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TO: The Honorable Detroit City Council

FROM: David Whitaker, Director
Legislative Policy Division (LPD) Staff

DATE: February 7, 2018

RE: **3 recent reports on water policy, equity and security**

On January 15, 2019, Council President Jones requested that the Legislative Policy Division (LPD) provide a report evaluating the effectiveness of the current Detroit Water and Sewerage Department (DWSD) lease with the Great Lakes Water Authority (GLWA). This referral expressly referenced an article in the Detroit News, regarding the recent report by the Detroit faith-based organization Metropolitan Organizing Strategy Enabling Strength (MOSES), the Haas Institute for a Fair and Inclusive Society, and Praxis Partners, entitled "Water Equity and Security in Detroit's Water and Sewer District".

On January 16, 2019, Council Member Benson requested that LPD provide a report addressing many similar issues raised by a draft report of the California State Water Resources Control Board, entitled "Options for Implementation of a Statewide Low-Income Water Rate Assistance Program". This referral further specifically seeks examples of best practices that may be applicable to Michigan, and requests that LPD and DWSD work together toward the goal of achieving a legally viable and effective water affordability policy that will be adequate to address Detroit's longstanding problem of water unaffordability.

For the sake of completeness and fully informed understanding of these issues – particularly the invocation of best practices applicable to Michigan and its unequalled water resources - LPD also includes in this report on significant recent studies of water equity and security a report and accompanying proposed draft legislation by the Northern Michigan nonprofit organization For Love Of Water (FLOW) entitled, "Public Water, Public Justice". Collectively, these three reports

provide an overview of current, pressing water justice issues in Southeastern Michigan and beyond that is of unparalleled depth and breadth.

Water Equity and Security in Detroit's Water and Sewer District

To make a long report short, and subject to urgently required further research and actions, the MOSES/Haas Institute/Praxis report recommends the following specific actions:

- A moratorium on residential water shut offs, while responsible officials redesign water equity and security policy to prevent shut offs, presumably via a comprehensive, income-based water affordability rate structure, with accompanying consumer protections and adequate infrastructure funding through fair rate structures for all;
- Myriad, specific legislative reforms¹ – at federal, state, watershed and local levels - to clearly authorize water equity, security and affordability, such as:
 - **Access to water**, HB 4291 Michigan Access and Affordable Water Act, and HB 4360 Water Access;
 - **Water billing and rates**, HB 4394 Affordability, and HB 4389 and 4390 Decriminalization of reconnecting water service;
 - **Water quality** HB 4124 Program for Schools and Child Day Care, and HB 4120, 4372, 4378, and 4379 Water Quality Testing;
 - **Citizen oversight and transparency** HB 4201 and 4214 MDEQ Citizen Oversight Commissions, and HB 4375 Water Ombudsman
- Renegotiate the extensive GLWA/DWSD financial agreements, including but not limited to the water and sewer systems leases, which seem on their face to violate principles of equity, that have often been discussed (such as the 83/17% City/suburban division of debt for the regional system's combined sewer overflow (CSO) facilities, the almost 1/3 of the lease costs paid out of local City Detroit retail revenues, etc.).

The Council President's referral of this assignment expressly called out the questionable value of the lease and its related GLWA/DWSD agreements to the City, which the MOSES report strongly recommends be re-evaluated. Nothing said here should be understood to minimize the inherent challenges in renegotiating such complex agreements, or the limitations of unilateral demands for such renegotiation, particularly in the context of agreements that are so complex, that were arrived at through the facilitated mediation process ancillary to the City's historic bankruptcy involving multiple parties and levels of lawful government authority, and not least in the deep and longstanding historical context of sometimes fierce contention over control of metro Detroit's water and sewer infrastructure and services.

Notwithstanding such monumental challenges (alluded to by GLWA in its brief and dismissive response to the MOSES report), the recommendation of further research, analysis and discussion of these issues is well taken; and

¹ The City's Lansing Lobbyist recently reported under date of February 6, 2019, that HB 4124 and numerous other proposed water and affordability and access statutes introduced last year in the State Legislature died in committee, on the House floor, and in one case in the Senate.

- Implement green infrastructure initiatives.

More broadly (and in sophisticated and richly documented ways), the MOSES/Haas Center/Praxis study re-examines our regional water infrastructure in terms of its real-world social impacts, political and economic determinants, and racial, historical and developmental aspects, beyond the physical features and fiscal management costs of the infrastructure. The authors recognize and argue persuasively that this infrastructure and the critical services it delivers are core elements of our communities' essential social compact, with implications that are virtually impossible to overstate for quality of life, development, health and social resilience and cohesion far beyond their expensive financial costs. They are specifically studying Detroit for the same reasons as the rest of the world – including but not limited to the United Nations, the Council of Canadians, the NAACP, the ACLU and thousands of less well known organizations – has been looking at Detroit's mass water shut offs in the heart of the Great Lakes in recent years; especially when considered with the Flint water crisis, this history seems to cry out for major policy innovation. As they state on page 6 of the executive summary:

“The mission of the DWSD system is clear—as is GLWA’s mission: It should meet the universal goal that everyone benefits from region-wide water security and improved environmental quality and public health. This universal goal of water security is not realized for everyone and every place in the service area and so the entire region is deprived of the environmental and public health benefits of widespread water security.”

In this light, at the significant risk of oversimplifying a subtle yet complex analysis, the report argues that the recent policy of forming the GLWA, essentially in order to treat these assets as an enterprise oriented exclusively toward its bottom line, effectively reproduces (and arguably, depending on the results of further research and action, compounds) past injustice that has intensified current water inequity and insecurity. The above recommendations are offered as achievable first steps toward rectifying the situation, which is assumed to be government water policy that is ill-suited to present challenges. Much debate and voluminous, lengthy information exchanges will be necessary to evaluate, and if they are deemed suitable, to implement the recommendations.

Considerable historical evidence would indicate that the real challenge to significant progress regarding water affordability is more the basic intentions and purposes of the GLWA’s sponsors than any legal, data or other technical or logistical challenges. Water policy makers in Southeastern Michigan have chosen as a practical matter to ignore affordability, security, and equity for strategic reasons that are embedded in the structure of the GLWA’s purposes and finances. That is the core reason why questions are raised about the real value of the water and sewer systems leases and other key aspects of GLWA/DWSD financial agreements. In this context, the report suggests that Detroit and our region stand at a crossroads: we can continue on our present policy path, and experience continued and intensified, decay, inequality, water unaffordability, and violation of human rights, or we can start on a new path toward water equity and security for all, that will facilitate more equitable development, prosperity and collective human dignity promising new levels of social benefit throughout Southeastern Michigan.

GLWA would respond that they are the water and sewer provider of choice for our region, representing state-of-the-art government policy (what Mayor Duggan in this context has called “reality as it is, not as we wish it to be”). Within their limited perspective, the specific issues around water affordability have been addressed by their Water Residential Assistance Program (WRAP). The *assistance* policy of the WRAP has long been criticized as an inherently inadequate way to achieve water *affordability*. A charity band aid over a policy wound, so to speak. Indeed, GLWA’s extensive regional consultation processes relating to water policy, are actively renegotiating and informing fundamental policy decisions, especially around funding, with long term future implications at this time. A long history of extensive regionalization of water policy in and around Detroit laid the foundation for the MOSES report’s focus on *equity and security*.

Some of the community’s criticisms of current water policy have been frequently articulated in public discussions of GLWA’s first years: Wall Street-oriented, privatized, neoliberal restructuring, governance and resource allocation policies and decisions, can structurally and systematically rig or bias political, racial and economic frames, to dictate outcomes and powerfully undermine important social values. The Flint water scandal and Detroit’s mass water shut offs have taught us about such realities recently. Productively answering the questions of policy going forward will require familiarization with research like the MOSES report, which demonstrates that there is still much more to learn about policy solutions to these challenges, and the formation of the GLWA between 2014 and 2016 was not the last word on these issues.²

Ultimately, Council may wish to schedule a full discussion of the issues raised in this report, with representatives of DWSD, GLWA and the Mayor’s administration. As noted in one of LPD’s previous, recent reports on these issues after DWSD made a day-long presentation to Council, some of the key questions for such a discussion would presumably include:

- Given the obvious shortcomings in a WRAP-style “assistance” plan – currently funded at a level of approximately one-tenth of the known funding gap from bad debt for residential services – what can be done to devise and implement a comprehensive and truly sustainable solution to the water affordability crisis we face in the City? What can be done immediately to address the true need in Detroit?
- Does the fact that GLWA/DWSD collectively constitute a regional monopoly that provides essentials for life have any impact on their business plans or model? Why doesn’t that status and dynamic provide leverage for adopting and implementing a truly “just and reasonable rates” structure (Charter Sec. 9-508) across the region that’s fair to all? Shouldn’t “regional optimization” address the human rights of their poorest and most vulnerable customers?
- Who needs to be at the table to have a comprehensive, meaningful and effective policy conversation toward developing, adopting and implementing a true water affordability

² The outstanding issue of DWSD violating the City Charter and the Code by refusing to obtain Council approval of their retail rates and departmental budget is noted, but it is beyond the scope of this report. At this time, to LPD’s understanding, that issue is the responsibility of Corporation Counsel, under his mandatory pre-litigation dispute resolution obligations in the Charter.

program based on rates indexed to income for the poor, which respects the internationally recognized human right to water and sanitation?

- What is the desired result? Is it universal, affordable access to necessary water and sewer services for all, including the City's poorest and most vulnerable residents? Why is that not being clearly articulated? If that is the desired result, what are the key issues, dynamics, challenges, changes and trade-offs that will have to be resolved to get there? What would a comprehensive program management operation (modeled on the bifurcation of GLWA and DWSD) intentionally designed to achieve that result look like?

- What is the current state of political forces and available resources to envision and move forward with a robust, effective and legally permissible affordability program?

- If: a) GLWA gets a "true sale" of the region's water and sewer assets, as well as an actual voice in their governance; and b) DWSD gets a veto over major GLWA enterprise decisions via the 5/6 super majority board requirement; then c) What do the City of Detroit's residents get from the GLWA deal and the regional "optimization" it supposedly seeks?

This 100-page report³, if followed by action could potentially be an extremely significant step toward reframing issues around water and sewer infrastructure in ways that should benefit Detroit residents. In the very nature of its purposeful reconceiving of institutional relationships, history, and the very purposes of the vast infrastructure issues, it intentionally leaves many more questions open than it conclusively answers.

The report calls for extensive further research and action in the future. It represents an opportunity to develop water and sewerage rate making structures in and around Detroit that would benefit our people, the region as a whole, and the critical public health, economic development and infrastructure funding issues of the GLWA/DWSD relationship.

Options for Implementation of a Statewide Low-Income Water Rate Assistance Program

This is an extremely informative report regarding many basic issues of water equity and security, combined with some detailed technical evaluation reports of California rate structures oriented toward affordability. In terms of best practices, the California legislature's historic 2012 designation of a human right to water is notable as a broad and basic step toward water affordability, equity and security. Indeed, such legislation has reportedly been recently reintroduced in Lansing. Based on LPD's limited understanding of the state legislature's priorities in Lansing, it seems hard to predict that such a right would be recognized in Michigan in the short term, but it is important to recognize that the debate is happening.

³ The authors of the MOSES/Haas Institute report were provided with extensive public LPD reports and supporting DWSD/GLWA documentation, which they clearly read and digested. Numerous Detroit residents, including LPD staff attorney Thomas Stephens, are expressly identified as informants who contributed information that went into this report.

In 2012, California enacted the Human Right to Water Act (Assembly Bill (AB) 685), establishing a state policy that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking and sanitary purposes. In recognition that many Californians may not be able to pay their water bills, recommendations were made to enact a statewide Low-Income Water Rate Assistance Program (W-LIRA).

In this draft report, the State Water Board outlines possible components for developing a successful program to help low-income households pay their water bills. Specifically, the report identifies 1) Potential program recipients, 2) Different mechanisms for delivering benefits to low-income households, and 3) Possible funding sources to implement such a W-LIRA program.

The California State Water Resources Control Board does not mince words and seems to provide bold leadership: “Although there are many options for improving water affordability, the need to address this growing crisis is clear. ... Safe Drinking Water Must Be a Priority...” The spirit and, where applicable, content of this California report deserve leaders’ attention. A significant challenge – from arid Southern California to the Great Lakes basin and all points in between and beyond - is the lack of a sustainable funding for long-term operations and maintenance for drinking water systems.

Public Water, Public Justice

In terms of comprehensive best practices around Great Lakes water equity and security issues, the agenda articulated by the Northern Michigan organization For Love Of Water (FLOW) is one of the leading bodies of work. Its broad and deep coverage is largely based on the ancient and continuing validity of public trust doctrine as an inherent part of basic public government authority. These issues are currently involved in contentious (so-called “climate kids”) litigation playing out in US federal courts involving public trust abuse of atmospheric resources (a public trust-oriented reframing of global climate change).

Like California’s human right to water, but with understandable detail and nuance derived from Michigan’s unique hydrogeological conditions and generations of water laws, the FLOW public policy agenda for “Public Water, Public Justice” richly merits policy makers’ attention in foreseeable future water rate making debates. Should council decide a learning task force staff effort would be productive, as briefly mentioned in the previous subsection of this report, the voluminous FLOW legal materials should presumably be part of the discussions.

Like the California report, FLOW recognizes that there are multiple ways to define and achieve real affordability of water and sewer services for all, and incorporates the meaningful debate over the definition of “affordability” into its model legislative proposal. (Section 2A(1).) The FLOW educational materials compare notorious water and justice issues like the poisoning of Flint and the Nestle bottled water withdrawals in Northern Michigan, as well as Detroit water shut offs, to argue for fundamental reframing and reorientation of water laws in the Great Lakes basin, certainly a topic of historic and globally significant public policy and environmental welfare.

If Council has any other questions or concerns regarding this subject, LPD will be happy to provide further research and analysis upon request.



**WATER EQUITY
AND SECURITY IN
DETROIT'S WATER
AND SEWER DISTRICT**



This report is a joint publication of the Haas Institute for a Fair and Inclusive Society at UC Berkeley, MOSES, and Praxia Partners

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EXECUTIVE SUMMARY

Executive Summary

Introduction

Ensuring access to drinking water and wastewater service is a nationwide policy challenge. Across the United States access is increasingly insecure for many people and places. In this report we comply with scholarship and legal precedent that defines access to include access to residential in-home service, quality service that serves environmental and personal health, and affordable service.

Water security is a term in this report used to describe the presence of structural, systemic, and institutional arrangements that ensure everyone has consistent access to drinking water and wastewater services. Water insecurity looks different in the humid east than in the arid west, different in the Midwest from the South, different between urban, suburban, or rural. However different water insecurity problems look at the local level, they are the result of similar institutional, systemic, and structural problems. This is a study of the what persistent water insecurity looks like in the service area of Detroit's drinking and wastewater system (DWSD) and specific places within that system, notably Detroit.

A 2017 Michigan State University study estimated that if water costs continue to increase at the same rate for the next five years, a third of households in the US may be unable to afford water costs.¹ This alarming figure highlights the scale of water insecurity due to barriers to affordable access. Detroit's regional system fits patterns of water and sewer insecurity across the country and creating water security is an effort that must also consider the operator and manager of the system—the Great Lakes Water Authority (GLWA).

Water and sewer systems in the US have to meet federal regulatory standards to maintain or improve environmental quality and public health. While the federal government has a uniquely vast capacity for funding local infrastructure,² it has provided far less than needed to supplement state and local government investments. Inadequate federal investment creates a pervasive problem for local system revenue. The costs of system repair and upgrade to meet regulatory standards is high. The Congressional Budget Office data records that federal investments in the nation's drinking and wastewater systems constituted between 5.7 and 4.0 percent of total annual spending since 2010. The rest falls to state and local governments.³ The bulk of investment then trickles down to revenues from system users in the form of service rates or fees. To complicate the matter, many cities, particularly deindustrialized cities, have experienced economic trends that challenge the capacity for system revenue to cover costs. Some cities' systems are a century old. In the case of many systems, when the system grew into a regional system the most aged parts of the infrastructure are those serving the city's urban core. Even though the EPA has documented 228 water affordability programs across the country, we did not find note or reference to a plan that adequately addresses the local needs.⁴ In Detroit, evidence of barriers to drinking and wastewater service are primarily described as affordability challenges although there are concerns about the water shutoffs' impact on drinking water quality vis a vis increasing water age—the amount of time water spends within the system infrastructure.⁵

In the context of global climate change, it is critically important that drinking water and wastewater systems are designed to be adaptable and resilient. Extreme and unpredictable weather conditions and higher temperatures affect the distribution of rainfall, snowmelt, and ground-

Communities across the US need solutions to what has been described as among the primary infrastructural challenge of the twenty-first century.

water, ushering in more frequent floods and droughts—patterns that should be anticipated and integrated in local water and sewer system planning and design. Balancing necessary improvements in the context of shrinking public resources is a common problem with dire impacts.

Communities across the US need solutions to what has been described as among the primary infrastructural challenge of the twenty-first century.⁶

The mission of the DWSD system is clear—as is GLWA's mission: It should meet the universal goal that everyone benefits from region-wide water security and improved environmental quality and public health. This universal goal of water security is not realized for everyone and every place in the service area and so the entire region is deprived of the environmental and public health benefits of widespread water security.

The national attention brought to Detroit and its water system is driven by the city's bankruptcy and the use of water shutoffs as a dysfunctional incentive for bill payment. The moving personal accounts of the effects of water shutoffs have mobilized compassion and the attention of policy makers to address affordability and rate setting. National attention is now directed at how GLWA operation and management of Detroit's water and sewer system will handle the challenges to providing water security and its salutary effects on public health and environmental quality.

Detroit is a focus in this report for two reasons. Firstly, even among other cities within GLWA service area, Detroit is uniquely positioned because of its ownership of the system and operation and its management of the system since 1836. The City of Detroit built out the infrastructure into suburban municipalities which allowed new municipalities to avoid great expense to establish and develop.

It's an ambitious task to design and align a set of targeted strategies that will enable everyone to enjoy water security and its contributions to public health and environmental quality. These strategies cannot be designed without a careful analysis of the unique relationships between Detroit, the system, GLWA, and the region.

It is with the interests of the entire service area that we analyze the potential of the regional and exceptionally valuable water and sewer utility and its impact on regional environmental quality and public health. The next phases of the project will more fully engage the regional aspects of the system. This will entail broader engagement and consultation with the system's municipal and county governments within the service area, as well as advocate and community groups that serve those communities. The project aspires to create structural and institutional coordination between Detroit, Detroiters, DWSD, and GLWA. As ambitious a goal as that is, we aspire to do more—to promote regional coordination and alignment to ensure water security for everyone in the region and maximize the system's ability to lift up regional economic and public health.

Secondly, Detroit is a focus of this report because it exemplifies another national trend in water and sewer insecurity. People and places most directly impacted by water and sewer insecurity are also those historically neglected by public institutions and left out of key decision-making processes. In the case of GLWA and DWSD—and “pockets of water poverty” across the country—this means poor Black Americans and other people of color, and places where data shows higher rates of poverty, unemployment, and disability.

Targeted universalism policy requires a detailed understanding of the problem—a process that is not trivial and requires scrutiny from every direction.⁷ Accomplishing this initial broad base of participation is critical and not just because “community engagement” is best practice. It is critical because novel viable strategies cannot be created without understanding all of the complicated ways people—and the places they live—are experiencing water and sewer insecurity and their different relationships with relevant institutions. This report is a first step in synthesizing and analyzing these components of a targeted universal platform for water security in the DWSD system service area that lifts up public health and environmental quality.

Local governments and households across the GLWA service area and state and federal government are at a critical juncture. National leaders in community organizing have emerged from the area. They have provided emergency assistance to communities and defined and conducted areas of research into water insecurity. These people, organizations, and groups are instructive for people across the country.

Opportunities for national leadership exist in other domains and are needed by local residents

and many more. The incredibly valuable asset that the City of Detroit has built can become a powerful lever of economic growth—for the city and the region as a whole. The system's operation can be an example of how to ensure water security across the region and design practical urgent adaptation to climate change. It can be an example of practical adaptation that also raises the level of public health and environmental quality. It can also provide a model of how to provide benefits to everyone and can be best and most fairly accomplished by designing strategies to help places and people who most urgently need relief from structural, systemic, and institutional barriers. The regional context of the DWSD system and its environmental and public health impacts are exceptionally well suited to see how “we all live downstream” and stand to benefit or be harmed by the way our neighbors fare.

This report outlines a number of technical findings and suggests targeted interventions that can begin steps to create water security. Resolving problems is not only a matter of technical correctness and sophistication. Resolutions must also address deeper social cleavages around race and poverty. Solving the problem of region-wide water security and its contribution to environmental quality and public health requires technical and social science.

Each section in this Executive Summary corresponds to a full chapter in the report expanding and elaborating on the topic. We encourage review of the full chapters, particularly if questions or concerns arise after reading this summary.

We first appraise the way the city is positioned within the GLWA through an analysis of the lease and services agreements between the DWSD and GLWA. This is an area of great concern to organizations and individuals we spoke with. It is also the core text encoding institutional relationships that set the rules of how decisions about water security, public health, and environmental quality will be made. Some details of these relationships we discuss respond to persistent questions that were raised and others raise the profile of well-known community concerns.

This analysis leads to the next section where we summarize seven recommendations, or opportunities, that can be pursued to remove structural barriers to region-wide water security and its environmental and public health benefits. These strategies target specific concerns raised by Detroiters, city leadership, and community organizations and advocacy groups. Many of them are the focus of current discussions, advocacy, or projects. The recommendations are raised in general terms and within these descriptions we identify areas of further inquiry that can further implementation correspond to information gaps that must close.

An additional chapter details the well-established work linking health outcomes to the accessibility to drinking and wastewater services, access to affordable, in-home, and high-quality service. We discuss the deleterious effects of water insecurity on both individual and community health. This discussion was warranted because of concerns related to systemic health effects of water shutoffs and its cascading effects within communities and an ongoing desire to develop research in this domain.

The final chapter provides historical context of the drinking and wastewater system. When groups discuss the need for structural changes, the implication is that structures can either be a force for marginalization or inclusion. In Detroit's regional area, and across the US, drinking and wastewater infrastructure can become a force for inclusion. At the moment, the system functions such that some places and groups of people experience greater water insecurity than others. Furthermore, the entire area is missing out on the potential for water security to improve public health and environmental quality. The full history of how local structures are artifacts of the national and local history of racial animus have been studied and documented in great detail and rigor. It is beyond the scope of this report to reflect the breadth and depth of that work. Ours is an effort to note specific moments in that history and overlay those moments with key moments in the evolution of the DWSD system.

Institutional Relationships: The Great Lakes Water Authority and the Detroit Water and Sewer District

The Great Lakes Water Authority (GLWA) operates and manages the Detroit Water and Sewer District system. The GLWA is a “public body corporate”⁸ created in fall 2014. By the end of

2014, Detroit and Wayne, Oakland, and Macomb counties joined the Authority. The DWSD system was formally regionalized in June 2015 when a 40-year lease agreement was approved and GLWA took over operations and management of the system. Under the current arrangement, the authority leases the regional water system from Detroit. GLWA pays a \$50 million per year lease payment, pays a \$26.2 million credit to Detroit's revenue requirements as a "return on equity," and commits \$4.5 million (or 0.5% of budgeted operating revenues) for a water assistance program.⁹

The terms of the institutional relationships between DWSD and GLWA are detailed in the lease and services agreements. Here we identify structural design flaws in these agreements that our research suggests are some root causes of many community concerns. There are other important documents that require further detailed analysis in future studies—for example GLWA's master bond ordinance.

The first chapter of the report focuses on how the agreements create structural barriers for water security in Detroit and throughout the system's service area. These barriers have to be addressed in order for the system—an exceptionally valuable asset—to create and build opportunities for the City of Detroit. This is a regional approach that responds to regional inequality but also is practical in considering economic development in the region.

Additionally, we find that some of the strategies designed to target Detroit will in effect also benefit a more diverse group of people and places. Creating water security in Detroit will improve water security in other municipalities and among their residential users. The presence of wide-spread water security implies that a number of critical conditions would also be intact. For example, improved fiscal health in local communities, quality infrastructure, adequately funded and well-designed water affordability programs, and quality management and operation structures. Furthermore—and most important to understand the universal regional benefit—wide spread water security provides improves environmental quality and public health throughout the region.

The universal and individually unique benefits of this public asset inspire this project. The potential of Detroit's system is also the potential of similar public water and sewer systems across the country. This is the basis for expanding our project's reach and participation in the coming phases of the work. This is also the basis for proceeding with designing a platform that meets the immediate and more urgent needs for some people and places in the service area—in the process improving the outcomes for people and places throughout the service area.

Water affordability

We first discuss water affordability throughout the system. This is because of the exceptionally urgent need to address water affordability issues in the city and the associated regime of water shutoffs. We make recommendations that can respond to this structural problem in both the short and long term. We primarily spoke with Detroit-based organizations and their primary reason to attend to affordability is due to the specter of shutoffs within the city. However, there are clear affordability problems throughout the service area. While we have further work to do in evaluating the details of affordability problems in other locations, the bulk of recommendations pertaining to affordability will provide relief to users throughout the service area.

