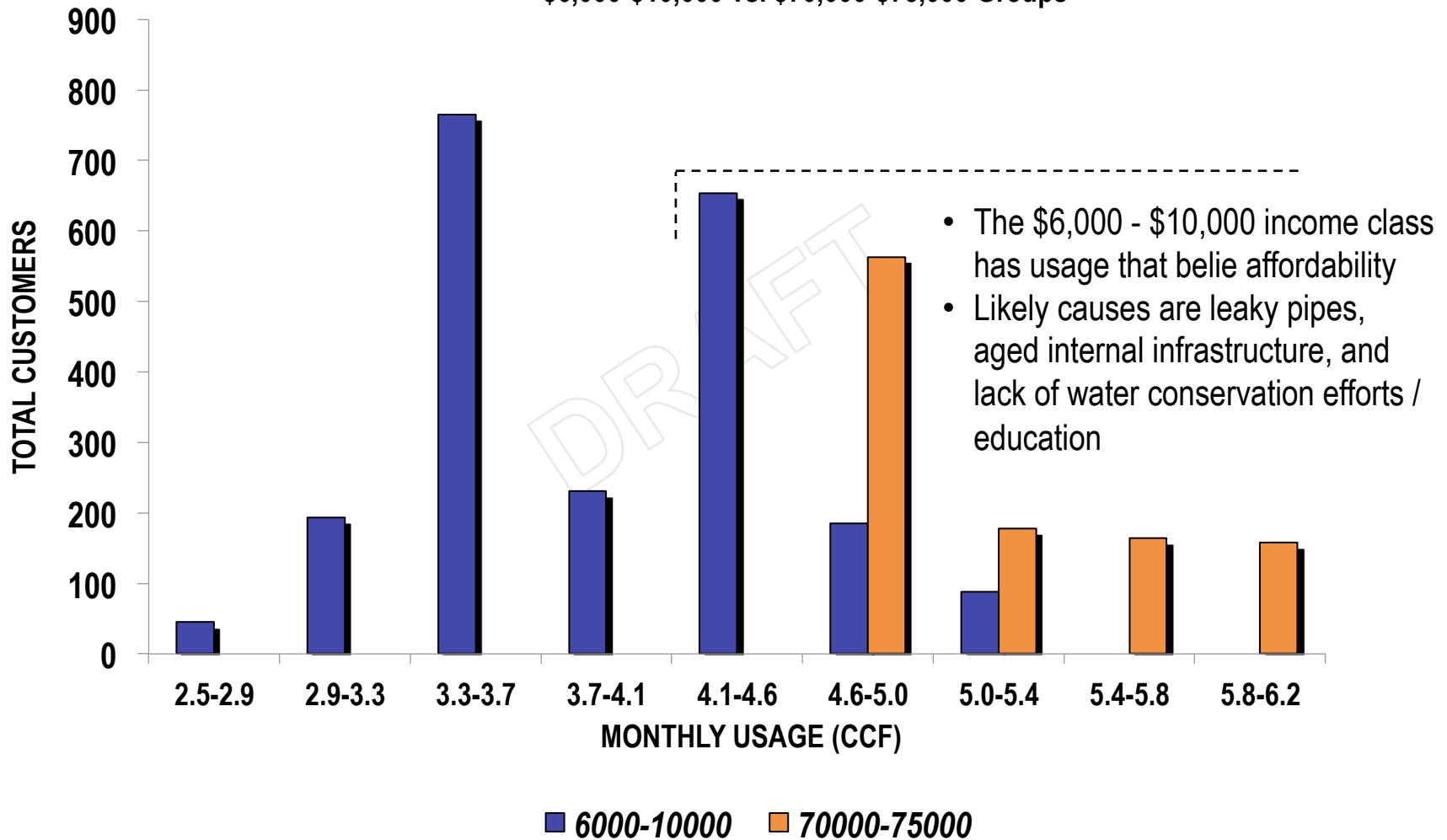
CUMULATIVE WATER USAGE BY MONTHLY USAGE TYPE



We also analyzed the data by income groups; typically lower income groups have a wider usage distribution than higher income groups; an example...