The agreement contains provisions for a \$4.5 million water assistance program. However, the program is demonstrably underfunded, making it impossible to effectively meet the needs on the system's service area. Even though all those eligible to enroll do not enroll, when the program began in March 2016, funds allocated to Detroiters for the year ran out by August.¹⁰

The solution is not to simply pour more money into the existing customer assistance program. It is important to note that the current affordability program merely provides assistance to customers whose bills are already overdue, rather than structuring rates to make them affordable in the first place. Affordability—rather than assistance—programs designed to align with the general principles of our recommendations will be more durable and do more to expand water security throughout the service area.

There is a need to update and expand upon the work of the 2005 affordability plan and determine the costs of comprehensive water affordability in the region today. We have begun a study that includes the full-service area. Additionally, the study compares the EPA metrics with proposed alternative metrics more suited for targeted place-based affordability standards.

Rate Setting

Designing rate structures is incredibly complex and limiting room to maneuver can limit options for novel designs that accomplish multiple objectives—including affordability. Rate setting is entangled with a proposition in the final report from the state's Flint Water Advisory Task Force. It was suggested that the crisis in Flint “prompt local and state re-investment in critical water infrastructure, while providing mechanisms to advance affordability and universal access to water services.”¹¹

The lease agreement contains terms that can be obstacles to fundamentally reevaluating pricing structures. Such reevaluation may be required for effective cost-recovery, as well as for guaranteeing water security, improving environmental quality, and increasing public health.¹² The current agreement could inhibit the development of a rate-setting structure that recovers costs while ensuring equity, efficiency, and sustainability.

For example, the agreement prohibits increasing rates by more than four percent per year for the 10 years of the 40-year lease agreement, except when necessary to meet legal obligations.¹³ This is locked-in but this may not be adequate depending upon the future decisions and practices of GLWA. The four percent cap could present significant limitations to recovering costs and therefore a barrier to funding a water affordability program and improvements to Detroit's urban infrastructure. Consultants who recommended the 4 percent cap factored in funding for the customer assistance plan—but did not account for expanding that program or creating a robust affordability program.¹⁴

Rate increases can be difficult—even impossible—for some wholesale customers to meet without significant financial assistance. For example, a more affluent community with an increasing population and high employment rate would be able to better absorb and distribute a rate increase than a community struggling with a shrinking economy, stressed finances, and population decline. The design of a fair and adequate rate structure should be sensitive to differences among places and sensitive to different needs of wholesale customers.

As we propose in the recommendations section of this report, parties with expertise and experience in developing equitable rate setting strategies should conduct a rigorous and detailed assessment of the current rate structures and their impacts. Additionally, possible alternatives should be considered.

Annual Lease Payment

A lease payment should be based on the value of the leased asset and compensation for the risk its owner faces in such an arrangement. While this detail is not directly connected to appraising the value of DWSD's asset, popular objection to Detroit having to pay for part of the lease of their own asset drew our attention to analyzing structural features of the lease payment. The lease agreements categorize the lease payment as a “common-to-all” meaning that DWSD-R will contribute \$13.6 million—out of the total \$50 million—toward the lease payment in fiscal year 2018.¹⁵

We discuss three primary reasons that analyzing the methodology used to calculate the least payment and the valuation of DWSD's asset is warranted. Two of them relate to the fact that GLWA and DWSD are positioned to be national leaders on infrastructure being a site to build regional equity and development by promoting water security. The last relates to the prospect that the current lease amount of \$50 million may not be fair.

Firstly, it is of national consequence. There is little publicly accessible methodology on valuing drinking and wastewater systems. When there has been cause for such a valuation, the process is usually conducted by consultant firms and detailed calculations and rationale are often not disclosed. This is of great concern given the growing practice of public systems entering into operation and management agreements and leases with public or private corporations. Either scenario is very different and warrants different valuation processes tailored for the context. However, each scenario does put great importance on ensuring the calculation derives a reasonable and fair amount. And, the valuation methodology should be open to public review and influence.

Secondly, leasing to a public corporation rather than a private corporation may be preferable if the only other option is purchase by a private corporation. Notably, though, there is a clear over-

all objection registered by Detroiters of any corporate control of DWSD—whether by private or public corporations. GLWA is in precisely this situation of a public corporation leasing what was formerly a publicly controlled asset. Therefore, such analysis and system valuation will be a significant contribution to water security in the DWSD service area but also to systems across the US facing similar decisions. Furthermore, ensuring the process is conducted in concert with participation by DWSD customers and other service area customers will set an exemplary model for systems across the country.

Finally, in the case of GLWA, we offer three “data points” that suggest that analysis of the determination of the lease payment and valuation of the system is warranted. None of these three points definitely shows that the lease payment is artificially low. However, each point does highlight the why we feel the lease payment does not reflect the value of the asset and the risk the lease—DWSD—assumes within the agreement. There is a need for a professional evaluation of the methodology used to calculate the lease payment and a valuation of the drinking water and wastewater systems.

One signal of the potential for this problem is raised by the substantial value of the system—ultimately the system's revenue—that enabled GLWA's successful bond offerings in 2016 and 2018. In August 2016 GLWA was able to issue \$1,339,100,000—\$1.34 billion—in bonds following the adoption of a master bond ordinance.¹⁶ These bonds were comprised of \$421.3 million in revenue refunding bonds for the sewerage disposal system and \$917.8 million water supply system revenue and revenue refunding bonds. Months prior to their sale date, the 2016 bond series' credit ratings were upgraded by Moody's

“[r]eflect[ing] improved financial metrics resulting from revenue growth, rate restructuring to enhance collections, and ongoing implementation of operating efficiencies, ...[and] the massive scale of water operations in southeast Michigan.”¹⁷

Again in 2018, GLWA was able to issue \$413,060,000—\$413.1 million—in system revenue and revenue refunding bonds.¹⁸ Similarly, these bonds' credit ratings were upgraded by Moody's prior to their sale. The investors service explained that:

“[t]he upgrade[s]...reflec[t] the continued trend of strong financial performance by an essential service enterprise whose customer base includes a substantial share of the state's population. The rating balances the sewer system's healthy debt service coverage and liquidity against high leverage. The rating also considers the large share of system-wide revenue generated by retail operations in the City of Detroit...”¹⁹

The rationale for the bond series' credit upgrades in 2016 and 2018 reflects some circumstances that would also have been applicable to DWSD had the operations and management not been leased to GLWA: for example, the fact that the system provides an “essential service” to a sizeable share of the Michigan's population. Other circumstances may have been met by DWSD has their debt been restructured with creditors: for example, operational improvements and improved liquidity and leverage ratios. Circumstances related to increased revenue collection in the city and rate restructuring is the basis of strong community resistance as these are understood to be a rationale for dramatic increases in water shutoffs beginning in 2013 but most pronounced in 2014 and thereafter.²⁰

Another data point might suggest the lease payment does not appropriately reflect the value of the asset. We can find results of the valuation of water and sewer systems when it is purchased or acquired by a private corporation. We can then compare DWSD to such a privatized system. In 2017, Aquarion Water sold one of its systems to Eversource Energy for \$880 million.²¹ The DWSD system serves 6 times the number of people and the debt per capita—per utility system customer— is similar.²² This comparison is not one that is nuanced to all the different features of both systems.

It is difficult to compare the value of one system to another and difficult to map the sale of a utility to an investor owned corporation. However, this does raise the need make sure the lease payment reflects the value of the system and is designed to promote water security among customers across the region. Such a valuation needs to also be tailored to the context of a public corporation being the lessor—which may further complicate this comparison.

Finally, the systems' audited 2014 Certified Financial Annual Reports value the net capital as-

sets of the water system at \$2,011,642,990–\$2 billion, and the net capital assets of the sewer system at \$2,837,994,840--\$2.8 billion.²³ The Governmental Accounting Standards Board accounting rules are primarily designed to design comparable reports of the overall financial condition of governments or government entities. The accounting rules for valuing the capital assets of water and sewer system capital is not necessarily well suited to calculating a systems value in the context of a lease agreement to a private or public corporation.²⁴ However, in the absence of established methodology or precedent, this does highlight the need to adequately analyze the methods used to calculate the lease payment amount and to properly appraise the value of the system in the context of leasing it to a public corporation.

The amount at which the DWSD system is valued and the process used to calculate the lease payment of that asset is a necessary component of GLWA's governance going forward. These studies will determine a well-informed position on whether the lease payment is fair and in the interests of system-wide water security—including service affordability, water quality, wastewater service adequacy, and improved environmental quality and public health.

Cost Allocations

Under the lease and shared services agreements, some costs of operating and improving the regional system are considered “common-to-all,” meaning that DWSD-R and other wholesale customers contribute to them, while others are “Detroit-only.” The ways costs are allocated within these classes tends to be unfairly burdensome for Detroit and neglects the city's unique relationship. These unfair cost allocation practices perpetuate regional inequities and endanger the sustainability of the portion of the infrastructure that is within the city's borders.

For example, as stated above, under the current arrangement, the \$50 million/year lease payment is a common-to-all cost, meaning that when costs are divided, Detroit contributes \$13.6 million to the lease payment for its own system.²⁵ Our conversations and research do not find documentation discussing the rationale for categorizing the lease payment as a common-to-all cost explained. This should be pursued and be available for public review and debate. This is the case even in light of the \$26.2 million “return on equity” GLWA pays Detroit on an annual basis.²⁶

On the other hand, substantial costs associated with the combined sewer system are allocated to Detroit. Due to the absence of necessary investment and improvement, a large portion of the water and sewerage infrastructure within municipal Detroit's boundaries, including that under the domain of DWSD-R, is left with a combined sewer system (CSS) in need of repair and upgrade.²⁷

In a CSS system, wet weather events—melting snow or rain—can degrade water quality and may cause public health and environmental quality issues. A CSS system collects rainwater runoff, domestic sewage, and industrial wastewater into one pipe.²⁸ When the volume of wastewater exceeds the capacity of the system or the treatment plant, usually during wet weather events like heavy rainfall or snowmelt, combined sewer overflows (CSO) may result. This means that untreated or partially treated human and industrial waste, toxic materials, debris, and stormwater discharges directly into streams, rivers, and other water bodies.²⁹

State EPA agencies, like Michigan's Department of Environmental Quality, are tasked to regulate and track CSO events and issue permits. Each permit sets specific conditions that the system must conform to such that the EPA's CSO Policy—a national framework that is designed to ensure CSO events will not violate Clean Water Act standards.³⁰ Despite this regulatory system, there is a nationwide problem with the capacity of CSS systems to make adequate upgrades to meet water quality standards. This is, in part, due to a lack of federal spending on drinking and wastewater infrastructure that could supplement state and local government spending.

Infrastructure to reduce CSO events—creating a separate sewer or building new infrastructure—can be too costly. Because local governments finance 98 percent of water and sewer infrastructure costs, financing capital intensive projects like this can be difficult. Combined sewer systems can no longer be built and cities with CSO systems often try to convert to sanitary sewers or reduce the likelihood of CSO events through green or grey infrastructure projects. Traditional remedies include filtering contaminated overflow or relieving pressure on the system by way of large retention basins. These initiatives can take the form of either

"grey" or "green" CSO management.³¹ While green infrastructure projects are a promising strategy to reduce CSO events, cities under compliance schedules with the EPA can be 'locked into' traditional grey infrastructure projects and may have to seek approval to implement those projects.

Under the current agreement, Detroit covers 83 percent of the costs of several CSO facilities leased by the regional system, while the wholesale customers cover only 17 percent.³² Additionally, Detroit is required to cover 83 percent of the costs of some "future green facilities," as well as grey facilities which are deemed to "primarily serve Detroit"—a distinction which is unclear considering that the systems are, literally, interconnected.³³

This 83/17 split is rooted in the 1999 Rate Settlement Agreement, passed while DWSD was under federal court oversight as part of the effort to oblige the utility to comply with regulatory standards.³⁴ 83 percent of the construction costs for any CSO control system is covered by Detroit residents while suburban wholesale customers pay the remaining 17 percent—even if the CSO system exclusively serves non-Detroiters. The agreement enforces an exceptionally questionable cost structure for CSO management. It puts additional fiscal stress on DWSD-R and the city, which are already struggling to provide quality service and properly maintain urban infrastructure. There is also frustration in the community that the rationale of the 83/17 split is not clear—leaving the cost allocation to seem arbitrary from the perspective of community members. The city has begun charging high unmetered drainage fees to DWSD-R customers.

From our research, it is almost certain that this is a direct consequence of this 83/17 split.³⁵ These drainage fees are for Detroit's residents, but also challenge the fiscal sustainability of important social institutions in the city, including faith-based institutions that are a foundation for community services and social bonding in Detroit.

Financing costly and vital updates to older infrastructure is not just a problem for the City of Detroit. Many municipalities served by the system are more affluent suburbs with greater financial resilience and these municipalities are those most likely to have newer separate sanitary sewers. However, there are many suburban municipalities that are struggling with development and aging infrastructure—including water and sewer infrastructure. These are the types of suburban areas that are also populated by more diverse people—meaning these suburbs counter the stereotype of affluent white suburbs. Nationally, these struggling and diverse suburbs are the fastest growing suburbs.

This is the pattern in the service area of the DWSD system—while the City of Detroit has experienced dramatic population decline, the regional area has not.

Mitigating the harm of CSO events is not only in the interest of the people living in the immediate area of the discharge into surface waters. The environmental principle "we are all downstream" is well suited to this problem. Ensuring surface water quality is a service provided not only to Detroiters or communities with combined sewers is a service provided to the entire service area—and many more. Maintaining water quality within the Great Lakes Water Basin contributes to the quality of 20 percent of the globe's fresh surface water. Water security and its impacts on environmental quality and public health are a perfect example of universal benefits.

There is also more area for research to ensure fair cost allocation within the agreements between DWSD and GLWA—agreements that are currently operating and those coming in the future. The allocation of other types of costs have yet to be determined and the precedent for making such allocations is to limit public debate and contestation. This allocation is important given that if Detroit is unable to meet its financial commitments, there are substantial negative consequences for Detroit. The city has already lost significant control of the system and the associated potential to benefit from investments in the system—but it is threatened with losing even its remaining authority.

Governance Structure

GLWA has a six-member board, which includes: two positions appointed by the Detroit mayor, one appointed by the governor (who will soon be replaced by a representative from Flint, which returned to the regional system in 2017), and seats for each county in the service area—Wayne, Oakland, and Macomb counties.

Detroit has two of six positions on the GLWA board of directors. The system provides 125 suburban communities with water service and 77 communities with sewer service. These are represented by GLWA board representatives from their respective counties. One of the seats currently apportioned to the state of Michigan is marked for a representative from Flint, MI. This arrangement signals an acknowledgement of the unique relationship Detroit has with GLWA—how DWSD-R is not similarly related to GLWA.

However, Detroit's authority is limited relative to its historic contributions to the region and its historic operation and system management since 1836. GLWA's institutional structure should benefit from expanding the role of Detroit within GLWA. This general principle could suggest any number of changes to GLWA and strategies may include, but should not be limited to, considering GLWA board structure. This is the rationale for our identification of a structural governance problem within the GLWA service and lease agreements—one that is clearly communicated in the work of and our conversations with many of Detroit's community-based organizations.

Detroit has vested interest in the operation and management of the system as owner of the asset. This is at the heart of many objections from organizations and the simple arrangement of seats on the board are not seen to adequately reflect the city's unique relationship with GLWA. In fact, the arrangement is seen as an expression of disrespect for the role of the city in building the system and enabling the creation of suburbs through expanding its infrastructure. It is seen to also express the popular discourse of recent decades that represents the city as incompetent and in need of outside leadership and direction.

A super majority is required for all major decisions, and Detroit only has two members appointed by the mayor. This is in contrast to the three representatives from the counties and one appointed by the governor, soon to be replaced by a representative from Flint.³⁶ This governance structure diminishes Detroit's influence in making long-term decisions about the future of the system. To many community groups, particularly those suffering under the weight of unaffordable bills, the GLWA board structure echoes the disenfranchisement felt under emergency management. Notably, this design also presumes that the full diversity of water security problems within counties is adequately represented through the county-level representatives. It is reasonable that there is a reasonable limit to the number of seats on the GLWA board.

However, the limits of expecting few board representatives to adequately represent a wide diversity of needs suggests the need for GLWA to design additional structures for local influence in its governance structure. Additionally, it is possible that DWSD-R will be unable to meet its financial obligations under the GLWA agreement, especially given the lack of clarity in the way costs will be shared in the system. Should the city be unable to meet these obligations, current governance structures can create serious issues for Detroit. Firstly, DWSD-R can lose its ability to set rates, issue bills, or establish collection practices.³⁷ The city can also forego future lease payments if it withdraws from the Authority.³⁸ Finally, should conflict arise between GLWA and DWSD-R, dispute resolution occurs through an arbitration process that blocks access to courts.³⁹

In identifying strategies that respond to the GLWA governance structure we must think more deeply than simply adding a seat to the board or giving another seat to the city. There is much more at stake. And, to simply make those changes does not respond to the way other suburban areas are very differently situated within GLWA. Having a county-level representative is a profound problem for representing the very different needs of places and people within that county.

The Creation of GLWA

The prospect of regionalizing the utility was previously raised in a number of venues before the city's bankruptcy process. For example, the state legislature introduced legislation to regionalize the system and negotiations of DWSD under the EPA suit also attempted to regionalize the system.

The Great Lakes Water Authority, created in 2014, leases the regional water and sewerage infrastructure from Detroit for \$50 million per year for 40 years. Those funds are set aside in an account managed by GLWA to fund capital improvements on Detroit's urban water and sewerage systems. The authority also commits \$4.5 million or .5 percent of based budgeted operating revenues for a water assistance program.⁴⁰ As a "return on equity," GLWA provides a \$26.2

million credit to revenues Detroit is required to collect under the agreements.⁴¹

From our research, we found these technical details critically important. Equally important and meaningful were the social conditions of the regionalization process. A notable factor that has alienated many people and groups we spoke with was that negotiations occurred under the suspension of ordinary democratic process. Substantive decisions and negotiations took place under the period of the city's emergency management.

Under emergency management residents were effectively disenfranchised from democratic representation and contestation in formal governance. It is widely thought that the regionalization of the DWSD system would not have occurred if the regular process of public referendum were required. It has also been suggested that regionalizing the system in the absence of a referendum would be contrary to the state's constitution.

The alienation expressed in our conversations also had profound racial dimensions. This is evidenced by seeing the racial footprint of places where emergency management has been instituted within the state. Since 2009, nine Michigan cities were appointed emergency managers by the state—six of those cities constitute 49.8% of the state's African American population. Whether or not there was an intentional design to sever local control of local government for the majority of the state's African American population, there were clearly uneven racial impacts of the implementation of emergency management. The state law enabling emergency management is, in and of itself, an artifact of state government rejecting the democratic will of state residents. State legislation enabling emergency management, PA 4, was repealed in 2012 in a statewide referendum. A month after this repeal the legislature passed PA 436 which effectively replaced the repealed legislation. While multiple circumstances alienated Detroit residents from the decision made in recent years, emergency management was at the root cause of most objections.

GLWA operates and manages 'parts' of the DWSD system within Detroit's municipal boundaries. DWSD-Retail (DSWD-R) continues to operate and manage the remaining 'parts' the system within its municipal borders. The 'parts' of the system are defined and itemized in the lease and services agreements and subsequent DWSD and GLWA documents. It is not entirely clear how tasks associated with management and operation of system components are parsed out, nor is the rationale of the division clear. Suburban customers remain wholesale customers, meaning that suburban municipalities purchase water and sewerage services from GLWA at a wholesale rate. DWSD-R is created to be another wholesale customer of GLWA although it is situated differently than other wholesale customers.

Recommendations

We identify and outline seven recommendations that address the barriers discussed in the previous section. In our conversations to this point, we find that some of these recommendations are new, some are already underway and are expanded upon here, and others are in discussion among different groups that may or may not already be coordinating. The recommendations are accompanied by preliminary analysis, and we outline and suggest points for further inquiry.

This report intends to illuminate meaningful and potentially powerful changes that directly respond to the most pressing community needs. To further this work in its future phases, we must broaden the cast of collaborators and consult with experts to rigorously explore and pursue the proposed strategies.

Recommendation 1: Moratorium on Residential Water Shutoffs and Redesign Decision Making on Water Shutoffs

We propose instituting an immediate moratorium on residential water shutoffs until such time adequate processes are established that allow individuals a form of due process in the course of a water shutoff. Processes should enable effective and easily navigable processes to challenge to shutoff orders and access financial support programs. The moratorium should also be in place until there is a clear sufficient process to distinguish

between accounts that are able or unable to pay. During of the period of that moratorium, it is essential for GLWA, DWSD, and other service providers to seriously consider the objections raised by the Detroit community and international agencies and implement long-term, dramatic changes to service disconnection practices.

There are many industries that rely on customer revenue to stay afloat; however, the inability to pay for services ought not result in an acute threat to health and safety. Any policies that pursue service disconnection to incentivize payment should be designed to apply only to situations in which there is an ability and unwillingness to pay. This will disqualify the vast majority of service disconnections.

An expanded and effective water affordability program and changes to current rate structures will reduce instances of inability to pay, thus curbing the need for residential water shutoffs. These possibilities are detailed in recommendations three and four.

Fair disconnection policies could be established by encouraging service providers to adjust their customer service policies or by implementing legislation that forbids water shutoffs where failure to pay is based on economic hardship.

Recommendation 2: Implement a Comprehensive Water Affordability Plan

For many people in the service area, drinking water and wastewater service rates are simply unaffordable. In order to safeguard environmental quality, public health, and water security we recommend designing and implementing a comprehensive income-based water affordability plan. This recommendation reflects a primary concern of Detroit leaders and community members.

In 2005, with the support of Detroit's robust activist community, affordable utilities expert Roger Colton designed an income-based water affordability plan for Detroit in response to increasing rates of shutoffs. The plan, known as the Water Affordability Program (WAP) was approved by the Detroit city council in 2006 but never implemented.

We recommend adopting a revised and expanded version of Colton's plan that includes customers across the entire GLWA service area. In the fall of 2015, Philadelphia became the first major city to adopt an income-based affordability program, and similar cities are following suit. By implementing a robust water affordability plan, GLWA, DWSD, and other wholesale customers will join the cast of cities implementing similar policies to ensure water security.

Further research should identify the precise needs across the service area and match these to program design features. It is possible that components of the original WAP are best suited to this effort. These included providing fixed credits to GLWA customers' bills. The fixed credit is calculated by determining (i) a burden-based payment (i.e. an affordable percentage of household income), (ii) the annual bill amount, and (iii) the fixed credit necessary to reduce annual bill to a burden-based payment.

The 2005 WAP plan required that water and sewerage rates not exceed between two to three percent of annual household income. As there is also a diverse and consistent call for basing affordability plans based on criteria other than household income, we recommend further inquiry into the most effective metrics for determining affordable burdens.

In 2016, the Senate Appropriations Committee directed EPA to contract with the National Academy of Public Administration (NAPA) to "conduct an independent study to create a definition of, and framework for, community affordability of clean water"⁴² that encompassed both drinking water and wastewater. NAPA produced a comprehensive literature review, over 100 stakeholder interviews—including PA Financial Advisory Board, Council of Mayors, water industry groups, academics, consultants, governmental entities, and others—a stakeholder survey, and a roundtable discussion with stakeholders and experts.⁴³ Their 2017 report produced a set of findings and recommendations related to affordability concerns and improvements to EPA metrics, among other things.

... In discussions with NAPA about the above critiques, EPA noted that the RI was intended to assess overall system affordability rather than individual household affordability, that it desired a "common starting point" for negotiations between regulators and individual permittees, and that an adjustment to the metrics would increase

staff workload by reopening negotiation around existing consent decrees (legal agreements between EPA and permittees regarding actions and timelines required to achieve compliance with CWA and SDWA regulations).⁴⁴

There is a need to update and expand upon the work of the 2005 affordability plan and determine the costs of comprehensive water affordability in the region today. The above quote is taken from a report in publication that compares the EPA metric and two alternative metrics that enable more targeted place-based analysis of water affordability. This type of study is a prerequisite to designing an robust and adequate affordability plan.

Recommendation 3: Incorporate Basic Consumer Protection in GLWA Policies

This recommendation acknowledges that many systems already have consumer protections in place—many states require such programs. The term itself, “consumer protection” is misleading in that a public utility “consumer” is different than a “consumer” of hamburgers or electronic equipment—and this difference should be reflected in the design of protection policies. In many places— Detroit included—the failure of consumer protection programs in the context of drinking water and wastewater systems is inadequate.

For example, in Detroit’s system there is an appeal process, but due to data systems in the DWSD we understand that many users were not provided notice or were provided notice but were unable to navigate the process for appealing the collection process or arranging existing financial support systems. The scale of the shutoffs in Detroit is larger than in other areas we found through our research.

In other places where shutoffs have taken place there are also consumer protection measures on the books. For example, in Baltimore there were 1,400 shutoffs in 2016 and 8,000 the year before. Some media reporting on the Baltimore shutoffs have described the effects being less severe than in Detroit, in part because the accounts with the largest balances were primary focus and this included some private corporate accounts. Additionally, it was reported that there was priority also given to collect balances in areas with lower poverty rates and it is presumed that this meant fewer people who could not pay were shutoff.