DISTRIBUTION OF MONTHLY WATER USAGE BY CUSTOMERS
\$6,000-\$10,000 vs. \$70,000-\$75,000 Groups



Initial analysis at tract level suggest a strong correlation between household income, family size, and structure age; the relationship changes by season



SUMMARY VOLUME REGRESSION RESULTS – ESTIMATED ELASTICITIES

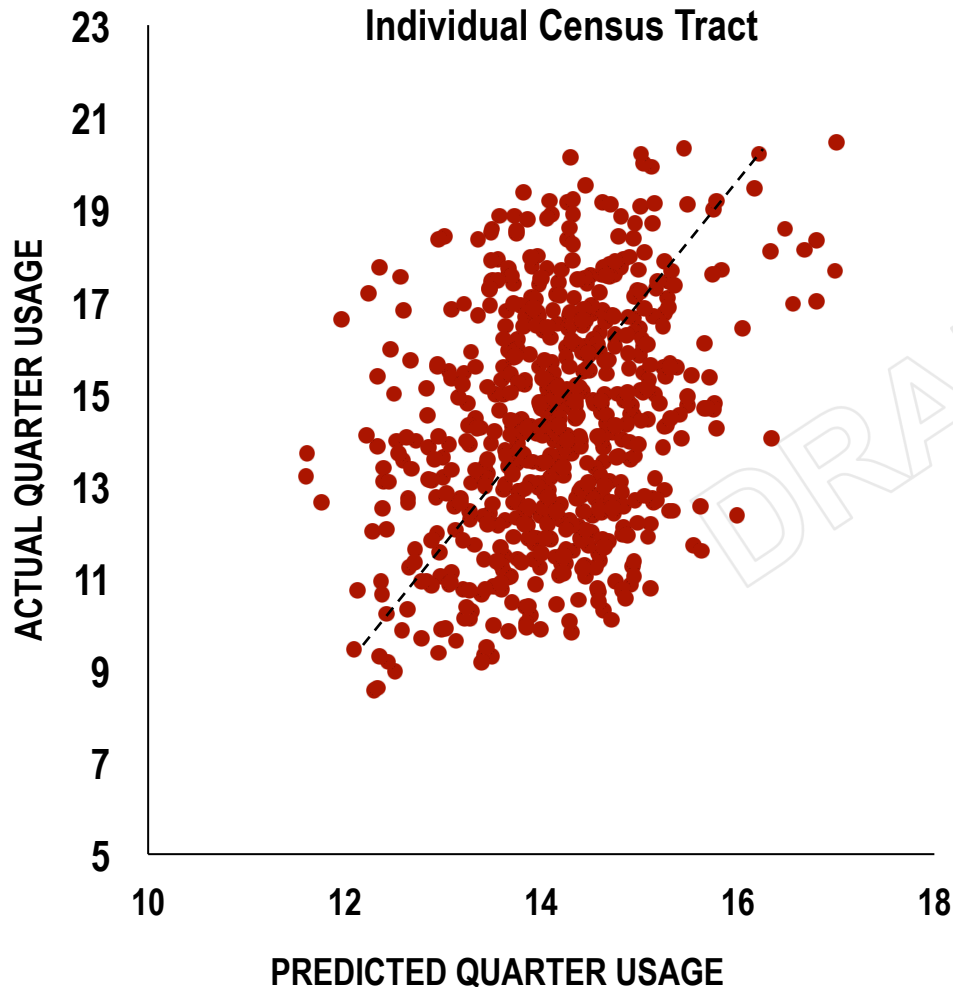
Questions	Low Volume-Season Relationship	High Volume Season Relationship	Full Year Relationship
Income	0.114	0.223	0.133
Family Size	0.068	0.002	0.043
Structural Age	0.147	0.238	0.137

- ▶ **Figures should be taken as elasticities between water usage and the specified variable; i.e., in the low season we would expect a 1% increase in income (1% decrease in price), we would expect a 0.114% decrease in volume**
- ▶ **Statistically speaking, income had the strongest relationship with usage – the data is intuitive**
 - Stronger relationship and greater sensitivity during the summer months as “luxury” uses (e.g., grass watering) of water take place
 - Lower sensitivity during winter months as residents use water for basic needs
 - Income elasticity consistent with those calculated in numerous other scholastic studies
 - Relationship of income and usage suggests design of inclining block may be effective
- ▶ **Structural age as a driver of usage should not be a surprise; Detroit’s aging internal infrastructure is not efficient**
 - Data suggest a significant number of lower income homes subject to leaks
 - Older 7 and 5 gallon toilets versus 1.6 gallon toilets are still common in Detroit

Strong variations around the usage regression line reinforce the concept of structural issues aside from income