The process of shutoffs can be better designed. Other state utility organizations have protection for utilities—including water. Many allow for a delay, usually 30 days, in the case of medical events and this stay can be renewed. However, in the absence of doing a full survey of consumer protections from water shutoffs throughout US states there seems to be a pattern that focuses on age, ability, and health—and that these circumstances only offer temporary relief. It also seems very common to offer payment restructuring programs.

These orthodox consumer protection plans are not adequate to address the needs of a family who is unable to pay a water and sewer utility bill. Fundamentally, any consumer protection plan needs to be linked to and designed alongside with an adequate affordability plan. However, consumer protection can be part of that process and enable the system to distinguish between account holders who are able or unable to pay their bills—and who is or is not subject to a water shutoff.

Some components to a consumer protection plan were described in Colton’s 2005 Water Affordability Plan (WAP). We propose adopting protections in the following areas:

1. **Late fees:** Late fees disproportionately impact low-income people and worsen financial stressors. Currently, DWSD-R charges a five percent late-fee for overdue accounts. As that five percent well exceeds the costs associated overdue accounts, we recommend lowering that percentage or eliminating late fees all together.
2. **Deferred payment plans for arrears:** Customers with seemingly “affordable” bills burden can still be left with unaffordable bills when they have past due bills. We recommend implementing renegotiable payment plans and allowing arrears to be paid in regular monthly installments.

Currently, DWSD-R and wholesale providers have their own customer service policies. To implement policy reforms region-wide, each service provider could adopt the policies, or GLWA could develop new policies which apply to all of its regional customers.

Recommendation 4: Implement Legislative Reforms

The universal goal is wide-spread water security— of access to affordable, high quality, and residential drinking and wastewater service and benefitting from its contributions to environmental quality and public health. This universal goal should animate legislation and regulatory standards.

Several states and municipalities have implemented protective water legislation, and we recommend further inquiry into potential legal and legislative strategies. Federal legislation that bears on the water security—access to drinking water and wastewater service—includes S.2015, the Water Affordability Act that would create low-income drinking and wastewater assistance pilot program.⁴⁵ This program is a targeted strategy as eligibility for the program is set by particular geography, income, and enrollment in other assistance programs. This bill was introduced in June 2018.

At the end of October, America's Water Infrastructure Act of 2018 was signed into law.⁴⁶ This type of legislation requires re-authorization every two years and makes modest increases in investments in drinking water. Terrain of debate on this bill pertains to provision that enable greater participation of private corporations in the work of public infrastructure. For example, there is an interest to remove a cap on private activity bonds and other terms of the legislation that could impact regulation of infrastructure that runs through waterways which has been an interest of the energy sector.

The National Coalition for Legislation on Affordable Water (NCLAWater) advocates for a variety of measures at the state and federal levels.⁴⁷ Those efforts include legal measures to ensure access to water, fair water billing and rates, water quality, and citizen oversight and transparency. NCLA Water's Michigan statewide legislative package, which offers a sample of a viable legislative model, includes the following:

Access to Water

HB 4291 Michigan Access and Affordable Water Act. Creates the "Accessible and Affordable Water Act," which would require that all state departments and agencies employ all reasonable means to adopt policies to ensure that water is affordable and accessible as long as those policies do not affect eligibility for federal funds.

HB 4360 Water Access. Requires access points for safe drinking water be available in places where residents are not supplied municipal water hook-ups.

Water Billing and Rates

HB 4394 Affordability. Addresses water rate structures that unduly burden low-income residents by amending the Social Welfare Act to create a residential water affordability program within DHHS in order to ensure that water bills are based on household income.

HB 4389 and HB4390 Decriminalization. Decriminalizes the act of re-connecting water service from a five-year felony to a civil infraction or misdemeanor.

Water Quality

HB 4124 Program for Schools and Child Day Care. Establishes water testing and interventions in schools and child daycare centers, as well as mechanism for repairing and replacing sources of lead contamination.

HB 4120; HB 4372, 4378, 4379 Water Quality Testing. Requires water quality testing at regular intervals in schools, colleges, universities, nonpublic schools and hospitals.

Citizen Oversight and Transparency

HB 4201 and HB 4214 MDEQ Citizen Oversight Commissions. Restores a gubernatorial-appointed citizen oversight commission on water quality.

HB 4375 Water Ombudsman. Establishes a Water Ombudsman to advocate for residents throughout the state on water-related issues.

Recommendation 5: Evaluate the Fairness of GLWA's Annual Lease Payment

We recommend conducting a comprehensive appraisal of the regional water and sewerage system, and given that value, recalculating the annual lease payment.

This issue is at the center of the inequity of the currently-in-place agreements between the City of Detroit and GLWA. In order to ensure the distribution of affordable high-quality water and establish an equitable relationship between the city and the region, the annual lease payment must reflect the value of the system as assessed through proper review.

Though information about how the lease payment was calculated is not readily available, it appears that the value of the Detroit Water and Sewerage Department and its infrastructure was underestimated. At minimum DWSD-R should not need to contribute \$13.6 million to the lease payment of a portion of its own asset.⁴⁸

The lease payment ought to be recalculated following comprehensive appraisal. Given the sensitivity and centrality of this matter, it is imperative information about those negotiations be publicly available. Local systems in a growing number of places in the US are entering into operation and management contracts, leases, and other types of arrangements with public and private investor owned corporations. Assessing the lease payment amount and decisions that were involved is an opportunity to provide leadership at the national level. Systems across the country are facing similar difficulties and complexities in setting the terms of arrangements they enter. This is both a problem for policy makers to gauge their expectations and for community members to impact and influence decisions.

Recommendation 6: Rework the Terms of the GLWA Service Agreement

The existing framework of the agreements between the City of Detroit and GLWA creates unnecessary structural burdens for the City of Detroit to exercise its unique role as owner of the system. Additionally, its position within the GLWA governance structure is similarly limited to other municipalities in the service area. We recommend changing some aspects of the current agreements in order to build towards water security for everyone and every place in the service area.

We discuss five concerns to address:

- Depending on the results of analysis of the process that calculated GLWA's annual lease payment and the valuation of the system there may be need to adjust the lease payment accordingly.
- The allocation of costs between DWSD-R and GLWA can contribute to Detroit's unaffordability problem and other regional areas similarly disadvantaged.
- Contain provisions can impede the establishment of fair and sustainable rate-setting structures.
- Institute a flawed governance structure that diminishes Detroit's agency as a steward and owner of the system and diminishes the role of other retail customers to have their unique concerns adequately represented.
- Terms of the agreement were based on funding an inadequate customer assistance program and there was no consideration of designing terms to build a robust affordability program.

In addition to researching and possibly adjusting the annual lease payment we recommend reframing the Detroit/GLWA agreements by:

- Establishing a more equitable cost-sharing model that takes regional inequities into account. This will likely involve making expenses associated with the combined sewer overflows (CSO) common-to-all and not requiring Detroit to contribute to the lease payment. Current rate structures should be reappraised based upon a more thorough analysis of water affordability throughout the region
- Reconsidering current rate-setting structures in order to develop a system designed to balance cost-recovery, conservation, affordability, and economic development while also preserving water security throughout the service area. This may involve abandoning the four

percent rate cap. Crucially, any rate increase that exceeds the four percent cap must be accompanied by a robust affordability plan,

- Reworking the GLWA governance structure to ensure that Detroit and other places in the region have fair representation in decision making bodies. Addressing this concern can extend beyond simply adding seats to the board. Rather, deep analysis should be conducted into best practices and alternative structures that can adhere unique community concerns to influence in decision making. Additionally, legal resources and protections should be created such that Detroit or other wholesale customers have access to proper legal remedy if there are disputes or failures to meet obligations or a decision is made to withdraw from the authority.
- Creating structures to fund an affordability plan.
- Reworking any terms of the agreements should not be conducted in the spirit of decisions during bankruptcy processes that alienated the GLWA from those receiving its service.⁴⁹ The very best practices and even new processes that provide meaningful influence by community groups should drive decisions. Detroit and other areas facing water insecurity ought to be fairly represented, expert opinions should be taken into consideration, and information about the renegotiation process ought to be made readily available to the public and express a commitment to transparency and community accountability. It is likely that achieving comprehensive water equity in Detroit will require the agreement to be renegotiated more than once. We recommend that fair, periodic negotiation be a central aspect of the of the relationship between the City of Detroit and GLWA.

Recommendation 7: Implement Green Infrastructure Initiatives

Addressing the problem of systemwide water insecurity in isolation is a disservice to the effort to design a system that provides region-wide environmental quality, public health, and water security. Water insecurity, as we have suggested earlier, is a result of many entangled social, economic, and environmental issues. These issues include, but are not limited to, aging urban infrastructure, historical imbalances of power, austerity and systemic divestment, and stressed municipal finances.

In response to these interconnected challenges, we recommend enacting a broad green infrastructure initiative in Detroit. Green infrastructure offers a dynamic, multidimensional solution to Detroit's interrelated problems.

Green infrastructure involves natural and engineered environmental upgrades that promote water reuse and infiltration into the natural aquifer. Green infrastructure offers an opportunity to relieve pressure on Detroit's aging water and sanitation infrastructure while also facilitating economic growth and sustainable urban development. While traditional grey infrastructure improvements are necessary, GI projects can provide resilience to the effects of climate change and reduce the demands on the scale of grey infrastructure needs. Additionally, investing in drinking water and wastewater systems have positive and significant impacts on state and local economies. Green infrastructure has an array of potential social, environmental, and financial benefits for Detroit and the region. These multidimensional benefits, which comprise a "Triple Bottom Line" framework, have been well-documented in other cities.⁵⁰

Based on a 2016 assessment by the American Society of Civil Engineers, this study estimates that the US needs to invest an additional \$82 billion per year in water infrastructure at all levels of government over the next 10 years to meet projected capital needs. If the estimated investment gap were closed, it would result in over \$220 billion in total annual economic activity to the country. These investments would generate and sustain approximately 1.3 million jobs over the 10-year period.⁵¹

A study should be commissioned that applies this analysis to the economic effects of investment in southeast Michigan. A design for a study of this type is underway and meets industry standards for rigor and quality.

Michigan's Department of Environmental Quality has developed and implemented several extensive green infrastructure projects in the city and the region in recent years.⁵² The initiatives we propose here complement green infrastructure projects underway in Detroit. These existing

Two Paths for Detroit

The first column is what it will be like in 10 years if we continue to make the choice not to act, the second column is what it will be like in 10 years if we make the choice to implement the recommended changes

Continued Disinvestment

- Continued human right to water crisis
- Water and sewerage fees steeply increase
- DWSD forced to continue paying fines for violating EPA laws, meaning higher water rates
- More breaches in system, leading to more wasted water and higher unmetered water loss fees
- Poor water quality, including lead contamination
- Another 200,000 shutoffs
- Undermines plans for economic development and neighborhood reinvestment, compromising property values, school system, and other public services like police and fire protection
- Depopulation

Meaningful Reinvestment

- No more shutoffs
- Affordable water and increased revenue for DWSD
- Green Infrastructure investment creates 15,000 living wage jobs and spurs small business growth
- Improved air and water quality, including cleaner rivers and lakes
- Restoration of tree canopy
- Increased property values and tax base
- Detroit recognized for its resourcefulness, ingenuity, and perseverance
- Southeast Michigan earns a national reputation as leader in sustainable water quality and access, setting the standard for infrastructure redevelopment

initiatives set precedent for the potential of green strategies.

What we suggest here is a significant increase in scale of these programs and also principles that should be integrated into current efforts underway.

Green infrastructure can also reduce costs associated with the combined sewer system by lessening the quantity of impervious surfaces, and thus reducing the amount of water entering the system. This diversion of runoff results in savings in labor, chemical, and energy costs, as well as costs associated with preventing combined sewer overflows.

Detroit offers an ideal setting for an ambitious green infrastructure initiative for four reasons.

1. Green infrastructure requires a large amount of low-cost land, which Detroit has in abundance.

2. Green infrastructure offers a lowest cost, highest reward strategy for dealing with the city's aging infrastructure.
3. Green infrastructure creates jobs in response to issues of sufficient employment and living wages in Detroit.
4. Detroit has a rich community of local leaders with knowledge of the capacity and needs of neighborhoods.

The elements of our proposed green infrastructure initiative include the following:

- An initial capital source sufficient to fund a larger array of green infrastructure installations on properties throughout the City of Detroit.
- A strategy for identifying the most beneficial areas for reduction in peak combined sewer overflow in order to make the greatest economic and environmental impact.
- A strategy for assembling land for green infrastructure installations, primarily among the many parcels already assembled in the land bank.
- The development of several engineering prototypes for green infrastructure designed for permitting and priced for financing and contracting.
- The cultivation of a cohort of local, minority-owned small business enterprises equipped and trained to perform contracts for green infrastructure installation.
- The establishment of a small business association (SBA) or micro-lending loan program to provide working capital and equipment financing for small contractors who can efficiently and economically execute contracts for green infrastructure.
- The establishment of a protocol for measuring economic and environmental benefits of each type of green infrastructure installation and translating these economies into aggregated savings to the DWSD-R and GLWA for purpose of reinvestment.
- The development of a strategy for tax increment financing or other long-term investment strategies for the purpose of monetizing cash flows for additional capital investments in green infrastructure.

The Costs of Water Insecurity

The starting place for this project is a focus on Detroit. A primary feature of water insecurity in Detroit is a profound problem with access to affordable drinking and wastewater services. The expression of this access barrier is water shutoffs that have been implemented throughout historically, but dramatically increased in and since 2014. The implementation of water shutoffs in Detroit took place regardless of whether or not someone was able to pay, and collections seem to have been targeted at residential accounts rather than commercial accounts that have higher arrears.

The profound harm to an individual's physical and mental health is reflected in volumes of personal accounts that have been shared. Additionally, because of the geographic patterns of households who find drinking water and wastewater service unaffordable, there are clear effects at the neighborhood level.

We include this section because of the extreme and unique harms that arise from losing residential access to water service. In our conversations with community members it was clear that the defense of water shutoffs was felt to be disconnected from empathy and understanding of this harm—and therefore those defending the practice are viewed as disinterested in providing relief to people who experience shutoffs. Additionally, there is clear disregard for appreciation of the direct regional impacts of large scale water shutoffs and water unaffordability. We review here research that details the deleterious impacts of water insecurity—in particular the inaccessibility of affordable drinking and wastewater services.

There is near-consensus among those whose water has been shutoff and people who advocate and provide emergency services to them—people “touched” by water shutoffs—that water shutoffs are a crisis. However, among people who rationalize and argue there is a need for residential water shutoffs there is a sense that shutoffs are routine ordinary practice and that incentivizing bill collection is not a crisis—that the crisis is that system revenues have been too low in recent decades.

Consistent and secure access to clean water that runs in your home is taken for granted by many until there's a plumbing leak. It's common for homeowners to know—or learn quickly—where the shutoff valve is for their home's sink or toilet in the event of a water leak. The relatively minor inconvenience of the disconnection of a single fixture is, for many people, the only experience of not having the water access one would like to have. For people advantaged in this way, decisions of whether and how long to wash vegetables and fruits are not considered a decision—it's just a routine task. Decisions of whether to steam or fry potatoes is governed by the preference of those you're cooking for. If there's a scraped knee or a finger cut it is washed with soap and water: migraines or ankle sprains get ice and fevers are cooled with chilled water. One can use the toilet whenever they need, wash their hands after, and waste can be quickly ushered out of the home through sewer lines. These basics are not basic for people without running clean water in their home. It is not controversial to characterize the large number of water shutoffs as a crisis.

When adults or children are facing these challenges in their day-to-day lives they realize that it's not normal and that a vast majority of people do not face these struggles. These are the material conditions of being *othered* and structurally marginalized. The relief of getting access to water and sewer systems can be a force for structural belonging and inclusion. Our previous recommendations can get us there.

Detroit's water shutoffs have been widespread and have raised the visibility of water affordability problems across the country. In Detroit, at least 100,000 households have had water shut off since 2014.⁵³ While the annual number of shutoffs has decreased since 2014, in March 2018, the *Detroit Free Press* reported that at least 17,000 households were at risk for shutoffs.⁵⁴ Data suggests that in Detroit, as in other places across the country experiencing water shutoffs—there is not a reticence to pay, but rather the problem is being unable to pay. Records obtained by Bridge Magazine show that the number of residential shutoffs dropped from 33,000 in 2014 to 23,000 in 2016 and increased again to 27,552 in 2016.⁵⁵ Critics have noted the way in which shutoff practices have targeted residential rather than commercial account-holders, though arrears owed by commercial customers far exceed that of residential customers.⁵⁶

Because water affordability is a growing problem across the US, water utilities use shutoffs as an incentive for utility customers to bring their bills up-to-date. Shutoffs are not unique to Detroit, but the number of shutoffs in the city is remarkably high and many of the strategies implementing shutoffs are particularly harmful for household residents. In 2016, Baltimore shutoff water to 1,400 accounts and 8,000 the year before. They enforce shutoffs if a bill falls behind by \$250 for two billing periods.⁵⁷ In Baltimore, unlike Detroit, household residences were not always the primary focus on shutoffs and utility customers with remarkably high past-due amounts were primary targets and these were larger corporate accounts. Additionally, in Baltimore there was a focus on collections from areas outside of the urban core where poverty rates were lower. Water shutoffs cannot be defended as an incentive system for collection from households who are unable to pay. This matter was not adequately addressed in Baltimore. However, differences between implementation strategies are meaningful. In our conversations the practice of shutoffs for people willing but not able to pay was a fundamental problem.

In addition, the conversations explained that the execution of shutoffs was deeply problematic and existing avenues to appeal or delay shutoffs were practically un navigable for people.

Across the US, there are similar problems with the use of shutoffs to increase system revenue from people who cannot pay and a pattern of lacking mechanisms to appeal or suspend a shutoff. In the course of our research we did not find any appeal process that effectively prevented a shutoff in the case of an inability to pay—although we did find allowance for establishing an income-based repayments plans. However, these repayment plans do not resolve the problems that arose in the course of our conversations. We noted accounts of many repayment plans that were still not affordable for households and the water was shutoff after the first failed installment plan.

In May 2017, 40,000 Philadelphia households were eligible for water service disconnections.⁵⁸ Their process provides two notices instructing the household to set up a payment plan or else their water will be cut off. The main pipe to the house would be turned off and a lock installed on the meter box.⁵⁹ The work of the shutoff is done by a crew that will usually identify those with thousands of dollars owed.⁶⁰ They visit and do the shutoff at that loca-

tion and then turn off other accounts in arrears in nearby locations, without discretion of the amount owed.⁶¹ This is thought to be a more efficient strategy and a crew can do 3,000 shutoffs with this method.⁶² In Seattle shutoffs are triggered at \$300 past due and 52 days; Phoenix is triggered at \$75 and 30 days; Denver shutoffs are triggered at \$125 and 50 days. Some states establish water utility consumer protections that delay a shutoff in the case of sick children, seniors, or medical conditions.⁶³

In many ways across the US there is a gap between standards set by international human rights law and the function of fundamental resources to levers of opportunity. For example housing, education, or food. Despite these persistent gaps it is useful to document these gaps in the aspiration to meet universal goals outlined therein. In 2014, following an upsurge in shutoffs during Detroit's bankruptcy negotiations, Catarina de Albuquerque, the United Nations Special Rapporteur on the human right to water and sanitation, and Leilani Farha, the Special Rapporteur on the right to adequate housing, visited Detroit. Albuquerque explained that "it is contrary to human rights to disconnect water from people who simply do not have the means to pay their bills."⁶⁴ In the visits to states across the US, the UN Special Rapporteurs have connected water insecurity to poverty and the right to clean water, sanitation and housing.⁶⁵

Water shutoffs are a collections system universally designed to incentivize users to pay bills. Water and sewer utilities in the US are considered "natural monopolies" and rate setting is typically dominated by studies that measure the willingness of users to pay (WTP) for water. This is mismatched to the empirical reality of entrenched poverty and inadequate federal, state, and local funding for system operation, management, and upgrade. These studies have also shown that lower income households have an elastic relationship to water rates—meaning that if there are any changes in the rates these are the households most likely to use less. It is a perverse system design to make the assumption that all users can pay and accommodate this reality by explaining universal rate-setting designs that produce "inelastic" relationships with low-income users—rather than making accessibility to affordable water possible.

This section of the report details the wide-ranging negative outcomes produced by using water shutoffs as a bill collection practice. Resorting to shutoffs is directly rooted in the historical challenges faced by service providers in the regional and issues with the current Detroit/GLWA agreement, described in Sections I and II, respectively. Not only are shutoffs ineffective in recovering revenue, but they also endanger peoples' livelihood in a myriad of ways. The burdens caused by water shutoffs are disproportionately endured by low-income people and people of color.

The Health Costs of Shutoffs

Water shutoffs can threaten public health and exacerbate or deepen disparities in health outcomes. Studies overwhelmingly confirm the links between water scarcity and a variety of health issues.⁶⁶ The link between living without access to drinking water and wastewater services and vulnerability to a number of diseases and sicknesses is well-documented and studied with consistent findings in places across the globe.

A primary risk associated with water scarcity is dehydration. It can have lasting effects on individuals' health and intensify other health problems. Moreover, poor hygiene resulting from lack of water access can spread and create a variety of health problems, such as skin diseases and gastrointestinal issues, as handwashing is the first line of defense against several communicable diseases. Lacking water in the home can also negatively impact nutrition, as the preparation of healthier foods is particularly dependent upon water.

There is little scholarly study of the effects of water shutoffs and public health in the context of circumstances like those in Detroit. An abstract of an unreleased study by the Henry Ford Health System's Global Health Initiative and Division of Infectious Disease offers a preliminary analysis of the effects of shutoffs on public health in Detroit. The study examined 37,441 cases of water-related illnesses at Henry Ford Hospital between January 2015 and February 2016. Researchers found that patients with water-related illnesses were 1.48 times more likely to live on a block that had experienced water shutoffs.⁶⁷ The study was criticized due to its failure to document causation and the geographic scale of its analysis. Lacking the full text, it is difficult to appraise the methodology, however the findings are consistent given what we know about the consequences of lacking access to water and sewer services. Furthermore, questions re-

garding the study's focus on correlation—not causation—and the geographic scale are unlikely to prove a solid ground for contesting the study's findings. As presented in the abstract, finding causation and geocoding and aggregating patient diagnoses at the census tract level are standard features of scholarly study in the field.

There are also a variety of mental health issues associated with water poverty, and water deprivation can exacerbate existing mental health problems as well.⁶⁸ For example, irregular bathing and sanitation can create lasting feelings of shame and negatively affect people's sense of self-worth.

In these ways, among others, the suspension of residential drinking water and wastewater services creates lasting mental and physical stress for individuals that has measurable effects on the body. The "toxic stress" associated with the cascading effects of shutoffs must be considered when appraising the health costs of water deprivation.

A variety of studies have discussed the way in which toxic stress contributes to disparate health outcomes for people—in particular poor people and people of color.⁶⁹ The day-to-day stressors of living as a person who is considered "other" and deprived of resources and opportunities have demonstrable physiological effects. This chronic stress may be related to experiencing micro-aggressions, persistent unemployment, residential segregation, and sub-par educational options.

While studies have not explicitly examined the relationship between toxic stress and water scarcity, the connection is plausible. This is especially considering the way in which water access is a precondition for realization of other positive outcomes associated with toxic stress. For example, maintaining family cohesion, housing, healthy food, and health.

Not only are marginalized groups disproportionately exposed to health risks, but they also often have limited access to health care. These social determinants of health—that is, increased exposure to risk and limited access to care—combine to perpetuate disparate outcomes.⁷⁰

The wide-ranging health consequences of water deprivation endangers the well-being of individuals, families, and entire communities. Water access is a precondition of human health, and depriving people of it constitutes a violation of basic human rights.

The Social Costs of Shutoffs

Water shutoffs also compound social problems caused by the systemic marginalization of communities. We the People of Detroit's Community Research Collective has documented the ways past due amounts on delinquent water bills are rolled over to liens on homes. This lien can then combine with any other liens and therefore accelerate the process of home foreclosure.⁷¹ Foreclosures have a number of negative outcomes for households and communities at large. Additionally, Child Protective Services (CPS) considers homes without access to running water to be unfit environments for children, water shutoffs can break up families.⁷² Whether or not the child is actually removed from the house, living with the possibility of separation creates psychic harm and contributes to toxic stress.

If the problem is the ability to pay—not the willingness to pay—then the fundamental problem is located in pricing structures and processes within the DWSD and GLWA. Under the current GLWA agreement, DWSD-R customers bear the burden of costs associated with the combined system by paying \$750 per square acre of impervious surface in monthly "drainage fees."⁷³ One symptom of this structural design flaw is that high fees actively threaten the fiscal sustainability of Detroit churches and other important social institutions in the city.

Churches are especially burdened by drainage fees given the large quantity of impervious surfaces they maintain and occupy—including the size of the church itself, parking lots large enough to accommodate whole congregations, satellite community buildings, and even vacant properties churches have acquired for neighborhood improvement projects. Detroiters feel that these fees are arbitrary, particularly in the context of alternative reasonable approaches to determining drainage costs.

Drainage fees and water shutoffs in Detroit offer a particularly glaring example of how problems surrounding public infrastructure can actively disrupt communities. Shutoffs across the US pose acute threats to human health and play a critical role in accelerating cascading effects that erode historically marginalized communities, threatening the well-being of neighborhoods,

families, and community spaces.

The Long History of Detroit's Water and Sewerage District

Studies have found that people who experience affordability barriers problems to water and sewer access are also areas where there are higher populations of people in poverty, disabled, people of color, and higher enrollments in public service programs.⁷⁴ These “pockets of water poverty” are consistently characterized in this way and the GLWA service area is no exception.⁷⁵ Areas of unaffordability throughout the GLWA service area are marked by these patterns, including Detroit.⁷⁶

Race, physical ability, and socioeconomic status correlate with affordability access barriers to water and sewer service security. These are also groups that are underrepresented in institutions that determine rate structures and other procedures for utilities. These are also groups that are on the lower side of disparities—including disparities in political power. These circumstances can create conditions for utilities to function with ostensibly neutral and objective processes that are universal and “color-blind” with the intention to not treat everyone the same. These universal policies often, in execution, perpetuate disparities and end up providing greater outcomes to the groups that are already better-served by dominant institutions. If GLWA and DWSD pursues universal policy to treat municipal retail customers and system users with the same brush, it will neglect important differences and fail to respond adequately and fairly to the different ways some places and groups of people relate to their water and sewer services. In an EPA study of 795 utilities, 228 offered some form of affordability plan—28 percent of the sample.⁷⁷

By examining the history of water and sewerage services in Detroit, we can begin to understand the way in which historical factors created structural problems for the regional utility that disproportionately impacts othered groups—and in Detroit history demonstrates these are largely poorer lower-wealth Black and African American people. These factors include the racial dynamics of labor unions and within industrial firms, racially disparate application of federal financial support for home mortgages and opportunities to move outside of areas of the region and city with richer opportunity networks. Accordingly, inequity is baked into the way the way the system functions today.

Our account of the history of the system contributes to an explanation of how water and sewer systems were designed alongside and during profound periods of hostile and explicit racial animus. While this animus may not animate and drive current policy the institutional design and structural design reflects deeply racialized outcomes. To re-engineer these systems to promote inclusion there needs to be deliberate effort to understand the dynamics of the creation of DWSD. While the details in this section are necessarily unique to Detroit, the general principles are not. Many of the details unique to Detroit are the result of waves of policy and development that shaped places—and water systems—throughout the US There is a script for this past and there is a script to arrest the historical momentum inherited from a troubled history.

The history of Detroit's water system begins in 1836, when the city purchased the Water Works. For the next century, a booming, industrializing Detroit thrived, growing and expanding into region surrounding the city. The Detroit Water and Sewerage Department (DWSD) system and infrastructure grew along with it, serving as the backbone for regional expansion.

Suburbanization in the southeast Michigan region skyrocketed in the latter half of the twentieth century, largely in response to urban economic decline and growing racial tensions. Suburbanization in southeast Michigan offers a prime illustration of the migration of white people from urban centers to more racially homogenous suburban regions—a trend that was deepened through federal and local government policies that incentivized different groups to move or stay in place.

Before suburban areas could be created and established, the DWSD would have to extend the system infrastructure to those places. In this way Detroit “subsidized” the suburbs. This was brought up as another example of why Detroiters today are further alienated from GLWA's control of the formerly Detroit asset. The city enabled the development of suburbs by building the system—but during the bankruptcy process the city was deemed incapable of operating

the resource and, therefore, benefiting from the incredibly valuable asset. Between 1955 and 1973, 51 municipalities were added to Detroit's water system.⁷⁸ While jobs moved to the suburbs, in the city, population numbers plummeted, the job market shrank, and poverty and segregation grew. Since development does not occur where infrastructure is unavailable, the very existence of the suburbs depended on Detroit.

Today, the regional water system serves 3.8 million people—over one third of Michigan's population. Over 80 percent of people served by the system live outside of Detroit.⁷⁹

In 1977, Detroit was sued by the EPA for failing to meet the newly amended Clean Water Act.⁸⁰ While many public systems found themselves struggling to meet newly imposed federal regulations, Detroit's case was unusual in that the process to create a mutually agreeable compliance schedule between EPA and DWSD was protracted over 37 years, during which DWSD was "overseen" by a federal judge. While this time proceeded, some Detroiters explained that they felt this process distanced the influence of community members from the operation and function of the DWSD even though the process was one designed to ensure water quality and public health outcomes.

Another court decision that Detroiters have described as unfair and arbitrary was the "1999 Rate Settlement Agreement," which obliges Detroit to pay for 83 percent of the costs associated with several combined sewer overflow facilities, leaving the suburbs responsible for only 17 percent.⁸¹ As detailed in Section II of this report, this unfair arrangement has resulted in considerable expenses for Detroit and is still in place today. This agreement was part of the 37-year court-mediated process. This agreement is not felt to have served the interests of Detroiters and the DWSD relationship with suburban retail clients. It is characterized by many Detroiters to be an arbitrary division of responsibility and an unjustified separation of components of a system that services Detroit and suburban users.⁸²

During the latter period of EPA oversight, the DWSD continued to accumulate debts to manage and operate the system. Some of this debt financed the needs to meet environmental standards. However, some of the debt instruments were exceptionally and unnecessarily risky—carrying fees and costs that were not associated with traditional bonds. In order to shift to more secure bonds DWSD took out 'refinancing bonds' as a form of 'refinancing.' By 2012, 40 percent of DWSD revenue was going toward debt service. However, this is not to say that these management decisions ruined and degraded the value of the DWSD system.

With more than 2,700 miles of transmission and distribution mains and 3,000 miles of sewage collection pipes, the DWSD system is one of the city's most valuable assets.

There is an emphasis on Detroit working to better its regional area, but also to provide national leadership in effectively and innovatively tackling the task of building water security and access.

Conclusion

The layers of social, political, and environmental issues that have contributed to the inequitable distribution of power and resources in southeast Michigan demand a multidimensional response. It is our intention that by offering a preliminary explanation of those issues, we can highlight a path forward for Detroit that is socially, economically, and environmentally sustainable.

It is important to note that the solutions offered here are preliminary, and we hope that this report will lay the groundwork for further efforts to realize water security and the benefits it provides to environmental quality and public health. In crafting and implementing multidimensional solutions to Detroit's problems, community support and input is crucial. As we expand the base of participation in this project to expand and diversify, this report has openings for a range of parties and interest groups to collaborate to develop strategies that foster lasting benefits throughout the service area.

The report offers solutions that are tailored for Detroit but also responsive to nationwide patterns of expanding water insecurity. With this design there is an emphasis on Detroit working to better its regional area, but also to provide national leadership in effectively and innovatively tackling the task of building water security and access.

The problems discussed in this report are not insoluble, and inaction is not an option. Choosing not to respond to the pressing inequities at hand only passively enables the continuation of today's system, which, if left unchecked, will likely worsen existing problems: increasing water and sewerage bills, contaminated water, and failing infrastructure accessibility, and

correspondingly, poverty and insecurity.

We envision a different path forward for Detroit and the region—one where vital resources are fairly distributed, where the region's residents can enjoy a dignified life in health communities, and where lasting economic and social equality is fostered and nurtured.

SECTION I

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INSTITUTIONAL RELATIONSHIPS: THE GREAT LAKES WATER AUTHORITY AND THE DETROIT WATER AND SEWERAGE DEPARTMENT

Institutional Relationships: The Great Lakes Water Authority And The Detroit Water And Sewerage Department

THE DETROIT WATER SYSTEM reached a point of crisis in the period leading up to the bankruptcy, but the issues which produced that crisis have a long history. The restructuring of city's finances and assets during the bankruptcy proceedings could have offered an equitable path forward— one that allowed for the fair distribution of power and resources in the region. However, the current arrangement perpetuates, rather than amends, these deep-rooted, historical inequities governing the distribution of water in Detroit.

During the bankruptcy negotiations, Detroit's emergency management, under the leadership of Kevyn Orr, eventually decided that DWSD would be regionalized into a regional water authority. This section discusses the details of that deal, showing that by failing to ensure water affordability and infrastructure improvements, as well as unfairly allocating system costs to Detroit, the current agreement codifies historical inequities.

Under the new regional system, the City of Detroit has a service agreement and two lease agreements (one for water services and one for sewerage services) with the Great Lakes Water Authority (GLWA), a public corporation created in the fall of 2014 under a US Bankruptcy Court order.¹ GLWA is a quasi-governmental entity and therefore does not require direct supervision by locally elected officials.

The creation of the GLWA and the service and lease agreements were politically expedient solutions that were folded into the city's bankruptcy proceedings. Examining the agreements that resulted from these negotiations reveals significant weaknesses that prevent the entire region from realizing the equitable and sustainable system it needs.

In this section, we first discuss the context of folding the DWSD into the city's bankruptcy proceedings, the primary antecedent of which is the creation of the GLWA and, in turn, the city's service and lease agreements. Second, we identify five key structural flaws in the GLWA service

and lease agreements. We argue that the current agreement perpetuates, rather than amends, the historical inequities governing the distribution of vital resources in Detroit.

DWSD and the Detroit Bankruptcy Negotiations

It has been argued that DWSD should not have been included in the bankruptcy proceedings in the first place. Bankruptcy law governing municipal bankruptcy, unlike corporate bankruptcy, does not involve the liquidation of municipal assets to settle debts. Rather, in the context of municipal bankruptcy, the scope of negotiations is limited to annual revenue and expenses.

DWSD's debt was included in the calculation of Detroit's total municipal debt, even though DWSD served a region much greater than the city of Detroit. Detroit was only a fraction of the water department's service area, but its debt was attributed to Detroit alone. In his 2013 analysis of the calculation of Detroit's municipal debt, Wallace Turbeville calls attention to the:

Additional \$5.8 billion is debt [that is] owed from the Water and Sewerage Department, which serves in excess of three million people all across southeastern Michigan (roughly 40 percent of the state's population). The debt is payable from the fees charged for that service rather than from city resources. This is debt of an enterprise that reaches far beyond the city and is not a direct obligation of the city's budget. Thus, asserting that the total bond amount is a liability of the city is not appropriate.²

Despite arguments like this one, DWSD was included in negotiations, and what should have been one of Detroit's greatest assets became one of its biggest liabilities.

When the city was under state-imposed Emergency Management, several of the city's assets and



Image from the film *I Do My Dying*. Courtesy of Kate Levy, available online at detroitmindsdying.org

real estate—which could have laid the foundation of future economic development and growth—were considered properties whose value could be used in creditor settlements. For example, Detroit's waste collection and public lighting systems were both privatized.³

Another example is the city's settlement with Syncora—one of the city's bond insurers—whereby the firm was granted development rights to just under 12 acres of east riverfront land, where it plans to develop 2.2 million square feet of mixed-use space.⁴ In total, Syncora claimed a \$333 million debt from Detroit, which was settled with \$44.8 million in new debt, development rights to riverfront land, a long-term lease to operate the Detroit-Windsor Tunnel, a long-term lease of Grand Circus Park parking garage, and development rights to the former Detroit Police Department headquarters 250,000 square foot building.⁵ Another bond insurer, Financial Guaranty Insurance Corporation, was granted development rights to the Joe Lewis Arena, an area of about nine acres, where the firm plans to build a hotel.⁶

The selling-off of municipal assets during the Detroit bankruptcy negotiations speaks to the way in which municipal fiscal distress can be beneficial to

the private sector, and to private sector developers in particular.

The Detroit Water and Sewerage Department constituted one of the city's most valuable assets, and its fate was up for negotiation during the bankruptcy proceedings. One possibility was to privatize the utility. Another was to regionalize the system, creating a new regional authority. This was not a new idea—there had been efforts to transfer the asset to a regional authority for some time.

One such attempt occurred in the state legislature in 2010, when State Representative Kurt Heise campaigned to put DWSD into regional management and operation, introducing House Bill 4112 in January 2011.⁷ Rep. Heise introduced an equivalent bill, House Bill 4009,⁸ in January 2013. Neither of these legislative attempts to transfer DWSD to a regional entity gathered enough interest or support to move forward.

There was another attempt at regionalization included in the EPA case proceedings. On March 27, 2013, the US District Court Judge Sean F. Cox issued the court opinion and order ending the protracted 1977 lawsuit between EPA and DWSD.⁹ Cox had dismissed the city's earlier request to dismiss the suit and ordered a team of

administrators and officials to meet and create a plan that would enable DWSD to meet the environmental regulatory standards of the Clean Water Act. This group came to be known as the "Root Cause Committee" and met between September 2011 and March 2013.¹⁰ In March 2013, the Root Cause Committee submitted a final plan proposing a new operational model for DWSD that centered on the creation of a regional authority to operate and manage DWSD.¹¹

In the case's closing proceedings in March 2013, Cox found the Root Cause Committee's submissions adequate to end the suit, deeming the 2011 administrative consent order a "sufficient mechanism to ensure sustained, compliance" with federal environmental regulations.¹² However, on the matter of creating a regional water authority, the judge ordered that the court lacked the authority to transfer DWSD assets to a regional authority given its limited role in enabling DWSD to meet federal compliance. The court's opinion explained,

Even if this Court had the authority to order what is now being proposed, the Court would not do so for multiple reasons. Arguably, if the Court were to order or approve the transfer of one of the City of Detroit's largest assets, at this juncture, that could potentially force the City into bankruptcy or have other highly undesirable consequences. If the City of Detroit and/or its regional customer communities wish to pursue the creation of a regional authority, they may do so through the political/legislative process.¹³

However, during the bankruptcy negotiations—which began just weeks later—the possibility of regionalization re-emerged. The prospect of transferring valuable water and sewerage utilities to quasi-governmental authorities or private entities is a national trend—one that follows an even longer practice internationally. In 2011, for example, Pontiac, Michigan signed a service agreement which transferred management of their water system to United Water, a subsidiary of the global water firm Suez.¹⁴ Similar institutional restructuring of public water and sewerage systems has occurred in many places, including Montana, Indiana, Arizona, and Kentucky.¹⁵

Generating revenue for local governments by transferring ownership of water and sewerage infrastructure can be appealing for local governments—but it is equally, if not more, appealing for the entities who benefit from control of the asset. Nationally, the private sector value of structures associated with water supply, sewage, waste disposal, public highways, and streets are incredibly high.

At the time of Detroit's filing for bankruptcy, DWSD constituted one of the city's most valuable assets. With Detroit and the DWSD in crisis, on April 7, 2014 Emergency Manager Kevyn Orr put out a Request for Information for private contractors interested in managing the system.¹⁶ While Orr was receiving bids for privatizing the system (leasing or selling), he was also negotiating with suburban representatives about regionalizing DWSD under a new regional authority.

Terms of the Lease and Services Agreements

Ten months into bankruptcy negotiations, a plan to transfer DWSD to a regional authority—the newly created Great Lakes Water Authority—was approved by the court. Leasing a system is one option for transferring ownership to quasi-governmental entities, as the prospect of an annual lease payment can be appealing to local governments struggling with local revenue crises.

Under the current agreement, GLWA leases Detroit's suburban infrastructure for \$50 million per year for 40 years.¹⁷ The agreement, finalized in 2015, requires that Detroit continue to manage and maintain its municipal water system under a new, limited entity: DWSD Retail (DWSD-R).

The lease payment—the \$50 million annual payment, \$13.5 million of which comes from Detroit, as the payment is considered a "common-to-all" cost—is held in a fund belonging to the Authority. That fund is used exclusively to maintain Detroit's water and sewerage infrastructure, to pay debt services associate with those improvements, or to contribute to the common-to-all improvements in the system.

Suburban customers—not users who live in suburbs, but the suburbs themselves—are "wholesale customers" of GLWA, rather than being wholesale customers of DWSD as was the case under the previous arrangement. Suburban municipalities purchase water and sewerage services at a wholesale rate and sell it to suburban residents with a retail markup. Just as DWSD used to do, GLWA sells water to suburban municipalities at a price that strictly covers the cost-of-service. The suburbs then add a retail price when selling to residents to cover their own costs. Each suburb sets its own markup and keeps its own revenue.

GLWA also assumed responsibility for DWSD's bonded indebtedness and committed to putting \$42.9 million dollars towards DWSD pensions over the next eight years, as well as committing to an additional \$26 million annual payment as an annual return on equity in recognition of the city's ownership of the system.¹⁸



Image from the film I Do My Dying. Courtesy of Kate Levy, available online at detroitmindsdying.org

The Agreement also created a GLWA board, which, in 2015, included six members: two appointed by the Detroit mayor, one each by Wayne, Oakland, and Maycomb counties, and one by the Governor. In November 2017, Flint rejoined GLWA and the city's agreement with GLWA states that the governor's appointee for the board will resign and the governor will appoint a Flint resident to the seat.¹⁹ Any major decision—including the appointment of the authority's general manager; approval of rates, fees, and charges; issuance of debt; approval of budget; and adoption of procurement policies—requires supermajority approval.

GLWA operates and manages suburban water and sewer lines and as well common-to-all assets within Detroit, like the wastewater treatment plants and some CSO basins.²⁰ These costs are shared among all the regional municipal customers and Detroit—more about how cost are shared with in the agreement is detailed below.

The GLWA lease agreement also allocated \$4.5 million in 2014-15 (and 0.5 percent of base budgeted operating revenues in years thereafter) to

fund a Water Residential Assistance Program (WRAP). WRAP is intended to provide assistance to indigent customers throughout the region, and again, is described in more detail below.

The terms of the service agreement and two lease agreements were decided behind closed doors and without meaningful and sufficient consultation with Detroiters or their elected officials. As a result, the process has received substantial criticism, with critics citing the tension between emergency management decision making, community accountability, and democratic participation.

An analysis of the terms of the agreements reveals that the creation of the Great Lakes Water Authority (GLWA) and the resulting lease and service agreements are clearly weighted against the interests of Detroit. Instead of an ownership and governance structure that clearly delineates responsibility and authority, the void of representative democratic practice created during the bankruptcy and emergency management permitted a complex and inequitable transaction structure that has incredibly important, long-term impacts on the city of Detroit.

Points of Concern

The DWSD/GLWA agreement poses serious threats to the environmental, social, physical, and economic well-being of Detroit and of Detroit's residents. The following discussion outlines the principal ways in which in this agreement puts the city at a financial disadvantage and threatens Detroit's access to safe and affordable water and sewerage services.

Primary concerns with the terms set by the lease agreement fall into five categories:

1. The agreements are not based on an adequate valuation of the DWSD system, and correspondingly, the annual lease payment is inadequate.
2. The allocation of costs within the agreements is unfairly burdensome for Detroit and does not take regional inequities into account
3. The current agreement inhibits the development of a rate-setting structure that effectively recovers costs while ensuring equity, efficiency, and sustainability.
4. Several aspects of GLWA's governance structure stifle Detroit's voice in making decisions about its own system and make it difficult for Detroit to rework the terms agreement should conflict arise.
5. The agreement fails to adequately address the issue of water affordability and effectively safeguard the human right to water for residents across the region.

Lease payment

During the GLWA negotiations, Detroit's water and sewerage infrastructure was not properly appraised, and the resulting lease payment is arbitrarily and detrimentally low. While the exact value of the system will not be determined until it is officially appraised, it is apparent that the \$50 million annual lease payment is insufficient.

Importantly, the \$50 million annual lease payment is a cost shared by all wholesale customers—including DWSD-R. In FY 2018, Detroit will contribute \$13.5 million to the \$50 million lease, leaving the suburbs to cover only \$36 million.²¹

The vast inadequacy of a \$36 million lease payment is especially clear when considering the value of similar systems. The 2017 sale of Aquarian Water to Eversource Energy offers a helpful example. The \$1.7 billion sale combined Connecticut's largest water and energy companies, and Eversource paid \$880 million is cash for Aquarian's system, also assuming \$795 million in Aquarian's debt.²²

FIGURE 1

THE FLAWED GLWA AGREEMENT



Detroit's regional system is much larger than Aquarian's, which serves 625,000 people.²³ Detroit's system serves 6.25 times as many people: about 3,900,000. As of 2016, the debt carried on the Detroit system was much larger, \$5,548,324,503.00.²⁴ However, that debt breaks down to \$1,450.00 per user, as compared to \$1,272.00 per user in the Connecticut utility. So, in other words, when adjusted for system size, the debt burden is quite similar.

In the Connecticut example, \$880,000,000 was paid to the Owner representing the market value over the indebtedness, that's \$1,480.00 per user. Applying that same market analysis to Detroit gives a market comparable value of \$5,385,600,000.00 over the indebtedness. That is over \$5 billion in equity that was not reflected in the GLWA transaction

As we describe in the "Recommendations" section of this report, imputing a reasonable lease rate of interest to the rental structure, Detroit should be

paid four percent annual interest on the value of the asset, or \$215.4 million per year. That is 5.8 times what it is currently being paid.

The fact that negotiations led to a lease and not an outright sale of the infrastructure allowed the lease payment to be set at so low a cost. While a sale would have required a comprehensive assessment of the asset's value, negotiating a lease payment did not. The circumstances of the creation of the regional water authority—namely, that Detroit was in the midst of a municipal bankruptcy and under emergency management—gave rise to a transaction that would not have occurred under normal circumstances and is, correspondingly, blatantly inequitable.

This issue is at the center of the inequities with the agreement. In order for DWSD to be able to supply affordable, high quality water to all its customers, the annual lease payment must reflect the value of the system as it is assessed through proper review. This is the fundamental issue with the agreement as it stands today, and until it is addressed, a truly just and sustainable water system in Southeast Michigan cannot exist.

Cost allocations

Additionally, the allocation of costs within the agreement is unfairly burdensome for Detroit and does not take regional inequities into account.

Under the lease agreement, some costs of operating and improving the regional system are considered “common-to-all,” meaning that DWSD-R and wholesale customers contribute to them, while others are “Detroit-only” or “customer specific.” Under the currently system, the ways costs are allocated within these classes is inequitable to Detroit and endangers the sustainability of its water and sewerage infrastructure.

For example, under the current arrangement, the \$50 million/year lease payment is a common-to-all, meaning that Detroit contributes \$13.6 million to the lease payment on its own system. The proposed Water Residential Affordability Program (WRAP) is also a common-to-all cost.

On the other hand, substantial costs associated with the combined sewage system are largely left to Detroit.

The enormous expense of the combined sewage system is rooted in with the way in which sustained historical neglect of necessary capital improvements to Detroit's infrastructure has left the city with an antiquated combined sewer system (CSS). In a combined sewer system, sewage, greywater, and stormwater all mix within the same system and are all transported to the same wastewater treatment plants. This type of sewerage system is no longer built, and converting a

combined sewer into a separate sanitary sewer—in which stormwater is separated from sewage and greywater treatment—is exceptionally expensive. This is one of the reasons why over 800 communities in the United States continue to depend upon combined sewerage systems.²⁵

In the regions, 3,800 miles of sewer are in Detroit and 8,770 miles in suburban areas. Of the 8,770 miles of suburban sewer, only 970 miles are combined sewer systems, while the vast majority of Detroit's sewer is combined sewer.²⁶

The primary issue with CSS is environmental risk of combined sewage overflows (CSO) and the substantial costs of preventing those overflows. During wet weather, the sewerage system takes in an increased volume of stormwater, in addition to greywater and sewage. This additional intake of stormwater can make the volume of water exceed the system's capacity. In these cases, there is a risk for the sewers to overflow, and for the overflow—containing sewage and industrial waste—to be discharged directly into freshwater. These overflows present acute environmental and public health threats, and municipalities with combined sewer systems are required by the EPA to take protective measures to avoid CSOs—or else incur heavy financial penalties. These preventative initiatives can take the form of either “grey” or “green” CSO management.²⁷

The measures required by the EPA are incredibly costly, and under the current agreement, those costs are inequitably allocated to Detroit. The current agreement requires that Detroit covers 83 percent of the costs associated with several of the grey CSOs leased by the regional system, while the wholesale customers cover only 17 percent.²⁸ There is one exception—The Belle Isle CSO Retention Basin— which is paid for by Detroit exclusively. This 83/17 split is rooted in the unfair and non-transparent “1999 Rate Settlement Agreement,” implemented while DWSD was under federal oversight.²⁹

Additionally, Detroit is required to cover 83 percent of the costs of future grey CSO management facilities which are deemed to “primarily serve Detroit”— a distinction which is unclear considering that the systems are, literally, interconnected.³⁰ In addition to covering 83 percent of the costs with existing grey CSO control facilities and perhaps that of new facilities, Detroit is also left to cover 83 percent of the expenses associated with the construction of new green CSO control systems.³¹ The new facilities are hugely expensive, with those initiatives currently planning costing over \$50 million in capital investment over the next four years.³² Those costs will likely increase over the course of the lease, given increased pressure on

the system due to climate change, as well as continued deterioration of Detroit's system.

Leaving Detroit responsible for 83 percent of CSO costs is inequitable for a variety of reasons. The logic behind the 83/17 split is likely rooted in the fact that most of the combined sewage system is in Detroit; however, though Detroit does contain the majority of the combined sewage system, the system is a regional responsibility.

One reason for this is that Detroit acts as the backbone of the region, housing highways, universities, hospitals, and governmental buildings that are used by people throughout Southeast Michigan. Much of the drainage entering the system—and contributing to CSOs—is related to the large impervious services required for those amenities. The costs pertaining to other entities that serve the region but are located in Detroit, such as the wastewater treatment plants are common-to-all; this ought to be the case for CSO costs as well.