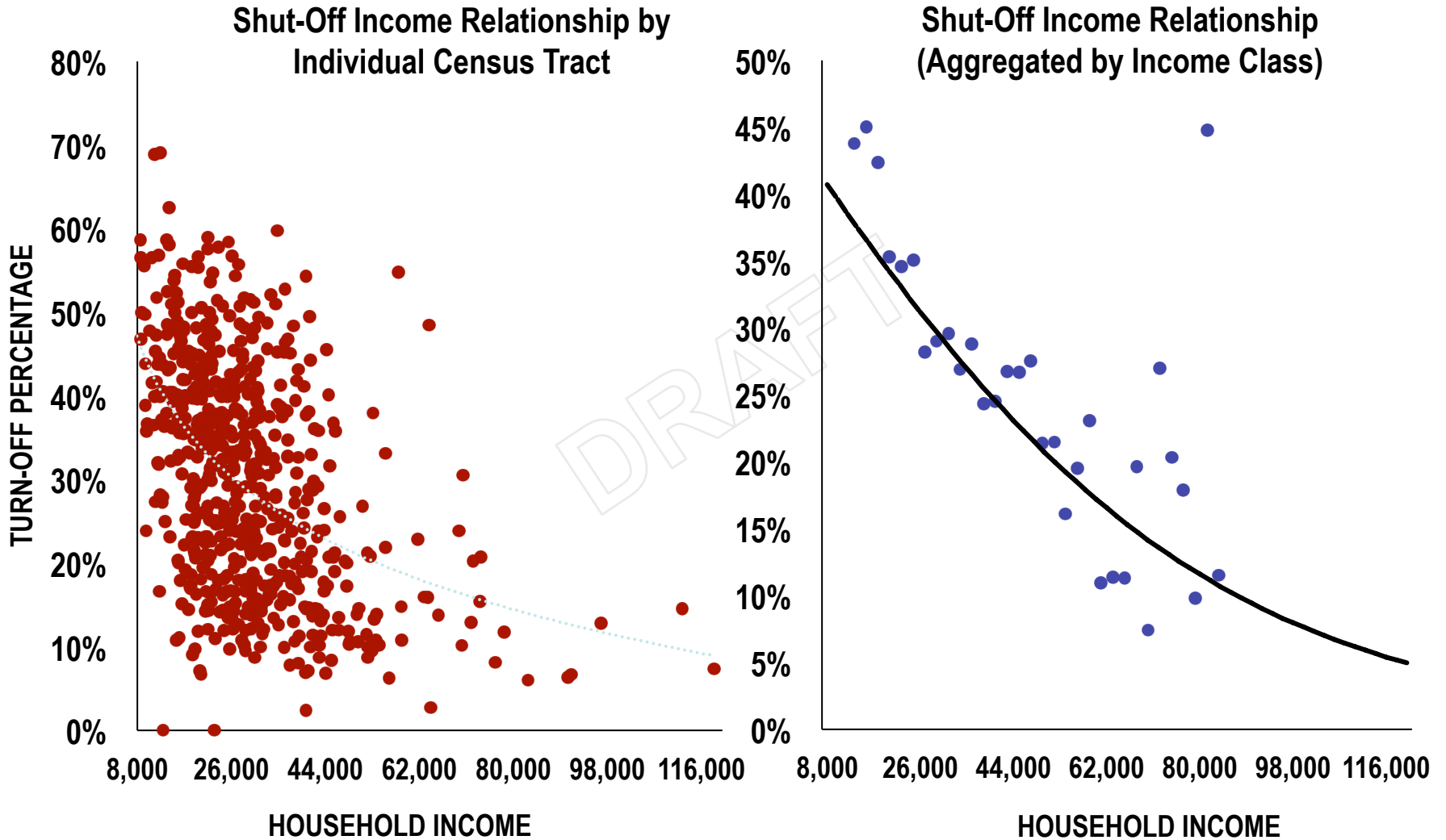


Shut-Off Income Relationship by Individual Census Tract



- ▶ Despite strong correlation along several dimensions, significant variability exist between predicted and actual values
- ▶ This seems to support the hypothesis that other structural issues are in play with determining usage; primarily:
 - Inefficient use of water
 - Home leaks
- ▶ These issues require another solution... restructuring rates will do little to assist those impacted
 - Rates are a blunt instrument – charging one class lower prices necessarily means charging another class higher prices
 - Those customers that fall to the “North” of the regression line will get no benefit from rate design; lower subsidized rates will be offset by higher rates in higher tiers