Additionally, the fact that Detroit has an antiquated system such is because of the sustained historical neglect of Detroit's system, which is a product of the way in which Detroit enabled suburban growth, described in Section I. Thus, the costs associated with maintaining the city's aging infrastructure are not the responsibility of the Detroit alone.

The consequences of the inequitable allocation of costs under the current agreement are detrimental to the well-being of Detroit's system and the fiscal well-being of Detroit. To cover the costs of CSO management, the city is forced to charge high unmetered drainage fees to DWSD-R customers. Currently, DWSD-R customers pay a monthly fee of \$750 per impervious acre.³³ These drainage fees are not only burdensome for Detroiters, but as described in Section III, actively threaten the livelihood of community spaces; the existence of many Detroit churches, for example, is endangered due to their inability to afford the fees.³⁴

Under the current agreement, costs—particularly the lease payment and CSO costs—are allocated in unfair ways, which does not take into account the ways that historic divestment and austerity has created lasting expenses associated with Detroit's crumbling infrastructure. The sharing of costs under the GLWA agreement could have provided a vehicle to amending the region's unfair history, but rather, given the current structures for sharing costs, perpetuates it.

Rate structure

Pricing policies are a key component in determining utility provider's cash flow, and what is factored into the calibration of rates plays a key role in determining equity. However, the current GLWA/DWSD agreement inhibits the develop-

ment of a rate-setting structure that effectively recovers costs, while ensuring equity, efficiency, and sustainability.³⁵

Notably, GLWA inherited DWSD's historic rate-setting structure. As evidenced by the DWSD's massive debt and use of shutoffs in its final years, that rate-setting structure failed to effectively recover costs and ensure the human right to water. With the creation of the GLWA, those rate-setting structures were not reconsidered.

Through the lease agreement, GLWA has ultimate authority to establish rates for both Retail and Wholesale customers.³⁶ However, DWSD-R assumes this responsibility, along with billing and collections as detailed in the services agreement, but is ultimately subject to GLWA's approval.³⁷ Notably, DWSD-R will be subject to the same rate increases as other wholesale customers; customers with greater or similar economic conditions than Detroit.³⁸ On the other hand, there are suburban wholesale customers that could reasonably sustain a rate increase, especially if there was in effective affordability plan in place to serve the needs of low-income people in those jurisdictions. After all, GLWA's base water rates, inherited from DWSD, are low as compared to similar places.

Importantly, the agreement contains obstacles to fundamentally reconsidering GLWA's rate-setting structure, which would be required for effective cost-recovery, as well as for guaranteeing affordability, conversation, and economic development.

The four percent cap on rate increases under the current agreement is one of these. The current agreement sets a rate increase cap of four percent for the first 10 years of the 40-year lease agreement.³⁹ Depending upon the future decisions and practices of the GLWA, the four percent cap could present significant limitations recovering costs, and in particular, for funding a water affordability program and improvements on Detroit's urban infrastructure.

Note that the percent cap on rate increases has a notable exception. The rate increase can exceed four percent if the increase is required to meet legal obligations GLWA and DWSD-R.⁴⁰ Costs associated with meeting the terms of the long-term compliance schedule between DWSD and EPA are quite high—perhaps as high as \$1 billion.⁴¹ Given the likelihood of increased regulatory issues with the regional water infrastructure, it is probable that rates will likely increase beyond four percent, which may pose threats for affordability in low-income communities.

At the same time, the four percent cap may also hamper the ability to fund large-scale improvements on Detroit's urban infrastructure: the most antiquated in the region. Because GLWA and

DWSD-R plans together to address capital needs of their shared system, a four percent cap on other wholesale customers can limit the amounts available to meet the needs. Lacking funds for large-scale improvements is particularly burdensome for Detroit, as their urban infrastructure is in most need of improvement. Failing to improve Detroit's infrastructure not only further marginalizes the city, but also compromises the sustainability of the entire regional system.

Additionally, the four percent rate cap is based upon an insufficient valuation of the true costs of water affordability. Notably, the cap factors in the costs associated with the currently-in-place Water Residential Assistance Program (WRAP).⁴² As is empirically evident in Detroit, water poverty persists despite the WRAP program. Not only is the WRAP plan inadequate to meet the needs of Detroiters, it's inadequate to meet the needs of struggling customers across the region. The costs for an effective program well exceed the figure used to determine the asserted adequacy of the four percent rate cap. This point is discussed particularly at the latter part of this section, as well as Recommendation 5 in this report.

GLWA rate-setting structure ought to be reconfigured to include the full costs of necessary improvements to the infrastructure that needs it most as well as a robust affordability plan. After all, the core purpose of the utility is to deliver palpable water to all customers in the service area and discharging and treat sewage from customers in service area, while also meeting legal obligations and assuring the fulfillment of the human right to water. Figuring these elements into the cost-of-service model, and relatedly, rate-setting structures, may result in increases above or below four percent, which may vary based on resources available from wholesale customers. Of course, any increase in water rates must be accompanied by a robust water affordability plan.

Governance

Several aspects of GLWA's governance structure stifle Detroit's voice in making decisions about its own system.

One issue is that the structure of the GLWA board limits the power of Detroit in making decisions about its own system. As previously mentioned, the board includes two members appointed by the Detroit mayor, one member each by Wayne, Oakland, and Maycomb counties, one appointed by the Governor who will resign and be replaced by a Flint resident.⁴³ A supermajority is required for all major decisions, including the appointment of the authority's manager; approval of rates, fees, and charges; issuance of debt; approval of annual

operating budgets; and approval of capital improvement plans.⁴⁴

It could be argued that Detroit has "more" influence on the board relative to other whole sale customers based upon two seats designated for mayoral appointments. However, with only six seats and five votes required to approve influential actions, the degree of the city's influence on board decisions is moderated. As these non-Detroit parties' interests are more closely aligned with each other and much less inclined to address the historic inequities represented by the existing infrastructure system, Detroit's influence in the GLWA is greatly diminished.

To underscore the severity of the imbalance of the GLWA board, one only has to look at the September 20, 2017 draft of the GLWA "One Water" partnership agreement.⁴⁵ The partnership appears to create a second governance structure comprised of 84 named municipalities, the Great Lakes Water Authority, the city of Detroit, the Michigan Department of Environmental Quality, the Southeast Michigan Council of Governments, and consultants representing any of those members.

The responsibilities of the partnership closely parallel those of GLWA board. Among the common goals of the partnership is a commitment to work toward consensus on each issue. Depending on how "most of the membership" is defined, this is remarkable. A majority vote—whether super or simple majority strengthens more homogeneous suburban interests with the representation of smaller concerns relevant to the city of Detroit and Flint. This parallel governance structure further dilutes the voice of DWSD, Detroit, and Flint which comprise only a tiny fraction of the parties at the table. The regional authority has over eighty voices behind it, while only a few representatives speak to the needs of Detroiters.

This echoes the long history of Detroit being marginalized in their influence of decisions about a system designed, maintained, and expanded by the city. The board structure, as well as extra-board organizations such as the One Water Partnership, stifle Detroit's influence in an environment that has already devalued their asset and investment.

The limitation of Detroit's voice in the GLWA board and extra-board organizations echoes the trend of limitations on democratic representation during the bankruptcy process. In fact, although the city's bankruptcy plan was approved by the federal court, the city's autonomy over its own finances has yet to be returned to the city three years after its bankruptcy process. The Michigan State Treasury's Financial Review Commission must approve city budgets and contracts.⁴⁶ Al-

though the city's subjection to this Commission could come to a conclusion as early as March or April 2018, the agency that the mayor could exercise or the agency that could be exercised by city representatives on GLWA board is understandably limited. Currently, these are very official inhibitions placed on city agency, and even after the official inhibitions are dissolved, it's feasible to imagine a persistent trail of policies left in the wake of the Commission's suppression of Detroit's democratic voice.

Another issue with the agreement's governance structure pertains to the consequences of Detroit either failing to meet the terms of the agreement or opting to withdraw from the authority. It is very possible that Detroit will be unable to meet its obligations under the GLWA agreement, especially given the lack of clarity in the way costs will be shared in the system. This is in part due to the way in which within the lease and services agreements, the GLWA possess important power—but it does not lease the entire infrastructure system within the geographic boundaries of the city. Rather, the documents outline what has become an entirely artificial division between what "parts" of the infrastructure are Detroit's and which parts are GLWA—from the size of pipes to vehicles and office space.

Also described in these documents are the complexities of how this distinction will be managed. Detroit's parts and GLWA's parts are associated with different costs and different upgrade projects. However, there is little detail on how these responsibilities will be distributed between Detroit and GLWA. CSO costs are a notable exception. And, more importantly, there is little specification on how decisions regarding these plans will be made. It appears that a central point of making these distinctions will come through DWSD-R's obligation to submit a budget and capital improvement plan to GLWA every year.⁴⁷ The documents contemplate the need for sharing and coordinating efforts to share obligations to what is, in effect, a single system. However, it seems that concretized decisions on how to share these duties will be run through GLWA board decision-making, a mechanism wherein Detroit's voice is severely limited.

The artificial division of what is a single system can create significant difficulties for DWSD-R to meet its obligations under its services agreement with GLWA. For example, if GLWA increases rates then DWSD-R along with other customers will have new revenue requirements to meet. For DWSD-R there are these increased revenue requirements, but also there is the variety of unknown additional costs for management of its own local system—a system that is the same as that of the GLWA de-

spite however detailed the agreements' lists of specific assets are. One issue, for example, is the lack of transparency about the ways that costs associated with capital improvement plans or long-term compliance schedules will be shared.

Barriers to Detroit meeting its obligations under the lease are compounded by the city's poor credit ratings, and correspondingly, inflated costs for debt service. Additionally, the utility has substantial challenges in recovering revenues, given the high proportion of low-income people in the DWSD-R service area.

The terms of the agreement are incredibly unfavorable for Detroit should the city fail to meet the terms of the agreement. DWSD-R can lose its ability to set rates, issue bills, or establish collection practices, and instead GLWA could take over those duties.⁴⁸ Additionally, should conflict arise between GLWA and DWSD-R, dispute resolution occurs through an arbitration process that blocks access to courts.⁴⁹ And if the city opts to withdraw from the Authority, Detroit can forego future lease payments.⁵⁰ As the agreement states, that any such withdrawal will not terminate this Lease or affect the Assignment and Transfer, or affect the Revenues collected by the Authority.⁵¹

Ultimately, the agreement limits Detroit's agency, which is a serious concern considering how unfavorable the agreement is for the city. Leases ought to reflect clear and fair contractual agreements. In the case of the GLWA/DWSD agreement, the agreements more closely resemble an unfair sale. In fact, as states in the agreement, "Notwithstanding the foregoing, this Lease shall constitute a bill of sale from the City to the Authority pursuant to which the city conveys all of its right, title and interest in and to the personal property that is part of the leased water facilities."⁵²

DWSD is not like other GLWA wholesale customers and the governance structure and the relationship between the city and the GLWA should reflect that. Not only did the city own and create the asset, the city was also the regional hub for economic and social development; the agreement's governance structure ought to reflect that.

Affordability programs

The current water affordability plan in Detroit is the Water Residential Assistance Program (WRAP), which provides funds to subsidize repayment on overdue accounts.⁵³ Under WRAP, which began operating in Detroit in March 2016, DWSD customers at or below 150 percent of the federal poverty line are eligible to receive a \$25 monthly bill credit and have their debt frozen for 12 months. Customers who successfully make monthly payments for one year are then eligible

for a \$700 credit towards their debts. Additionally, customers exceeding 120 percent of average household water consumption can receive a free home water conservation audit and, based on the audit, may receive up to \$1,000 for repairs. Customers must have a delinquent bill or shutoff status to be eligible.

DWSD did not appear to anticipate the assistance program's weaknesses. DWSD director Gary Brown insisted that WRAP is "a very robust, comprehensive program that addresses all of the issues I've seen in the past that causes people to fall out of a plan." However, by August 2016, just five months into the assistance plan's implementation, program funds ran dry, and customers who sought assistance were turned away.⁵⁴ In 2017, out of 18,749 completed pre-applications, only 6,402 households were enrolled.⁵⁵

Activists and experts in affordable utilities point out that the plan is markedly inadequate and fails to address the root issues of water affordability and prevent shutoffs. It is important to note that WRAP is an assistance rather than affordability plan; it offers a short-term, insufficient solution for residents whose bills are simply unaffordable.

As described by Lynna Kauckeck, a senior organizer for Food & Water Watch, "These assistance programs are not helpful for people who have real, long-term affordability problems... These programs are going to continue to fail because it's not really addressing the problem."⁵⁶ The sheer degree of shutoffs following the implementation of the plan also speaks to its inability to address the issue of water unaffordability. People want to pay their bills, and they want to have access to water, and a true affordability plan would make this possible.

In 2005, Roger Colton worked with Michigan Welfare Rights Organization (MWRO) and DWSD to design a Water Affordability Plan (WAP).⁵⁷ Colton's WAP proposed a rate structure based on DWSD users' income (we propose a regional version of this plan in Section IV of this report). Income-based plans address the root causes of unaffordability and ensure that water and sewerage rates do not exceed an affordable burden. The plan also recommended abolishing late payment fees and educating residents about water conservation.

Economist and utility services expert Roger Colton has explained that the issue of water affordability affects everyone, not only those who are unable to pay:

Providing water affordability assistance is critically important from everyone's perspective. From the customer's perspective, having affordable water often is the primary factor that determines such

fundamental issues as whether someone can stay in their home or retain custody of their children. From the water provider's perspective, it makes little sense to issue bills that people cannot afford to pay. In such circumstances billed revenue does not translate into collected revenue. The water provider ends up spending more and more money in a less and less successful effort to collect its bills. From a community's perspective, unaffordable water service drives up health care costs (borne by everyone), impedes childhood education (thus continuing the cycle of poverty), destabilizes neighborhoods, and makes communities less competitive to businesses seeking places to locate. From an environmental perspective, unaffordable water service frequently (if not generally) prevents local governments from investing in the infrastructure improvements to meet clean water objectives. As can be seen, unaffordable water is not simply a poverty issue. It is a health care issue, a housing issue, an education issue, a business development issue, an environmental issue. Any reasonable local official must recognize that unaffordable water service is a problem that must be addressed and resolved.⁵⁸

Additionally, as Colton's 2005 Water Affordability Program (WAP) states:

In the energy arena, ample research has found that many low-income customers pay their home energy bills at significant personal sacrifice to themselves and the members of their households. Low-income consumers may forego buying medicine, food, insurance, and dental care. Low-income consumers have been reported to heat their homes with "alternative fuels" including used tires, newspapers, clothing and furniture in order to pay for their heating bill. Low-income consumers have been reported to pawn their possessions, abandon their homes for days or weeks at a time, and reduce their heating to unsafe levels in order to pay their heating bills. These consumers are no less "payment troubled" than their counterparts who simply do not pay their bills. The same results would arise with water bills. In sum, payment troubles are a manifestation of the affordability problem. They are not the problem itself.⁵⁹

Residents are not choosing to fall behind on payments or to go without water. Bills are simply unfeasible for low-income Detroit residents to pay.

WRAP's failure to address the underlying issue of water affordability creates a system that is perpetually in crisis. The creation of the GLWA thus failed to address the crucial issues of water affordability in Detroit by providing an underfunded regional assistance, rather than affordability, program. Detroit lost its most valuable asset and failed to secure affordable water for its residents.

Conclusion

The current GLWA lease and services agreements with DWSD and other related agreements with DWSD that preceded the GLWA contains multiple areas for concern. The cluster of agreements have legally installed structural constraints on GLWA and DWSD. The design process and deliberation on terms have not been adequately transparent or created in a context of public debate and influence. The features are of great consequence for DWSD because of the consequences of failure to meet any of its obligations. Designs for DWSD's obligations are problematic and can be argued to be difficult for DWSD to meet. Some people have discussed the documents design to "set Detroit up for failure." In identifying key structural design flaws in this section, we are able to locate structural barriers for DWSD and its customers to maintain even a modicum of local control and benefit from the regional asset.

For example, the cost sharing and rate structure do not allow for many probable scenarios that DWSD could experience. For example, the terms also are not designed to account for a robust affordability program that addresses long-term revenue challenges for Detroit residents that are unable—not unwilling—to pay. The problem of the system providing water access, environmental quality, and public health throughout the region is a profound problem and inhibits the mission of DWSD—but also inhibits the mission of the GLWA. These structural features between DWSD and GLWA are also relevant for other retail customers in the regional service area. More prosperous and other struggling retail customers should also inspect and critically appraise their agreements with GLWA. Some have suggested that the design of GLWA is to consolidate its unilateral control of the regional system.

At this stage of analysis, the intention of GLWA is not clear. However, structural flaws and severe consequences of retail customers to meet GLWA service agreements should be rigorously reviewed and the decision making around these agreements should be made available for such review.

It is likely that the lease payment is based upon a deflated value of the DWSD system. It is not at all clear that the amount of the lease payment was tied to a consideration of the value of the system. This is an area for concern since the lease payment constitute an important part of DWSD's capacity to meet its obligations under the agreement. The lease payment is also an important part of other retail customers to structure their rate structure and fulfill their missions to ensure high-quality drinking water and adequate wastewater services and ensure their system's contribution to regional environmental quality and public health.

Second, the way in which costs are allocated within the lease agreement is not clear. In this lack of clarity and transparency there is limited room for analysis. However, the separation is seen to be arbitrary and unfair by institutions and residents throughout Detroit. Designing a separation of operation, management, and maintenance tasks across the regional system and the portion of the system within Detroit is exceptionally complex and the rationale of this separation is unclear. This is particularly evident in the way in which the lease payment is common-to-all, while costs pertaining to CSO management are not.

Thirdly, the agreement contains provisions which inhibit the development of a rate and pricing structure that ensures equity, sustainability, and efficiency. Rates may need to increase by more than four percent (the limitation imposed by the GLWA/DWSD agreements) to provide for these areas. Again, in this case, the rationale of the 4 percent cap is not clear.

Fourth, the governance structure of the GLWA board limits the influence of Detroit and ability to influence decisions about its own system. Flaws within the governance of GLWA are also of consequence to other smaller financially struggling cities within the region.

SECTION II

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RECOMMENDATIONS

Recommendations

DETROIT HAS THE POTENTIAL to become a national leader in the primary infrastructure challenge of the 21st century: securing economic and physical access to clean and safe water and sanitation services. Water insecurity is experienced across the country—the pervasiveness of the problem indicates a systematic failure. Water access includes service that is affordable, physically accessible, quality and safe drinking water, and wastewater services that promotes environmental quality and public health. These are challenge through the country and within the GLWA service area.

The previous section presented a structural analysis of challenges that face DWSD and GLWA and identified specific areas of concern. Here we detail the start of strategies that could address those systemic design flaws and can promote improved water access in Detroit and throughout the GLWA service area.

There is a vast array of strategies and solutions that could be implemented to advance water access. There are strategies that enjoy strong or weaker political will. Strategies have to be designed, aligned and implemented such that a balance is struck between pragmatism and larger scale structural change. An additional factor that should ultimately determine which strategies to implement and their design should be ensuring that reaching water access is also advancing the broader need for social equity.

Some of the following recommendations will have far-reaching immediate benefits for people lacking basic access to in-home clean water and sanitation, while others will have benefits in the long-term, laying the groundwork for the development of resilient systems, protected against economic and climactic risks. No singular strategy can respond to Detroit's complex problems, and even these six constitute a preliminary list, offering a catalyst for further development, study, and participation.

These recommendations support solutions crafted by local experts, including community leaders, activists, and academics. They have been an in-

credibly valuable resource that has too often been neglected in the creation of actionable policies. Correspondingly, meaningful relationships with community stakeholders should be integrated into the development and implementation of these strategies.

Moratorium on Residential Water Shutoffs and Redesign Decision Making Regarding Water Shutoffs

Rationale

We propose instituting an immediate moratorium on residential water shutoffs until such time adequate processes are established that ensure a shutoff is not implemented when a person is unable to pay. The moratorium should also be in place until there is a clear sufficient process to distinguish between accounts that are able or unable to pay. As part of this strategy and generally there needs to be a form of due process in the course of a water shutoff. Processes should enable effective and easily navigable processes to challenge to shutoff orders and access financial support programs. This strategy will be greatly eased with the recommendation of designing a robust and effective water affordability program which is immediately follows here. During of the period of that moratorium, it is essential for GLWA, DWSD, and other service providers to seriously consider the objections raised by the Detroit community and international agencies and implement long-term, dramatic changes to service disconnection practices. Any policies that pursue service disconnection to incentivize payment should be designed to apply only to situations in which there is an ability and unwillingness to pay. This will disqualify the vast majority of service disconnections.

Implementation

A prohibition on shutoffs in the situation of inability to pay can be implemented by either reframing GL-

WA's customer service policies. Alternatively, this protection can be realized by implementing state or national legislative reforms that forbid water shutoffs when the inability to pay is documented. Implementing an effective affordability plan and certain customer protections—described later in this Section—should eliminate the need for punitive collection practices in the first place. However, in light of the massive impact of shutoffs on residents in Detroit, it is important to decisively and permanently eliminate shutoffs until more well-designed consumer protection measures are in place.

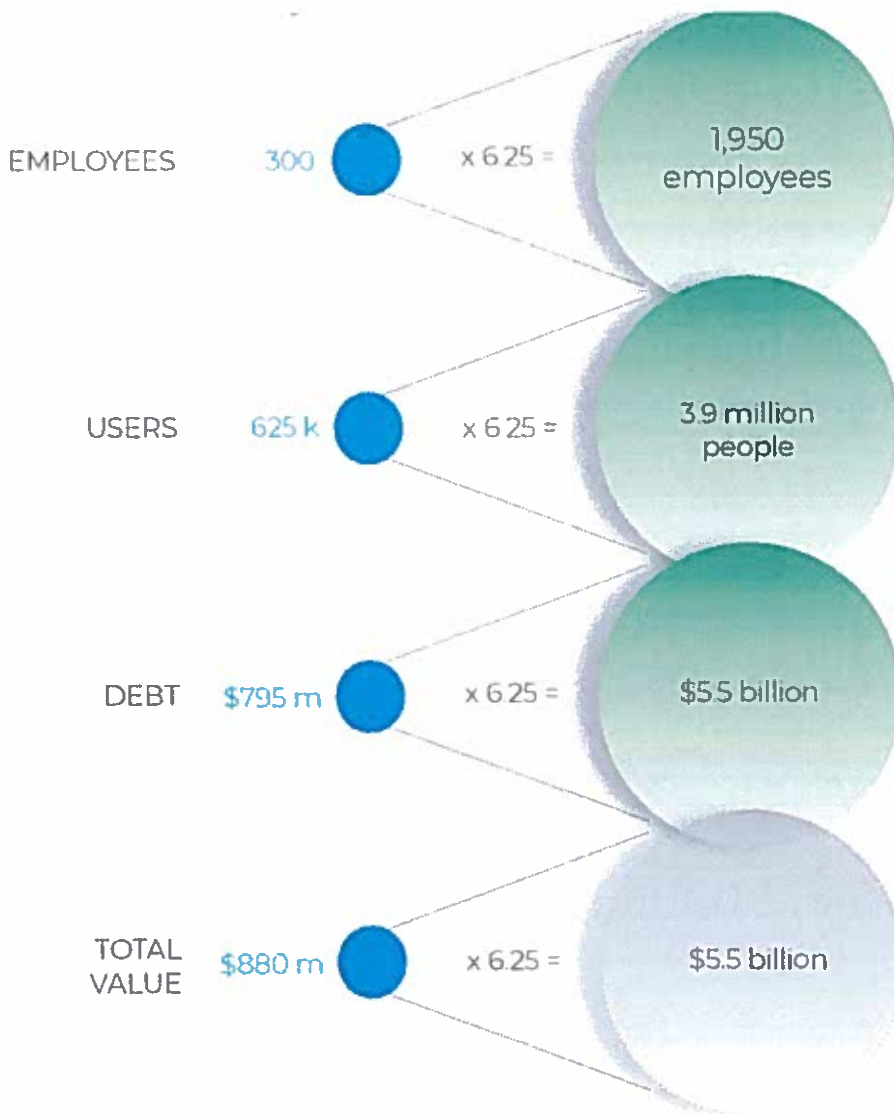
Appraise the Annual Lease Payment

Rationale

It is possible that the \$50 million/year annual lease payment and other payments made to Detroit and DWSD-R do not adequately reflect the value of the system GLWA operates and manages. The payment is considered a common-to-all cost, Detroit contributes to the lease on its own system. In fiscal year 2018, Detroit will contribute \$13.6 million to the lease on its own system.⁶⁰ It is not entirely clear if Detroit's \$13.6 million is intended to cover services and operations to GLWA.

FIGURE 2

THE FINANCIAL IMPLICATIONS OF CALCULATING ACTUAL MARKET VALUE OF THE REGIONAL WATER & SEWER INFRASTRUCTURE



Implementation

We recommend that rationale and calculation of the GLWA lease payment be made available for public review. Additionally, a comprehensive appraisal of the regional system may be warranted to assess the degree to which the lease payment adequately reflects the value of the asset.

This is a non-trivial part of our recommendations—enabling public disclosure of the rationale and basis of calculation of the lease payment is necessary. The circumstances of the DWSD system and its relationships to GLWA, and GLWA itself, are not those of a transaction between a public system and an investor owned utility. This complicates a process of valuation. Additionally, the process of valuation of water and sewer systems is exceptionally complicated and techniques of valuation of drinking and wastewater systems is not well researched or publicly available. Not only would a valuation need to be done, but the valuation process itself would need to be carefully considered and be made transparent and subjected to a period of public comment and expert review.

This does not require abandoning the agreement. Rather, the agreement can be reworked with an eye aimed at achieving lasting regional equity. Any renegotiation process of the lease payment or other provisions in the lease and services agreements ought to be transparent, fair and balanced, evidence-based, and periodic.

Consider Legislative Reforms

Rationale

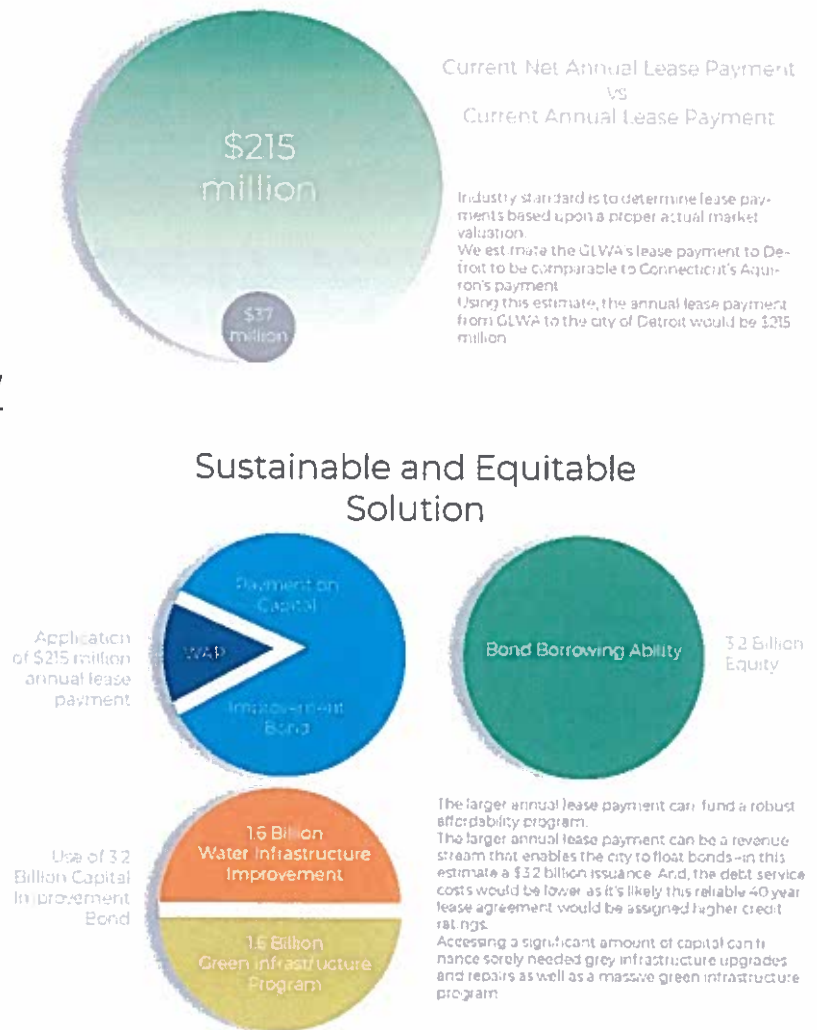
Plans for a more equitable and sustainable water and sewerage system rests on the firm conviction that every person has the right to safe, affordable, and accessible water. This tenant should be reflected in law. In 2012, California became the first state to legislatively recognize the human right to water by requiring that every person has the right to “safe, clean, affordable, and accessible water” for consumption and sanitation.⁶¹

Current legislation does not adequately protect the fundamental human right to water. Effective legislation would safeguard those rights. In order to ensure durable and widespread access to drinking and wastewater services, there is a need for policy that safeguards access to clean, affordable water and clean surface water. These general principles and aspirations are reflected in different ways in the following examples.

While most of these recommendations would be

FIGURE 3

SETTING AN ACCURATE LEASE PAYMENT BASED ON FAIR MARKET VALUE; AND A SUSTAINABLE AND EQUITABLE SOLUTION



implemented on a state or local level in Michigan and throughout the GLWA service area, these suggestions provide a model for national legislation, as well as initiatives that can be applied in other states and local communities across the country.

Access to safe and affordable water and wastewater services is a problem that has multiple structural elements and no one piece of legislation can accomplish all that is needed. The samples below

reflect a partial menu of strategies and targets.

Components

Important work has been done on this front, and we recommend further inquiry into the feasibility and development of potential legal and legislative strategies.

The National Coalition for Legislation on Affordable Water (NCLAWater) is current advocating for a variety of measures at the state and federal levels.⁶² Founded in Detroit, the coalition is comprised of local, state, and national organizations advocating for legislation that guarantees "comprehensive access to safe, affordable drinking water and sanitation – the human rights to water and sanitation." They require that water be accessible, safe, and affordable.

Those efforts include legal protections for access to water, water billing and rates, water quality, and citizen oversight and transparency. NCLAWater's Michigan statewide legislative package includes the following examples.

Examples of Legislation

The following bills could work in different ways to advance the realization of water access by explicitly stating that right, requiring transparency from service providers, ensuring affordability, and implementing consumer protections.⁶³

Access to Water

HB 4291 Michigan Access and Affordable Water Act

Creates the "Accessible and Affordable Water Act," which would require that all state depart-

ments and agencies employ all reasonable means to adopt certain policies to ensure that water is affordable and accessible as long as those policies do not affect eligibility for federal funds.

HB 4360 Water Access

Requires access points for safe drinking water be available in places where residents are not supplied municipal water hook-ups.

Water Billing and Rates

HB 4393 Shut-Off Protections

Institutes shut-off protections by creating categories of individuals protected from shut-offs (seniors, families with young children, pregnant women and people with disabilities) and providing for clearer notices about potential shut-offs.

HB 4392 Regulation of Water Rates by MPSC

Grants the Michigan Public Service Commission the power and jurisdiction to regulate rates, fares, fees and charges of any water or sewer authority in the state. According to a Legislative Service Bureau research memo from 2015, water utilities fall under the purview of 45 other state public service commissions.

HB 4394 Affordability

Addresses the water rate structure that unduly burdens low-income residents by amending the Social Welfare Act to create a residential water affordability program within DHHS in order to ensure that water bills are based on household income.

NATIONAL COALITION FOR LEGISLATION ON AFFORDABLE WATER GUIDING PRINCIPLES

NCLAWater was created to adopt federal and state legislation establishing affordable water and sanitation services, ensuring that every person has access to safe, affordable water and sanitation. No person shall be denied access to basic water and sanitation services based on ability to pay, race, age, or gender. All state and local criminal law provisions that criminalize lack of access to safe affordable water and sanitation are a violation of constitutional due process and equal access guarantees. Drinking water and sanitation services and facilities must be accessible at home, in schools, clinics, low income and elderly housing, and to homeless persons; Safe drinking water must be free from microbes, parasites, chemical substances, heavy metals and radiological hazards that constitute a threat to a person's health. Sanitation facilities must ensure the health and physical security of the person. [Affordable water] [m]means that every person can pay for drinking water and sanitation without sacrificing another basic, essential human need – such as food, health care, housing, transportation, education, and emergency communications. No person shall be denied access to basic water and sanitation services based on ability to pay, age, disability, gender, or race. Drinking water and sanitation must not comprise more than 2.5-4% of monthly income for low-income persons.

HB 4389 and HB4390 Decriminalization

Decriminalizes the act of re-connecting water service (because of a shut-off due to inability to pay) from a five-year felony to a civil infraction for a first or second offense and a misdemeanor for the third offense.

HB 4388 Water Meters

Requires that a provider shall not make water or sewerage service to a residential customer contingent on the installation of an advanced meter or use of an advanced meter function.

HB 4712 Billing

Allows some customers, who have not received a water bill by ten days after the end of the billing period, to no longer be responsible for paying that bill if he or she contacted the department in writing twice and the department did not respond within 30 days.

Water Quality

House Bill 4125 Lead and Copper Action Level

Establishes criteria for the action level or engagement of state departments as it relates to the Lead and Copper Rule.

HB 4124 Program for Schools and Child Day Care

Establishes water testing and interventions for schools and child day care centers, as well as repair and replacement of sources of lead contamination.

HB 4120; HB 4372, 4378, 4379 Water Quality Testing

Requires water quality testing at regular intervals for schools, colleges, universities, nonpublic schools and hospitals.

HB 4206 Pre-Flushing

Stipulates that the DEQ and all water authorities must be compliant with EPA guidelines and mandates that procedurally no entity, including the DEQ, will be permitted to use pre-flushing as a water sample collecting method.

HB 4179 Loans to Local Government

Allows the Drinking Water Revolving Fund to give out low-interest loans to local governments to replace lead service lines.

HB 4175 Drinking Water Loan Fund

Creates the Drinking Water Emergency Loan Fund, which would allow for the owner or operator of a public water supply to apply for emergency funding for remedial purposes if it is found there is a threat of contamination to its drinking water.

HB 4339 Lead-Free Pipes/Fittings

Updates the definition of what constitutes “lead free” for purposes of pipes and pipe fittings. This legislation brings the definition in line with the Federal Safe Drinking Water Act language. Currently, the statute allows for pipes and pipe fittings to contain up to 8 percent lead. This bill reduces that amount to 0.25 percent.

Citizen Oversight and Transparency

HB 4201 and HB 4214 MDEQ Citizen Oversight Commissions

Restores a gubernatorial-appointed citizen oversight commission on water quality.

HB 4375 Water Ombudsman

Establishes a Water Ombudsman to advocate for residents throughout the state concerning water-related issues.

HB 2121 Rate Transparency

Increases transparency by requiring water providers to submit an annual report to DHHS regarding water rates and how they were determined, along with information about shut-offs in the previous year.

Revise Terms of Relevant Agreements

Rationale

The existing GLWA lease and services agreement—and other decisions regarding cost allocation—may reflect an undervaluation of the asset that is leased to GLWA. Furthermore, the structure of cost allocations between GLWA and DWSD seems to place uneven obligations—placing what is possibly an unfair burden on DWSD. Because the cost allocations were designed without public review and open consideration many groups feel that the distributions are arbitrary and unfair. We recommend responding to those inequities by a thorough review of the rationale in designing the cost allocation structure and reconfiguring any agreements in light of the results of such a review. In lieu of the ability to conduct assessment of documents, an appraisal of the system could further be used to determine to some extent whether the cost allocations are warranted.

As detailed in this report, the current GLWA lease agreement could unfairly burden Detroit. It is well known that many Detroit residents and institutions feel they have been left out of decision making regarding the creation of GLWA and, for a longer time, decision making regarding DWSD. Given the recent crises in water access and longer-standing problems with water and environmental quality it is

clear that despite intention, the people of Detroit have not been primary beneficiaries of high-quality drinking and wastewater services. Some of the recommendations here are necessary inquiries that will enable greater coordination between residents and local institutions and the institutions that govern the provision of drinking and wastewater services that have significant impacts on public health and environmental quality—for everyone in the GLWA service area.

- May reflect an undervaluation of the system or other errors in calculating the lease payments or cost allocations
- May allocate costs in ways that unfairly burden some for Detroit.
- Limits the capacity of decision making in rate-setting structure—a primary means to balance what are frequently competing demands of rate setting structures including economic development, equity, efficiency, and sustainability.
- GLWA governance structure limits the ability for Detroit to exercise influence in decisions about the regional system that it owns. Additionally, the GLWA governance structure limits the representation of other retail, residential, and commercial customers that face barriers to water access including access to clean water, affordable water, and wastewater services that promote environmental and public health
- Fails to address the crucial issue of water affordability and provide durable solutions to water access

While the perception that the regional water authority and the negotiation of its governing agreements were problematic, these recommendations do not require discarding the current agreements entirely. Instead, there are ways to maintain the current fundamental structure while improving upon selected areas.

Establishing a more equitable cost-sharing model

We recommend reframing the way costs are shared in the agreement to make the agreement more transparent, fair, and equitable. The particular ways in which the sharing of costs should be reconfigured is grounds for further inquiry, but will likely involve making CSO costs common-to-all and not requiring Detroit to contribute to the lease payment on its own system. Other cost-sharing practices should be reframed along these lines, realizing that the agreement offers a mechanism for actively amending historical inequity in the region, ensuring the sustainability of local infrastructure, and ensuring the human right to water.

FOR FURTHER INQUIRY

In order to effectively advocate and realize state and federal legislative change, funds allocated for the development of a large scale organizing campaign is required. Such a campaign would involve the merging of philanthropic, advocacy, policy, and grassroots groups. The organizing structure of the Atlantic Philanthropy's Affordable Care Act Implementation Fund and the foundation's coordination of activities offers an example of a viable model.

Reframing Rate-Setting Structures

The way in which rates are calibrated in utility services is key to the equitable distribution of water and other resources. The current lease agreement, however, contains provisions that inhibits the development of a rate-setting structure that ensures equity, efficiency, and sustainability.⁶⁴

GLWA inherited DWSD's historic rate-setting structure. As evidenced by the DWSD's massive debt and use of shutoffs in its final years, that rate-setting structure failed to effectively recover costs and ensure access to drink and wastewater services. With the creation of the GLWA, rate-setting structures remain inadequate to ensure water security throughout the GLWA service area.

We recommend appraising and studying alternative rate structures tailored to correct for any unfair terms in the cost-of-service model—including costs of affordability and substantial improvement to Detroit's into water rates. This may dictate water rate increases above the four percent cap—a cap which is currently posited in the agreement), and those increases may vary for different wholesale customers. Importantly, any increase in rates must be accompanied by a robust affordability plan which comprehensively meets the addresses the needs of low-income customers. Rate structure changes should also be represented of the way in which affluent communities may be more able to absorb rate increases than low-income and financially stressed ones.

The particulars of this renewed rate structure present grounds for further inquiry. We recommend conducting extensive research into the development of a new, equity-focused rate-setting structure in Detroit.

Reworking the GLWA Governance Structure

There are three primary ways we recommend reworking the GLWA's governance structures.

The first concerns the GLWA board. There are currently six members on the GLWA board: two appointed by Detroit mayor, one from each suburban county (Wayne, Oakland, Macomb), and 1 appointment by the governor, soon to be replaced from a representative from Flint. A super majority is required for major decisions about the system. In order to ensure the equitable representation of Detroit in decision-making about the regional system, we recommend increasing the number of representatives from Detroit.

Second, we recommend renegotiating and refining the terms of what should happen should Detroit fail to meet its obligations under the agreement. As discussed in this report, if the terms of the agreement are kept in place—including a rate increase cap, cost sharing, and calculations that are not based on adequate affordability plans—it is possible that Detroit will be unable to meet its financial obligations. Should Detroit fall short of its obligations under the agreements, the city can lose its rights to set rates, issue bills, and establish collection processes, also forgoing future lease payments should the city withdraw. Finally, if conflicts arise, disputes can only be settled through arbitration processes which block access to courts.

We recommend reworking those terms of the agreements to ensure fair and equitable conflict resolutions. Detroit ought to have recourse to legal resources should conflict arise, and should maintain its right to make decisions about the delivery of water sources to Detroit residents. Determining what those terms would look like constitutes grounds for further inquiry by way of fair and democratic processes.

Creating Structures to Fund an Affordability Plan

One of the fundamental issues with the current DWSD/GLWA arrangement is that it fails to comprehensively address the issue of water affordability. Water affordability ought to play a key role in the terms of the agreement. We recommend reframing the agreement to include a comprehensive income-based affordability plan, described in the proceeding Recommendation.

Implementation

We have defined some problems with the current agreements, but this does not mean it is necessary to abandon the agreements in full. Rather, the agreements ought to be reframed by way of a fair

renegotiation process; provisions for doing so are outlined in the agreement. Specifically, the agreement calls for periodic review of rate-setting and cost-sharing practices.⁶⁵ Those periodic reviews can provide a mechanism for substantially reworking the terms of the agreement.

In order to ensure the establishment of a fair and equitable solution, it is necessary that the renegotiation process be:

- **Transparent:** Key decisions that have been made in creating the current structure of GLWA and DWDS need to be made available for public review and analysis. Going forward, the process to make key decisions should be made available for public review and analysis. The decision making process should allow for
- **Fair and Balanced:** Specifically, it is important the voice of Detroit and its residents and other groups within the GLWA service area are fairly represented when reworking the terms of the agreement.
- **Evidence Based:** There are many aspects of the agreement which merit further inquiry. The system ought to be comprehensively reappraised and cost-allocation practices reconsidered. It is crucial that experts be consulted throughout the review process, and that the reframed agreement be not only fair, but evidence-based.
- **Periodic:** Considering the multidimensional nature of the problems with the current agreement, reframing the agreement just once will be unlikely to achieve comprehensive water equity. The process ought to be iterative, with progressive changes and incremental progress throughout the duration of the lease, with an eye aimed at fair and workable solutions.

Implement a Comprehensive Water Affordability Plan

Rationale

We recommend implementing a comprehensive income-based water affordability plan. The principles of a plan were outlined by the Water Affordability Program (WAP) designed by Roger Colton and presented to the Detroit City Council in 2005.⁶⁶ The Colton plan has been endorsed by many in Detroit including Detroit-based water and welfare activist groups.⁶⁷

It is necessary to implement a comprehensive affordability plan in order to safeguard access to affordable and clean water for all customers in the GLWA service area. The current assistance-based affordability plan currently in place is underfunded.

Background on Affordability

The affordability or unaffordability of home utility bills, whether for energy or for water and sewerage services, is most often measured by the percentage of household income spent on the bills.

Notably, there is variability in the affordability thresholds. The EPA deems water affordable if the average cost of water and wastewater bills constitutes less than 4.5 percent of annual pre-tax median household income: 2 percent for wastewater (and CSO controls), and 2.5 percent for potable water.⁶⁸ Colton's plan sets the affordable burden on a sliding scale of 2-3 percent, depending on household income.⁶⁹

In order to ensure that water rates are below the affordable burden, the "EPA continues to encourage communities to consider and adopt rate structures that ensure that lower income households continue to be able to afford vital wastewater services."⁷⁰

Instituting a comprehensive water affordability plan is in the best interests of all customers in the district. As Colton's 2005 plan discusses, "while the unaffordability of water/sewer service certainly poses a social problem, it manifests itself as a business problem as well."⁷¹ This is because unaffordability contributes to higher instances of unpaid bills. If bills were less burdensome, customers would be more likely to pay them, thus avoiding increased costs associated with collections, arrears, and uncollectible accounts.

The Philadelphia Model

In the fall of 2015, Philadelphia became the first major city to adopt an income-based affordability program. Philadelphia's "Income Based Water Affordability Program" (IWRAP) was voted in unanimously by the City Council and began operations July 1, 2017.⁷² IWRAP is designed to ensure that monthly bills are affordable by capping bills at a percentage of the household-income. Philadelphia's plan is newly implemented. The design principles of the Philadelphia plan can be a basis for plans in other cities and provides valuable precedent.

Key Components

To companion a robust affordability program, we propose a rate structure for GLWA that reduces water and sewage bills to an affordable percentage of income. Determining the affordable burden for customers throughout the regions, either by way of a fixed percentage of medium household, a sliding percentage based on poverty level, or by way of another measure constitutes grounds for further inquiry. Determining an affordable burden would require comprehensive information about

average water bill costs and annual income.

Once affordable burdens are determined, an affordability plan could provide affordability assistance by providing fixed credits to GLWA customer's bills. As in Colton's 2005 plan, fixed credits can be calculated by determining (i) the amount of a burden-based payment (for example, 4.5 percent of household income), (ii) the annual bill amount, and (iii) the fixed credit necessary to reduce annual bill to burden-based payment.

There are substantive advantages to this approach. One administrative advantage is that the program works within a fixed operating budget because maximum program coverage is determined in advance— in contrast to existing assistance programs, where many bills go unpaid. Additionally, there is a conservation incentive for the customer, as under the fixed credit model, the credit is provided regardless of the actual bill. If consumption increases, the household pays for that increase.

Implementation

Colton's 2005 Expert Report proposing the Program details an estimated program budget and proposes a cost recovery mechanism. By calculating the affordable burden for customers at various brackets of the federal poverty level and assuming that 40 percent of eligible customers would participate in the program, Colton estimated that total cost of providing fixed credits to low-income customers was \$9,371,427.00.⁷³

We recommend further inquiry in order to determine the cost of implementation of an affordability program throughout the GLWA service area; the figures from the 2005 proposal need to be updated to account for demographic changes and regional implementation.⁷⁴

Additional Proposed Program Components

In addition to detailing an income-based affordability plan based on fixed credits, the program proposed by Colton in 2005 contained two additional components: for "arrearage management" and "water conservation." More recently, Colton authored a water affordability plan for the city of Baltimore, which included an additional crisis intervention component.⁷⁵

These components are viable additions to the water affordability package and we recommend considering including them in the implementation of this plan in the GLWA service area. While the details of these additional programs have not been worked out in this report, they deserve further inquiry at the time of implementing the affordability plan.

Arrearage Management

By participating in the affordability program, an arrearage management program can enable customers to earn credits to reduce pre-program arrears to a manageable level over an extended period of time. This is important because an affordable monthly payment, as made possible by the above proposal, can still lead to an unaffordable total payment considering past payment obligations and late fees. Under the 2005 plan, residents would pay back some of their arrears over two-year period, by contributing 0.5 percent of annual income and remaining in the affordability program. A similar model could be adopted now.

Water Conservation Component

High water usage in low-income households is often due to leaks and faulty infrastructure. A water conservation component in an affordability scheme would allow investments in water conservation to supplement the rate affordability scheme. These investments would go towards the distribution of water conservation kits to residents below 50 percent of the Federal Poverty Level. These kits would include water-saving fixtures, such as low-flow shower heads and faucet aerators, as well as tools for measuring faucet flow and leak rates.

Crisis Intervention Component

Low-income households often lack cash assets to allow them to handle unexpected expenses or loss of income. This is in part due to the high proportion of low-income people who work for an hourly wage and lack paid leave, meaning that unexpected medical or family care needs can result in an abrupt loss of income. These circumstances should not lead to an acute threat to human health and well-being. It is possible for the affordability scheme to include funds set aside a fund to provide crisis intervention assistance to customers on an as-needed basis.

A comprehensive water affordability plan will not only be beneficial in terms of ensuring the human right to water, but will also help create a more robust and sustainable GLWA business model.

- “Going forward” bad debt savings: as some of the ongoing bills for current consumption would (without WAP) result in uncollected funds by GLWA/DWSD-R, and responsibly, the accumulation of bad debt. Addressing the inability to pay by way of an affordability plan would result in reduction in bad debt and general cost savings.
- Reduction in working capital associated with arrears: high, unaffordable water substantially increases quantity of accounts in arrears, which results in additional costs in account

management and collections. A water affordability plan would result in substantial savings in these areas.

Funding the Program

It was proposed that the 2005 Water Affordability Program be funded by a “meter charge” of \$1.00 per month from residential customers, and \$20.00 per month from commercial customers, \$275 for industrial customers, and \$80 for schools, municipal buildings, and housing projects.⁷⁶

In order to calculate the possibility of implementing a similar scheme for the proposed regional affordability plan, updated numbers on quantities of customers in the various classes listed above is required.⁷⁷ We recommend further inquiry into the possibility of funding the affordability plan with meterage charges.

Another funding option is to incorporate affordability into the cost-of-service model. Currently, the cost of service for customers is determined by considering costs associated with Operations and Management (O&M) and Capital Improvement Programs (CIP).⁷⁸ GLWA calculates rates for retail and wholesale customers by determining the costs associated with these two areas (O&M and CIP) and the average consumption and numbers of customers. Delivery of affordable water could be assumed in calculating the costs of Operations and Management, in which case an affordability plan could be a part of the cost-of-service model.

Legal Issues

Some have objected to implementing an income-based water affordability plan in Detroit on the grounds that it violates Article 9, Section §31 of the Michigan Constitution, commonly known as the Headlee Amendment.⁷⁹ The amendment postulates that new taxes require voter approval.

Headlee is relevant for the case of an income-based affordability plan given the way that local governments have occasionally disguised new taxes as fees. The objection holds that the meterage fees— a proposed mechanism for funding the affordability plan— constitute a tax imposed on GLWA customers. In claiming this, critics often appeal to the 1998 *Bolt vs. City of Lansing* case.⁸⁰ The Bolt case yielded that a stormwater service charge imposed in the city of Lansing, MI constituted a tax that requires voter approval.

For a variety of reasons, this objection is flawed. An income-based affordability plan funded by meterage fees does not require the implementation of taxes and thus does not require a voter approval.

The inapplicability of Headlee and the *Bolt* case to an income-based affordability plan is outlined in a June 2017 Memorandum produced by the ALCU

of Michigan.⁸¹ The Memorandum appeals to the way in which the criteria for a fee constituting a tax—as enumerated in the *Bolt* case—do not apply to the issue of water affordability.