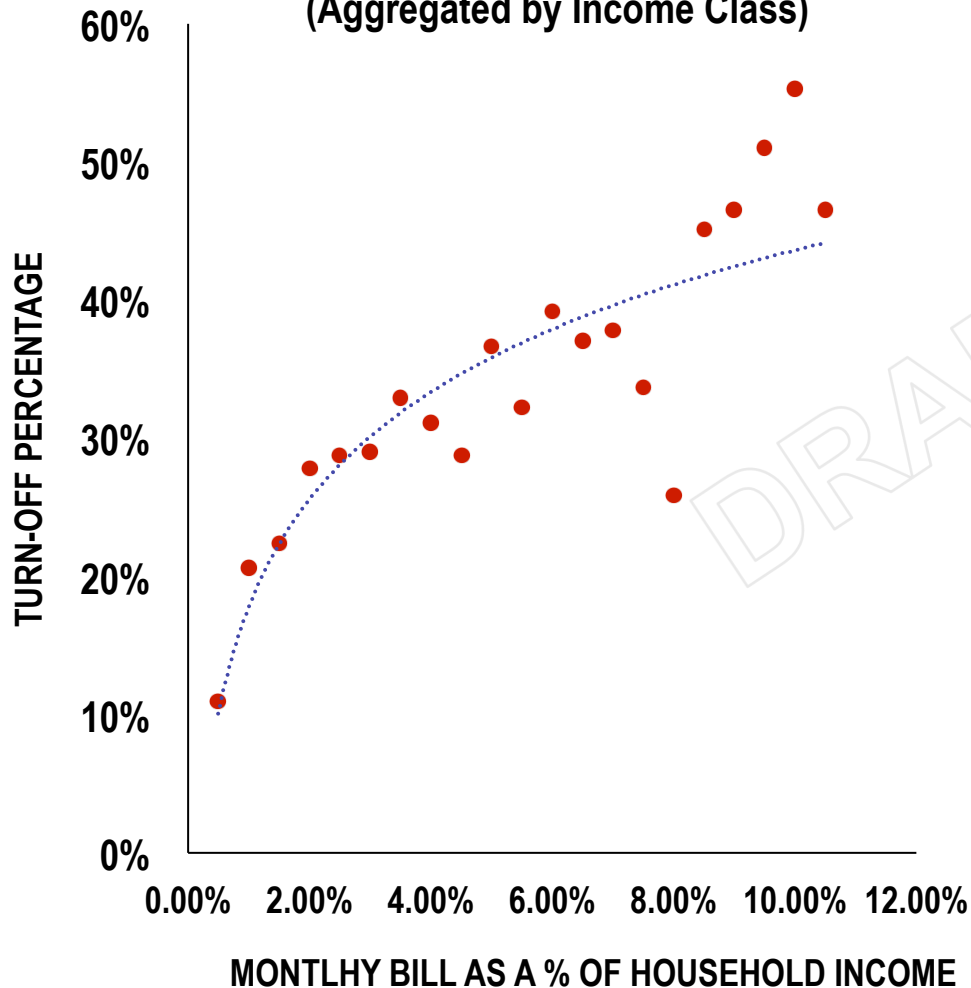
With the exception of one outlier, ability to pay, as proxied by shut-offs, follows a predictable inverse relationship with income



The data can be translated into percentage of income and has some fairly interesting implications



Shut-Off Income Relationship
(Aggregated by Income Class)



- ▶ With the exception of two outliers, the percentage of income, turn-off percentage follows a fairly predictable path
- ▶ As the bill's proportion of income grows, the likelihood of turn-off grows but at a decreasing rate; i.e., the elasticity decreases
- ▶ Data implies decreasing the bill as a proportion of income from 8% to 4% could improve collectability by 25% (probability of turn-off decreases from 40% to 30%) for lower income customers...
- ▶ ...however, funding decreases from higher income sources could drop collectability by an even greater proportion, potentially yielding a negative net benefit
- ▶ The short – we have to be careful when shifting the burden of the expenses of the water system



What does all of this mean? We can make a decent proposal that an inclining block, along with water efficiency measures, to improve affordability

- ▶ **The initial link between income and usage supports the notion that discounting the initial block by a significant percentage directly reaches low income targets**
- ▶ **We have developed a case study (not included in the package) which suggest that those on the fringe were not significantly hurt by increased rates in other tiers**
- ▶ **Even after considering higher consumption in discounted classes, lower consumption in higher rates classes, the net impact would be financially beneficial to the Department**
 - Improved collectability in the discounted class slightly offset decreased collectability in higher rated customers
- ▶ **Given link between usage and marginal costs, the structure appears to be defensible**
- ▶ **To be clear, inclining blocks are not a panacea – the data suggest other measures must be taken to help those on the fringe**
 - Significant persons on the fringe are only helped slightly or are benefit neutral
 - WRAP and / or other refurbishment programs must be considered

All this is very preliminary and would have to be vetted through a deeper study

Appendix VI: Water Affordability Bibliography

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MICHIGAN STATE UNIVERSITY
February 2016 | ipu.msu.edu

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