The key issue in *Bolt* was whether a stormwater service fee on all Lansing property owners was a service charge or tax. The court held that the stormwater fees constituted a tax because:

- they did not serve a regulatory purpose.
- they were not proportionate to the necessary costs of service.
- paying the charges was involuntary.

As the Memorandum enumerates, these criteria do not apply in the case of a water affordability plan funded by meterage fees.

The court determined that because the fees were generating revenue and did benefit the public at large instead of individual customers, that they did not have a regulatory purpose. In the case of WAP, the money collected does not generate revenue—it does not flow into the general budgets of the city or the utility, but is used specifically to fund the affordability plan.

Moreover, as the ACLU analysis described, “key to appreciating the true nature of charges associated with an affordability plan is the fact that the benefits are not limited to low income customers.”⁸²

These benefits, described previously in this section, include the ways in which the plan enables a higher proportion of residents to be paying customers, thus relieving pressure on the utility associated with unpaid accounts and arrears.

Additionally, in the case of water affordability, unlike the stormwater charges, the costs of the fees do not exceed the cost of the service. Although more data and analysis is needed in order precisely to determine the updated costs of the plan, and corresponding meterage fees, the fees charged to fund the program are intended to simply cover program costs: the expected costs of providing income based credits, the administration of the program, and the costs of additional program (i.e. arrearage assistance, water conversation, crisis management, etc.) The fees are thus not disproportionate.

Finally, the meterage fees associated with water affordability are voluntary, while in the *Bolt* case, there were mandatory—that is, all Lansing residents were required to pay the fee, while in the case of GLWA water affordability, only people who choose to have a water account has to pay the fee. It is incorrect to associate a tax with a voluntary service.

Claiming that the affordability plan violates the Headlee amendment is misplaced considering the key features of a tax, as opposed to a fee.

These attributes of a tax i.e. not serving a regulatory purpose, disproportionality, and involuntariness—were enumerated in the *Bolt* case and do not apply to the case of implementing a regional affordability plan.

Incorporate Basic Consumer Protections into GLWA Policies

Rationale

Many of the relevant problems with drinking and waste water security in Detroit and the GLWA service area are rooted in the lack of basic consumer protections in service providers' policies. In order to curb the inequitable treatment of water customers in the future, we recommend incorporating basic consumer protections into GLWA policies.⁸³

Components

Colton's Water Affordability Program, commissioned by DWSD in 2005, proposed implementing a series of basic customer protections pertaining to DWSD's collection practices. His recommendations pertained specifically to the imposition of late fees, issuance of notices of the disconnection of service, and the negotiation of deferred payment plans for arrears.

In line with Colton's proposal and the needs of the region's water customers, and in conjunction with the Water Affordability Plan outlined previously, we recommend implementing consumer protections in those three areas.

Late Fees⁸⁴

DWSD-R imposes a monthly late fee of five percent for accounts that are overdue.⁸⁵ Similar fees are imposed by wholesale service providers. Late fees disproportionately affect low-income customers. Given that water is simply unaffordable for many low-income households, late fees add additional cost burdens to those who are unable to cover water costs in the first place. In addition, this additional cost burden does not even provide a substantial incentive to pay bills.

As Colton notes, the primary cost of late fees is to compensate for the additional costs associated with overdue accounts. They should not generate additional cash flow or be used for overhead and admin. These include the costs of collections—i.e. postage, phone calls, and required personnel—as well as “carrying charges,” or the costs of the interest on any funds DWSD borrows to cover losses.

Five percent late fee charges well exceed these costs.⁸⁶ Additionally, collection practices do not begin the moment an account becomes overdue, while late fees are immediately and automatically

in place. In this way, late fees often do not correspond with any cost-bearing collection practices.

As Colton remarks, “what the non-cost-based late fee really does is to generate a stream of revenue by charging low-income customers more than it costs to serve them.”⁸⁷ Given the excessive cost of late fees, we recommend either eliminating late fees altogether or reducing them to the actual costs of nonpayment.

Shutoff Notices

We recommend developing customer protections regarding water shutoffs.⁸⁸ This recommendation is a companion with the recommendation to suspend the practice of water shutoffs until the process can distinguish between the ability to pay and unwillingness to pay. Going forward, shutoffs should only be issued when there is a clear demonstrated ability to pay.

Notices must not be issued when there is no intent to terminate service. This has occurred in the past, perhaps because service providers did not have the resources to carry out the shutoffs, or because there was no intent originally.

A time limit must be established for shutoff notices. More specifically, if service is not disconnected within 15 days, the notice ought to be void. This is significant considering the formidable effects shutoffs have on households and the need to plan for them accordingly. This is not possible when a threat of a shutoff exists but is not executed in a predictable, timely fashion.

DWSD should not distribute two consecutive notices of disconnection. Shutoff notices should outline the steps the customer can take in order to avoid termination of services. By sending repeated notices, service providers negate the original purpose of notices in this regard.

Deferred Payment Plans for Arrears

DWSD and many other service providers currently have mechanisms for negotiating Payment Plan Agreements (PPAs) for customers with accounts in arrears, outlined in DWSD’s “Interim Collection Rules and Procedures,” for example. That document describes the way in which DWSD can terminate service for customers who fail to comply with the terms of the PPA and that DWSD is not required to negotiate a second plan. Note that the details of such an arrangement differ for various wholesale providers, who each conceive and implement their own policies. In adherence to Colton’s 2005 WAP, we recommend reframing service providers’ arrearage management procedures in the following ways:

- Renegotiable payment plans: If a customer’s

financial circumstances change during the period negotiated by the PPA, service providers should be required, if the customer requests it, to renegotiate the terms of the plan.

- Encourage reinstatement: If a customer defaults on a PPA, their status can be reinstated (and not under the threat of service termination) if they pay the past-due balance.
- Monthly installments: Arrears should be paid in regular monthly installments, and terms should be extended to ensure that monthly installment payments do not exceed a one-month average bill.

Implement Green Infrastructure Initiatives

Rationale

Green infrastructure can offer a multi-dimensional solution to many of Detroit’s interrelated problems. The potential benefits of green infrastructure are far-reaching, and Detroit is well-suited to become a leader in sustainable urban development.

Note that green infrastructure does not supplant the need for the need of substantial improvements to the city’s traditional “grey” infrastructure. On the other hand, cost savings from the implementation of a green infrastructure initiative can help to fund substantial future capital improvements.

This section considers the specific features that make Detroit a site for green infrastructure projects. There should be additional study and inquiry to identify opportunities throughout GLWA service area.

What is Green Infrastructure?

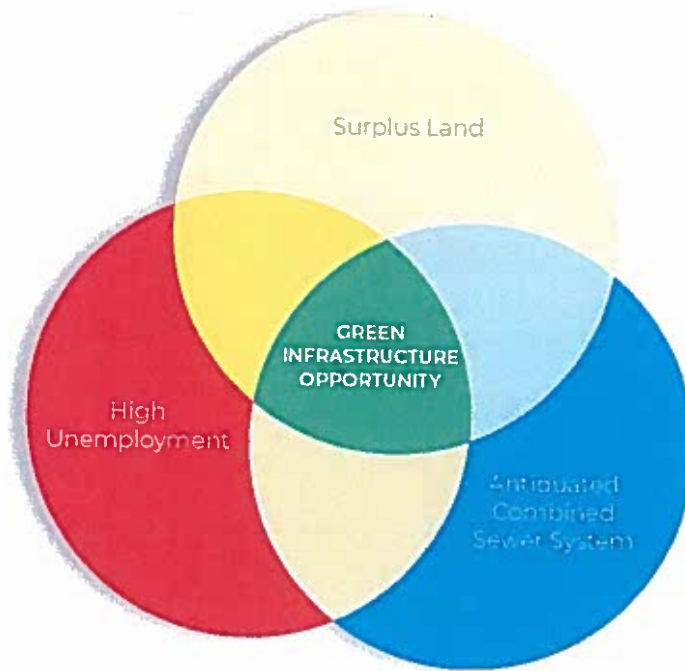
Green infrastructure includes both natural and engineered environmental upgrades that promote water reuse and infiltration into the natural aquifer and prevents combined sewer overflows, which can be harmful to the environment and cause health hazards. A list of green infrastructure installations by type and purpose produced by the US Environmental Protection Agency, these green infrastructure types and analyses are detailed to promote green infrastructure investment nationally.⁸⁹

Green infrastructure diverts stormwater away from the sewer system, offering a simple and cost-effective solution to upgrading the entire regional system. The primary method for doing so involves transforming impervious surfaces.

Impervious surfaces are man-made structures that prevent infiltration of water into the ground. In the built environment, impervious structures include parking lots, sidewalks, and building roofs. In De-

FIGURE 4

GREEN INFRASTRUCTURE OPPORTUNITY



troit, rainwater, melted snow, and other forms of runoff drain from these surfaces into the combined sewer, where the runoff is then treated alongside other kinds of waste.

The natural environment—planted gardens, wooded lots, areas of surface water or low-lying land—are pervious surfaces that permit stormwater to replenish the natural aquifer and do not burden the common sewer system. Green infrastructure reduces the number of impervious surfaces and redirects stormwater that flows off of impervious surfaces to properly prepared green surfaces that can accept the water.

Stormwater that does not enter the combined sewer system does not require transportation to a sewage treatment plant or the labor and chemicals needed to clean it, and it does not need to be transported back in the water service line system. The savings in labor, chemicals, and energy for waste management systems and devices pays dividends on a permanent basis for every green infrastructure installation in which the city invests.

Detroit: An Ideal Setting

There are currently a variety of green infrastructure projects underway in Detroit and the region.

Since 2011, after identifying peak overflow areas, DWSD has led initiatives to plant trees, “green” vacant properties, and disconnect downspouts, among other efforts.⁹⁰ In 2014, the Michigan Council of Governments (SEMCOG) published the Green Infrastructure Vision for Southeast Michigan, which details the way in which implementing green infrastructure practices will have a variety of positive outcomes. Since, DWSD has invested substantially in the development of green infrastructure initiatives.⁹¹ The green infrastructure program proposed in this report complements existing initiatives in proposing larger scale implementation focused on socially conscious infrastructure development.

Detroit has many well-documented challenges to its reemergence as a prosperous and thriving city. Yet some of these challenges become assets in a bold and resourceful green infrastructure strategy. Four of these challenges-turned-assets include:

The city of Detroit and DWSD have a long history of disinvestment in existing infrastructure. This failure to invest has reached an acute stage with litigation fines penalties associated with their outdated combined sewer system, along with increasingly dire health concerns requiring imme-

diate action. Though the implementation of green infrastructure initiatives certainly does not curb the need for substantial improvements to the city's grey infrastructure, green infrastructure represents the lowest cost, highest reward strategy for reinvestment in the aging infrastructure.

The city of Detroit has an unemployment rate of at least eight percent, and many of the job opportunities pay less than a living wage.⁹² The available workforce within Detroit neighborhoods is much higher than the national average. Green infrastructure creates jobs that are distributed throughout neighborhoods, pay a living wage, and can help workers earn skills for future employment.

The combination of population loss, business closure, and business relocation has resulted in an enormous quantity of unused land throughout Detroit that is available for repurposing. The coveted properties in the Midtown area have been assembled by large, wealthy developers with the aid of the city and state, while much of the surplus land is unused, available at very low cost, and in dire need of reinvestment. Vacant land is the vehicle for green infrastructure reinvestment, and its low cost has a dramatically positive impact on the feasibility of installing and obtaining investment return on green infrastructure.

Detroit's nonprofit and grassroots infrastructure is strong and shows a clear commitment to the revitalization of the city. Their knowledge of the capacity and needs of each neighborhood ought to be incorporated into prototypes and programs that are tailored to Detroit's unique potential.

Michigan's Department of Environmental Quality has developed and implemented several extensive green infrastructure projects in the city and the region in recent years;⁹³ the initiatives we propose here complement green infrastructure projects underway in Detroit. These existing initiatives set precedent for the potential of green strategies. What we suggest here is a significant increase in scale of these programs and also principles that should be integrated into current efforts underway.

Green infrastructure can also reduce costs associated with the combined sewer system by lessening the quantity of impervious surfaces, and thus reducing the amount of water entering the system. This diversion of runoff results in savings in labor, chemical, and energy costs, as well as costs associated with preventing combined sewer overflows.

Benefits for Community Sustainability and Wellness

Green infrastructure protects public health as well as the health of the water and sewer system. Installations are designed to permanently divert stormwater from entering the combined sewer sys-

tem or to reduce the flow of water into the combined sewer system, preventing peak flows from breaching the system, through which pollutants to enter streams and rivers. Green infrastructure can work effectively throughout the region to solve the drainage overflow problem, protect the local environment, satisfy EPA mandates, and reduce DWSD operation costs.

Moreover, direct and indirect public health benefits of natural space include:⁹⁴

- Providing space for exercise and respite
- Mitigating urban pollution
- Generating stronger immune systems [through parasympathetic stimulation]
- Improving the health of pregnant women and infants⁹⁵
- Strengthening social ties by providing space for community and family gatherings
- Offering space for children to play and for parents to forge stronger social ties
- Alleviating stresses on social services by boosting public health
- Filtering and redirecting stormwater runoff

Fiscal Benefits

Green surfaces are economically valuable because they improve the efficiency and effectiveness of stormwater management. Establishing a green and sustainable system for the DWSD and the customers it serves could save billions over the next 25 years.⁹⁶

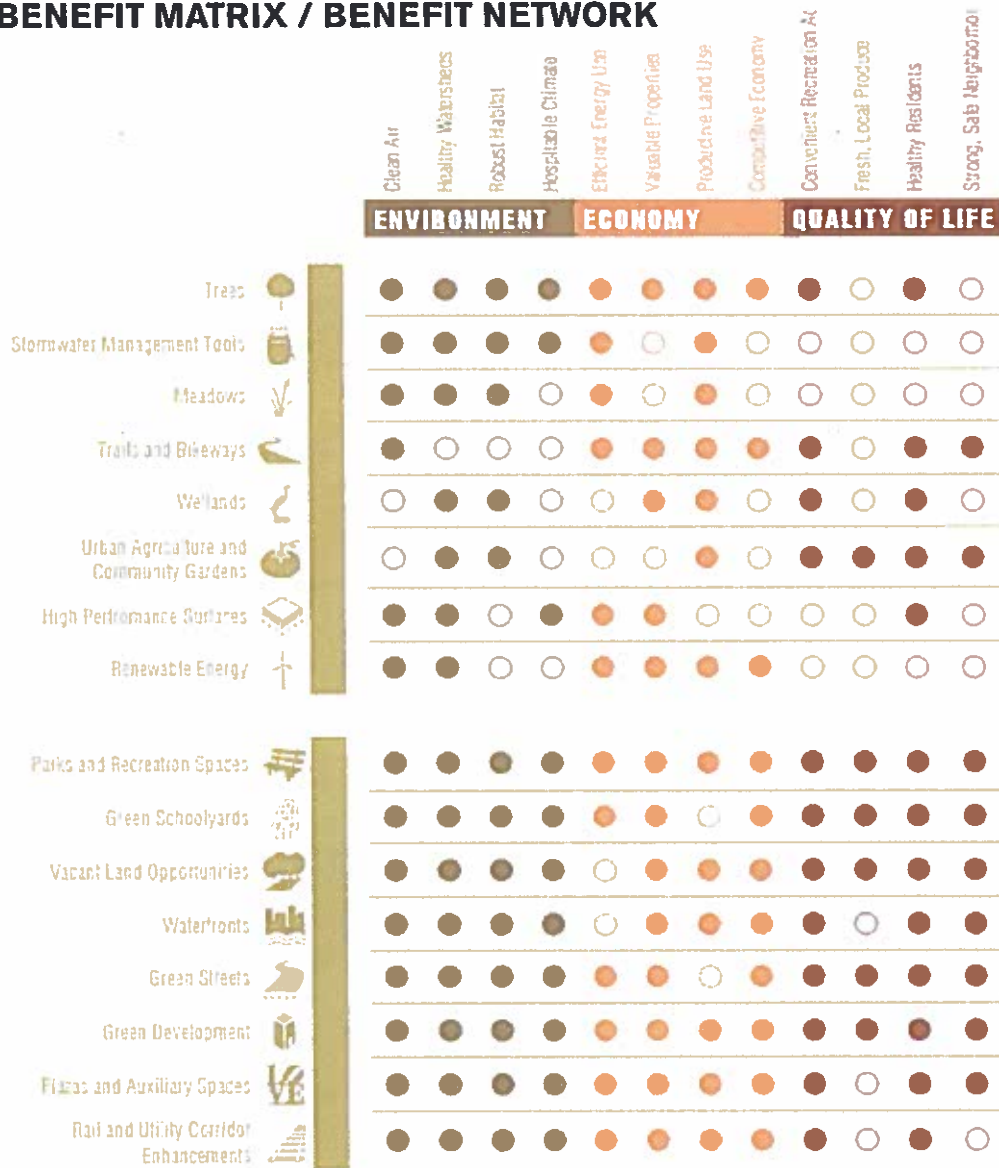
There are a variety of types of cost savings associated with green infrastructure. By relieving pressure on the existing, antiquated water and sewage system, implementing green infrastructure curbs the need for substantial capital improvements to grey infrastructure.

Relatedly, by reducing flow into the system, and thus the volume sent to wastewater treatment plants, there are additional savings in energy, labor, and treatment costs. Reduction in flow to the system also helps to circumvent combined sewage overflows (CSO), thus avoiding fees and fines associated with CSOs and environmental breaches.

Green infrastructure plans in Philadelphia and New York City offer examples of how innovative green infrastructure initiatives can yield substantial fiscal benefits. In Philadelphia, a comprehensive green infrastructure approaches estimated to cost just \$1.2 billion over the next 25 years, compared to over \$6 billion for "gray" infrastructure, a term used for the concrete tunnels created to move water.⁹⁷ Similarly, in New York, "every fully vegetated acre of green infrastructure would provide

FIGURE 5

BENEFIT MATRIX / BENEFIT NETWORK



total annual benefits of \$8.52 in reduced energy demand, \$166 in reduced CO2 emissions, \$1,044 in improved air quality, and \$4,725 in increased property value.⁹⁹ Even after the initial investment, green infrastructure continues to pay dividends for decades.

Moreover, green surfaces also offer important economic value in making neighborhoods more attractive for residents and investors. Innovations include aesthetically pleasing improvements to neighborhoods, planting tree lawns, growing low

maintenance plantings and swales, urban gardening, building and maintaining wet detention (ponds) and dry detention, (low-lying excavated land) that is been planted with prairie grass.

Additional fiscal benefits of green infrastructure include higher employment, improvement in the tax base that supports schools and infrastructure, and a more equitable economic balance within the city of Detroit and the surrounding region.

Green infrastructure can curb the costs of storm water overflow. It is not only better for the envi-

ronment and better for neighborhoods, it also directly mitigates fiscal strain on the water department and on customers.

The current gray infrastructure is ineffective and expensive to maintain, but it also accrues additional expenses in fines from the EPA for violating Clean Water Act regulations.⁹⁹ As described in Section II and in Recommendation 7 in this section, the costs associated with combined sewage overflows, which are inequitably shouldered by Detroit, dramatically increase costs for individual households, small businesses, and community organizations. Green infrastructure offers a solution for reducing storm water's burden on the system, and correspondingly, the burden of drainage fees on DWSD customers.

Aligning with Community Support

A green infrastructure initiative supports the interests of the local community. In March 2017, for example, hundreds of local ministers of churches serving the city of Detroit and the surrounding communities wrote a letter to the mayor of Detroit requesting his advocacy on a number of measures to address the inequities presented by the current system.¹⁰⁰ Among them was a request that the mayor advocate a bold and ambitious green infrastructure plan for the city of Detroit.

In a public meeting in May 2017, Mayor Duggan took the first step toward directing public attention to the value of green infrastructure. In the public presentation, he provided a commitment of \$5 million per annum to address green infrastructure. Funding for this comes from the annual GLWA lease payment.

Components

The elements of a green infrastructure program that creates a virtuous cycle for the Detroit community include:

- An initial capital source sufficient to fund a large array of green infrastructure installations on properties throughout the city of Detroit.
- A strategy for identifying the most beneficial areas to support the reduction in peak combined sewer overflow which have the greatest economic and environmental impact on the water and sewerage service area and on the city.
- A strategy for assembling land for green infrastructure installations primarily among the 72,173 parcels already assembled in the land bank.¹⁰¹
- Development of several engineering prototypes for green infrastructure installation that can be designed for permitting and priced for financing and contracting.

- Cultivation of a corps of local, minority-owned small business enterprises equipped and trained to perform contracts for green infrastructure installation.
- Establishment of a small business association (SBA) or micro-lending loan program to provide working capital and equipment financing for small contractors who can efficiently and economically execute contracts for green infrastructure.
- Establishment of a protocol for measuring economic and environmental benefits from each type of green infrastructure installation and translating these economies into aggregated savings to the DWSD and GLWA for purpose of reinvestment.
- Development of a strategy for tax increment financing or other long-term investment capture vehicles for the purpose of monetizing cash flows for additional capital investments in green infrastructure.

Initial Capital Source

The GLWA/DWSD Lease Agreements, both for water and sewer call for a 40-year stream of payments to both DWSD and directly to the city of Detroit. The lease payment is held in a fund belonging to the Authority. That fund can be used to maintain Detroit's water and sewerage infrastructure, to pay debt services associate with those improvements, or to contribute to the common-to-all improvements in the system. ¹⁰² We propose that a portion of this lease payment be pledged in order to sell bonds for large-scale capital improvements.

Identifying Peak Overflow

Processing stormwater runoff as sanitary waste is an expensive and inefficient practice. As previously mentioned, rainwater from the combined sewer overflow can result in substantial damage to the environment, and controlling those overflows is also incredibly costly. Green infrastructure offers an avenue for curbing increased pressure on the system during peak runoff, which would have a positive economic impact while also highest mitigating environmental concerns.

The EPA has documented many of the areas where peak flows result combined sewer overflow.¹⁰³ We recommend additional inquiry in these areas; focusing resources on high impact areas pays the highest early dividends to the utility and to the city at large.

Assembling Land

Green infrastructure requires a great deal of avail-

POINTS FOR FURTHER INQUIRY

This report is preliminary in nature, and seeks to lay the groundwork for further inquiry into water equity issues in Detroit. It is crucial that further inquiry is not only empirically sound, but also take the voices of Detroit community members and the history of regional inequity into account. We have identified several areas for further inquiry in this report. Some notable areas include:

Continued research into the effects of water scarcity on community health and well-being: This report identified several of the negative implications of water shutoffs in Detroit, but further inquiry into these issues is crucial. Additional analysis ought to delve deeper into the way in water deprivation impacts community health, happiness, social mobility, safety, and cohesion, among other areas. There are a variety of organizations doing great work in this area, notably the People's Water Board Community Research Collective.¹⁵⁰

Detailed, forward-looking analysis of the current GLWA agreement: There are several problems with the current DWSD/GLWA agreement, many of which inequitably burden Detroit. As discussed in Section II, some of these problems are the insufficient lease payment, current rate-setting and cost-sharing structures. There is also much work to be done regarding the development and implementation of an income-based water affordability plan, including determining affordable burdens and program costs, developing cost recovery mechanisms, and creating structures for program sustainability. Transparent and fair inquiry into these problems, among other, and the development of workable and sustainable solutions is crucial.

Development of a large scale organizing campaign:

Additional development of the green infrastructure initiative: We have presented some of the primary elements of a robust green infrastructure program in Detroit, but further inquiry in a variety of areas is required. These include the development of a comprehensive financial model for funding the program, engineering prototypes, determining ideal locations for implementation green infrastructure projects, and developing strategies for measuring long-term impact, among others.

Working towards the development and implementation of protective water legislation: The human right to water ought to be protected under the law at the local, watershed, state, and national levels. Further development of workable legislation and advocacy towards those ends is required.

Continued community engagement and education: It is crucial that citizens voices are heard and taken serious through the development and implementation of measured aimed at achieving water equity in Detroit. Educating community members about the issues at hand and possible solutions is a crucial element of ensuring community participation. Further dissemination of the issues discussed here, though a variety of mechanisms, is imperative.

able land, and Detroit has more than enough: in 2017, there were 72,173 publicly owned parcels in Detroit.¹⁰⁴ Land assembly to support critical green infrastructure installations is especially feasible given the enormous inventory of land parcels under the control of the land bank.

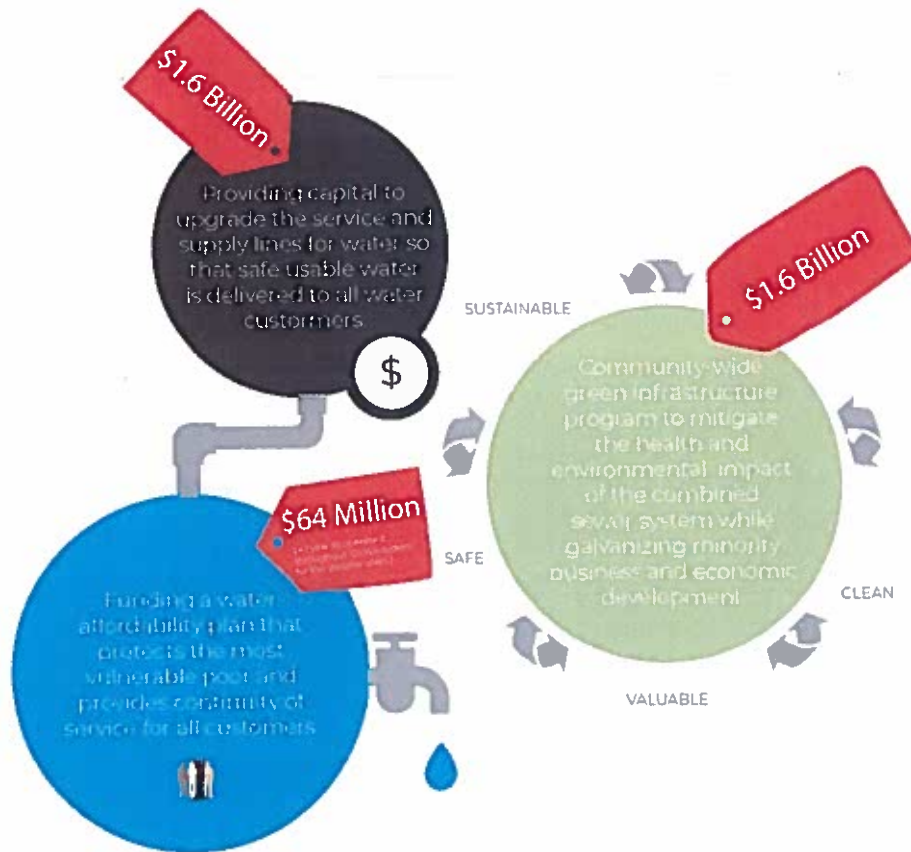
Green infrastructure is a productive use of already vacant land, and policies for using vacant properties owned by the land bank should reflect that. An administrative rule that sequesters land transfers of high-impact areas for green infrastructure intervention and prioritizes the delivery of land in conjunction with such green infrastructure development would be efficient and effective in accelerating the process of developing green infrastructure in Detroit.

Engineering Prototypes

The US EPA has developed best practices for green infrastructure development and has outlined appropriate designs.¹⁰⁵ Adapting this research to the city of Detroit could be done by local civil engineers who develop a series of easily replicable engineering prototypes. These prototypes would be preapproved by the city of Detroit for permitting, studied by aspiring small contractors, carefully estimated and priced with published figures, and implemented in various scales to match the volume of stormwater flow at each location. Systematizing these engineering solutions will make it possible to post real-time results on investment, to strategize priorities, and to encourage participation at individual properties.¹⁰⁶

FIGURE 6

FAIR REINVESTMENT MODEL



Prototypes ought to be structured for rapid development and subsequent cash infusions for small businesses. This “quick payday” structure is key for supporting fledgling and growing businesses. Wages earned from these activities will likely be reinvested in neighborhoods, because, as a percentage of income, low-income populations are much more likely to spend money in their communities than the wealthy.¹⁰⁷

Cultivating Small, Local, and Minority-owned Businesses

A critical component in building a truly virtuous cycle for green infrastructure is to create an equitable business infrastructure. Some challenges for small minority owned business include:

- Business certification
- Best practices in performance
- Best practices in record and bookkeeping

The engineering prototypes can be coupled with comprehensive support and guidance for aspiring small contractors. Webinars, open forums, and capacity-building seminars can be utilized to teach a corps of small contractors to build capacity and living wage jobs throughout the community. Supporting the growth of contractors also creates more local jobs and decreases the likelihood that jobs are outsourced.

Capacity-Building for Local Businesses

A serious impediment to small, minority-owned business development is lack of capital. We recommend enabling these businesses to drive the implementation of green infrastructure by creating an environment of safe and prudent business lending.

The US Small Business Association’s insurance and micro-lending programs are examples of ex-

cellent precedent for structures that provide for the credit and banking needs in communities.

We recommend reproducing that structure by way of a prototype phase of green infrastructure development structured for capacity-building, quick turnaround (and subsequent cash flow for growing businesses), and fair loans. These resources are most likely to be reinvested in local businesses and the local economy, an essential element of the virtuous cycle.

The importance of establishing a local contractor network cannot be overstated, as these dollars stay in the community, circulate among other businesses, and produce payroll for other employment. National studies show that these dollars circulate at least five times through the local community amplifying the impact of local contracting.¹⁰⁸ The small-scale of these individual contracts permit rapid completion, shortened billing cycles, and encourage a more robust growth in hiring and supporting labor.

Protocol for Measuring Benefits

Green Infrastructure presents a broad range of economic and social benefits to the community and to each of the participants in the process. These benefits submit to a triple bottom line (TBL) analysis: green infrastructure has multidimensional benefits and is environmentally, economically, and social sustainable.

Economic benefits include an economic return on investment by the utility, broader economic benefit to the community, including an increased tax base, and relatedly, additional funds for community health, education, and development. The local and state government benefits from the increased employment and the lifting from poverty of a green workforce. Green infrastructure also yields extensive public health benefits, resulting in reduced cost to the hospital and emergency care, for example.

It is crucial that the multidimensional benefits be subject to extensive measurement and research, so as to contribute public knowledge about the benefits of the strategies and help govern future implementation.

Analysis of the impact of Low Impact Development (LID) green infrastructure initiatives in Philadelphia offers viable precedent for a comprehensive triple bottom line analysis. Features assessed in the August 2009 triple bottom line analysis include recreation; increased community aesthetics (and relatedly, higher property values; heat stress reduction; water quality and aquatic ecosystems improvement; wetland creation and enhancement; poverty reduction from local green jobs; energy

savings and carbon footprint reduction; air quality improvement; construction and maintenance-related disruption.

The assessment found that “LID-based green infrastructure approaches provide a wide array of important and environmental benefit to the communities, and that those benefits are not generally provided by the more traditional alternatives.”¹⁰⁹ We recommend implemented comparable assessment and analysis mechanisms in Detroit.

Development of Structures that Ensure Long-Term Investment

In order to sustain the long-term growth and development of the proposed green infrastructure program, it is crucial to develop mechanisms that ensure the fiscal sustainability of the program over time. Opportunely, the City of Detroit thrives on attracting investment within its borders and, with those funds, reestablishing viable neighborhoods within the region. The extremely low entry cost for housing in the makes the city a viable cite for securing funds for economic development.

Infrastructure is part and partial to economically and environmentally sustainable development. In order to secure funding for the infrastructure initiative proposed here, we recommend a multi-stage plan:

- Monetize the cash flow available under the existing GLWA lease agreement, which will likely result in over \$100,000,000 in bond proceeds for green infrastructure.
- Renegotiate the GLWA/DWSD lease agreement achieve an equitable rental payment for the system, thereby greatly increasing the bond generating capacity of DWSD and making it possible to increase its total green infrastructure investment to over \$1 billion.
- Select surplus land in high impact areas for CSO abatement and, green infrastructure development coupled with community/economic development.
- Establish broad tax increment financing districts which includes the built environment in the area surrounding green infrastructure project and the acquisition of vacant land adjacent to or near green infrastructure projects
- With the improved environmental performance of the green infrastructure investment and the improved aesthetic quality of the surrounding neighborhood based upon these investments, encourage new housing and commercial development that is compatible with the existing uses and users of the neighborhood.
- Monitor increased property value and tax revenue achieved in these districts and, when pre-

dictable growth occurs, monetize this periodic increase in tax increment revenue to issue new supplemental bonds used to provide green infrastructure in contiguous neighborhoods.

- Repeat the tax increment financing mapping, designation, and tracking of property values in conjunction with the new green infrastructure investment.
- Again, once increased revenue is realized from new investment, captured that in a new bond issue which would be used to make a later stage green infrastructure investment.

Our recommendation is that tools such as dedicating the non-school portion of increased property tax revenues— a feature common to Midtown or commercial business District development— can be repurposed for use in multiple neighborhoods as a means of upgrading those neighborhoods and upon success of the first investments, successive additional neighborhoods/sites for green infrastructure implementation.

Conclusion

The layers of social, political, and environmental issues that have contributed to the inequitable distribution of water in Detroit require a multidimensional response. It is our intention that by offering the

basis of a solution, we can highlight the possibility of path forward for Detroit that is socially, economically, and environmentally sustainable.

Our recommendations include,

- Suspending the use of water service shutoffs until processes can distinguish between the willingness to pay apart from those unable to pay
- Analyzing the calculation of the annual lease payment of the regional system and appraising the value of the asset
- Researching, designing, advocating, and implementing legislation that can promote access to drinking water and wastewater
- Reworking the terms of the GLWA/DWSD lease agreement
- Design and implement a comprehensive income-based water affordability plan
- Incorporating basic consumer protections into GLWA and DWSD-R customer policies
- Initiating a robust green infrastructure program

In crafting and implementing multidimensional solutions to Detroit's problems, community support and input is crucial. Community-led initiatives and knowledge from activists on the ground are integral resources to effectively improving the existing system.

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WATER INSECURITY IN DETROIT: THE COSTS OF THE CRISIS

Water Insecurity in Detroit: The Costs of the Crisis

WATER, AND SPECIFICALLY clean water, is central to a wide range of essential activities. It is needed to drink, cook, flush and clean toilets, and clean bodies, clothes, food and homes. If water is not accessible, affordable, and safe, human health and well-being are severely endangered.

At least 100,000 Detroit families have had their water shut off since 2014.¹¹⁰ While the annual number of shutoffs has decreased since then, in March 2018, the Detroit Free Press reported that at least 17,000 households were at risk for shutoffs.¹¹¹ This news follows the Detroit City Council's approval of a \$7.8 million contract to Homrich Wrecking for conducting water shutoffs.¹¹² Records obtained by Bridge Magazine show that residential shutoffs dropped from 33,000 in 2014 to 23,000 in 2015, but increased again to 27,552 in 2016.¹¹³

“Why tear up property and seam it and everything? You’re making things worse. They city is already going down. You say the bank owns the water company and you’re going after the residents. The bank already made all these houses in foreclosure...and people come and take whatever they offer, so now here we have to water company doing the same thing. That’s so wrong.”

Rosalyn Walker, from [Detroit Minds Dying](#)



Image from the film [I Do My Dying](#). Courtesy of Kate Levy, available online at [detroitmindsdying.org](#)

Water crises across the US have attracted growing national and international audiences. Pontiac, Flint, and Detroit, Michigan, in particular, have received a great amount of attention as a result of the rich grassroots activist responses to threats to water access.

In October 2014, following a summer of widespread water shutoffs in Detroit, the city gained international attention when two United Nations Special Rapporteurs: Catarina de Albuquerque, the UN Special Rapporteur on the human right to water and sanitation, and Leilani Farha, the Special Rapporteur on the right to adequate housing, visited the city. Albuquerque, appalled by the scale of shutoffs, claimed in a press conference that “it is contrary to human rights to disconnect water from people who simply do not have the means to pay their bills.”¹¹⁴ She continued: “In practice, people have no means to prove the errors and hence the bills are impossible to challenge... the indignity suffered by people whose water was disconnected is unacceptable.”¹¹⁵

Notably, Albuquerque made an earlier tour of the US to assess the status of the human right to quality drinking water and sanitation. This tour included visits to Alabama, Alaska, Michigan, Puerto Rico, and West Virginia.¹¹⁶ Each of these places experiences unique challenges in ensuring affordability while also financing the maintenance of systems that can sustain the distribution of clean, safe water. Underscoring the connections between water quality and affordability, Albuquerque was accompanied by the UN Special Rapporteur on extreme poverty and human rights. The trip included a visit to water and sanitation systems in rural Alabama, where the absence of adequate service has created public health problems thought to

“It is contrary to human rights to disconnect water from people who simply do not have the means to pay their bills... In practice, people have no means to prove the errors and hence the bills are impossible to challenge... the indignity suffered by people whose water was disconnected is unacceptable.”

Catarina de Albuquerque, United Nations Special Rapporteur on the Human Right to Water

PLACES FACING WATER AND SEWERAGE PROBLEMS: A PARTIAL LIST

- Cities in Alabama, especially rural Alabama, Alaska, Michigan, Puerto Rico, and West Virginia
- Boston and Falmouth Massachusetts, Sacramento, Redding, Pennsylvania, the Winnemen Winto tribe, New Orleans, Seville, and other communities in California's San Joaquin Valley, and Edmonston, Maryland.
- Flint and Detroit, Michigan, Baltimore, Maryland, East Cleveland, Ohio, Newburgh, New Jersey, Los Angeles and many rural and urban cities in Arizona, North Carolina, Kentucky, Mississippi and Alabama are contending with rising rates that limit economic access and associated problems with water quality.

have been eradicated in developed countries.

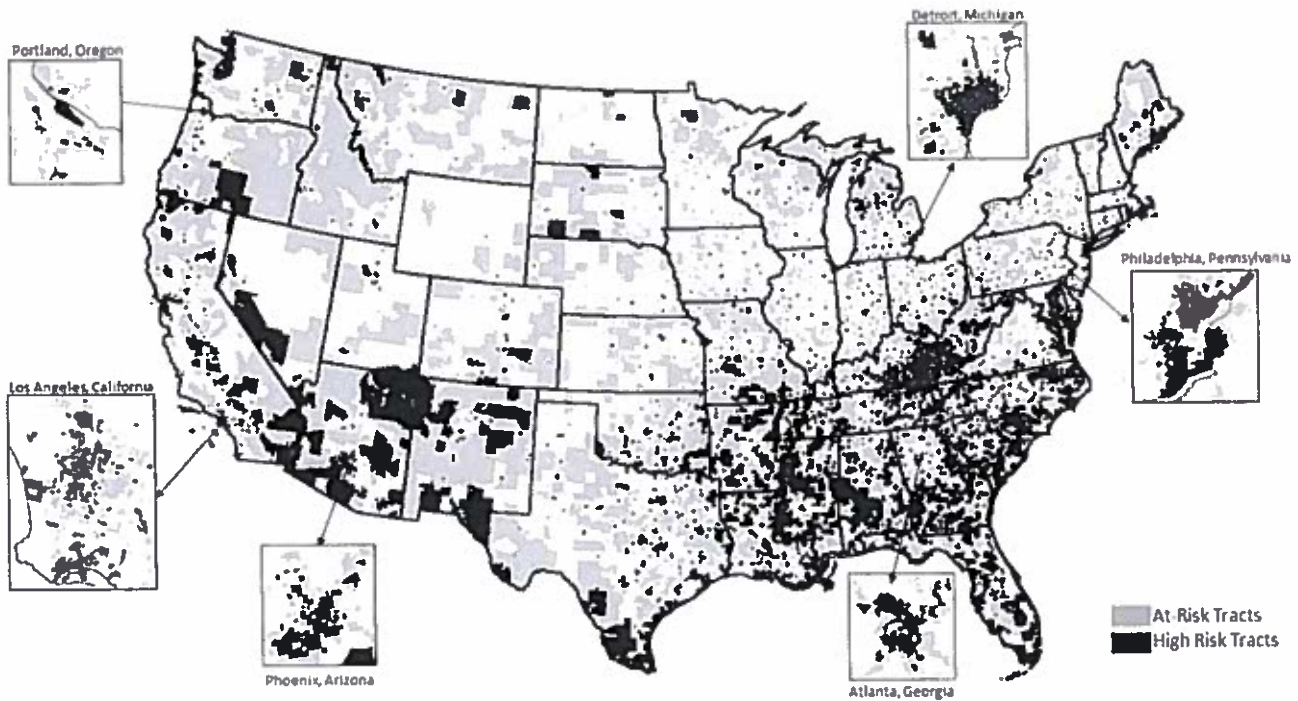
Water affordability is a nationwide problem. The US EPA sets an affordability standard of 4.5 percent for combined water and wastewater services.¹¹⁷ A recent University of Michigan study found that using this standard, 11.9 percent of US households have unaffordable water bills.¹¹⁸ Given the projected increases in costs of water and wastewater services in the next five years, the authors estimated that figure could reasonably rise to 35.5 percent.¹¹⁹ Many of the studies of water access in the US focused on affordability have noted that improving aging infrastructure is crucial for effective interventions. However, an estimated \$1 trillion needed to upgrade the country's water and sanitation systems, without which issues surrounding water poverty will worsen.¹²⁰

By delving into the causes and implications of the water crisis in Detroit, we can begin to understand the wide-ranging, detrimental effects of water inequity. This endeavor, we hope, will set the stage for cultivating preventative strategies for and responses to impending water crisis nationally and globally.

We focus here on the far-reaching impacts of limited water quality and access on individuals, families, and communities. We seek to humanize these issues by detailing the real, human costs of unaffordable water by focusing specifically on the way water scarcity in Detroit threatens households

FIGURE 7

WATER – HIGH RISK TRACTS NATIONALLY



access to water and sanitation and erodes public health and environmental quality throughout the service area.

Water Shutoffs as a Revenue Generation Strategy

Water shutoffs in Detroit are a profound problem for households and communities. Resorting to shutoffs is rooted in the choice to sacrifice affordability in an attempt to cover expenses associated with aging urban infrastructure. Most of the older water and sewerage systems in the US—typically those in urban centers—require expensive upgrades. Many of those improvements are long overdue; however, resources to fund these efforts are lacking—and in some systems, revenues are in decline. In many cities, like Detroit, the costs of maintaining aging infrastructure—not to speak of funding system updates—are passed off onto users through water rates. Although water rates in many cities, like Detroit, are relatively low, they are still unaffordable for low-income people.

Atlanta, Georgia and Seattle, Washington have some of the highest water rates in the country, with average bills at \$325.52 and \$309.72 per month for a family of four, respectively.¹²¹ In 2017, Philadelphia, Pennsylvania made 27,776 water

shutoffs for non-payment of water bills.¹²² A study showed that 227,000 Philadelphia customers—four out of 10 water accounts—were past due.¹²³

Water shutoffs are a symptom of the incongruity between two systems. On one side are a set of strategies that determine how much water users are expected to pay for water. On the other side are strategies that finance costs of operation, maintenance, and infrastructure upgrades necessary to provide quality water.

Shutting off people's water is a fundamentally flawed strategy to cover a system's operation and maintenance—the underlying flawed rationale being that shutoffs will incentivize customers to pay. Studies have shown that water utility users in the US are willing to pay more to access quality water resources.¹²⁴ However, given the financial burden water costs pose for low-income people, willingness to pay does not always translate to ability to pay.¹²⁵

Water shutoffs are ineffective in incentivizing people to pay their bills. However, even if they did incentivize users to pay past due bills, shutting off a household's water supply is not an acceptable point of intervention. The strategy should not even be on the table, as the inability to afford services should not result in an acute threat to human

AREAS FOR FURTHER INQUIRY

"To date, work on water affordability for low income households in developed countries has received somewhat less attention than work on water in the developing world. International work on affordability and case studies in the United States have highlighted specific communities where affordability is an issue. While valuable, the extent that water affordability is a widespread issue for US households, and where these households are located, remains unclear. This is vital to unravel since there is currently no federal statute or policy that ensures water access for poor residents."

(Citation: Mark EA, Wrase S. (2017) A burgeoning crisis? A nationwide assessment of the geography of water affordability in the United States. PLOS ONE 12(4): e0176645 <https://doi.org/10.1371/journal.pone.0176645>

health and well-being. None of the problems associated with water poverty or water infrastructure are resolved through water shutoffs. Water poverty is a systemic effect—and needs systemic remedy.

While the national spotlight on shutoffs has dimmed since the UN rapporteurs visited Detroit in 2014, residential shutoffs have continued in massive numbers. DWSD points to marginal improvements in numbers year-to-year, but many thousands of residential shutoffs continue to occur in Detroit. While every home that is able to avoid a shutoff is important, any number of shutoffs is unacceptable.

Detroit community members have been especially appalled by the disparities between residential and commercial shut-offs. While water service is shut off in numerous homes with relatively low overdue bill amounts, commercial customers with substantially higher bills haven't experienced shut-offs. In 2014, the Metro Times reported that while residential customers with bills as low as \$150 could experience shutoffs, large commercial customers, such as the Louis Arena and Park Gold Club, owed \$80,000 and \$200,000, respectively.¹²⁶

Access to Water and Community Health and Well-being

Water Shutoffs and Public Health

Water shutoffs pose serious threats to public health and perpetuate disparate health outcomes along race and class lines. Individuals living without access to water are made vulnerable to a number of diseases and sicknesses—and existing health problems are intensified. Studies overwhelmingly confirm the links between water scarcity and significant negative health outcomes, including diseases associated with skin and soft tissue infections, water borne bacteria, and hepatitis.¹²⁷ Poor hygiene resulting from lack of water access can also spread and create water-related

problems like skin diseases and gastrointestinal issues, as handwashing is the first line of defense against several communicable health problems.

¹²⁸ With a lack of access to water within the home, dehydration and its associated problems complicates problems for those who have chronic diseases, as well as elderly and young people. ¹²⁹ Additionally, water scarcity can affect nutrition, as the preparation of healthier foods are particular dependent upon water. The strong association between water shutoffs and water-associated illness, particularly as it effects populations under circumstances of "social vulnerability," has come to be known as the "W.A.S.H." literature.¹³⁰

Disease burdens linked to scarce safe/clean water, sanitation and hygiene are disproportionately borne by the socially-economically-political vulnerable and fuel cycles of disadvantage and poverty. Not only are these groups already exposed to a variety of other socially-determined health

TABLE 1

NUMBER OF SHUT-OFFS IN DETROIT 2014–17

Year	# of Shut-Offs
2014	30,065
2015	23,000
2016	27,552
2017	17,689

Source: <http://michiganradio.org/post/interactive-map-detroit-water-shutoffs-neighborhood> <http://www.detroitnews.com/story/news/local/detroit-city/2017/12/05/detroit-water-shutoffs-decline/108341678/> Detroit news, Bridge Magazine, Detroit News

WATER AS A HUMAN RIGHT

Global water crises have called attention to the need to affirm the human right to water. The Human Right to Water and Sanitation (HRWS) was recognized by the United Nations General Assembly in 2010.¹

While foundational human rights documents do not make explicit reference to water, the right to water is implicated given water's centrality to human existence and thriving. The 1966 International Covenant on Economic, Social, and Cultural Rights advocates for "the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions."²

Similarly, the 1948 Universal Declaration of Human Rights notes that "Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age, or other lack of livelihood in circumstances beyond his control."³

The fulfillment of both of those rights requires access to clean and affordable water.

In 2002, the Committee on Economic, Social and Cultural stipulated that water accessibility has four dimensions:⁴

Physical accessibility, meaning that water resources are in safe physical reach

Economic accessibility, requiring that water is affordable for all

Non-discriminatory accessibility, stipulating that water be available for the most vulnerable groups of the population

Information accessibility, noting the right to seek and receive information about water issues.

In Detroit, water is not affordable, particularly for the city's most vulnerable residents. Moreover, victims of shutoffs were often not provided with notices and information regarding their water bills and water was shutoff unexpectedly. Mass water shutoffs in Detroit offer a clear illustration of the violation of the human right to water.

Sources:

1 United Nations General Assembly Resolution 64/292, The Human Right to Water and Sanitation, A/64/L.36/ Rev.1, adopted July 28, 2010, <http://www.un.org/esa/comun/docs/?symbol=A/RES/64/292&lang=E>.

2 UN General Assembly, International Covenant on Economic, Social and Cultural Rights, 16 December 1966, United Nations, Treaty Series, vol. 993:3, <http://www.ohchr.org/EN/ProfessionalInterest/Pages/CESCR.aspx>.

3 UN General Assembly, Universal Declaration of Human Rights, 10 December 1948, 217 A (III), <http://www.un.org/en/universal-declaration-human-rights/>.

4 UN Office of the High Commissioner of Human Rights, "General Comment No. 15: The Right to Water (Arts. 11 and 12 of the Covenant)", Adopted at the Twenty-Ninth Session of the Committee on Economic, Social and Cultural Rights, E/C.12/2002/11, January 20, 2003, http://www2.ohchr.org/english/issues/water/docs/CESCR_GC_15.pdf.

Resolution 64/292: The Human Right to Water and Sanitation

The General Assembly...

1. Recognizes the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights;

2. Calls upon States and international organizations to provide financial resources, capacity-building and technology transfer, through international assistance and cooperation, in particular to developing countries, in order to scale up efforts to provide safe, clean, accessible and affordable drinking water and sanitation for all;

3. Welcomes the decision by the Human Rights Council to request that the independent expert on human rights obligations related to access to safe drinking water and sanitation submit an annual report to the General Assembly.

AREAS FOR FURTHER INQUIRY: PUBLIC HEALTH CONSEQUENCES OF WATER ACCESS

There is a litany of well-established links between individual health outcomes and reliable access to clean water and adequate sanitation. There are similarly established links between water and sanitation access and public health outcomes. Situating Detroit within this long-standing line of research, it is wise to study public and individual health has been effected by the number of water shutoffs in the city of Detroit.

TK: Bits about Community Research Collective, mapping the water crisis

Understanding the specific effects in Detroit will enable the best targeted strategies to address effects that exist in Detroit. The spirit of such a study is not to simply reveal problematic outcomes, but far more importantly to direct attention to systemic problems that need attention.

This is another opportunity for Detroit to be a national leader in extending study of water access in the domestic context. Many studies have been done internationally, but more research needs to develop unique problems that are presented within the domestic context.

As a matter of public circulation and understanding of this type of study it is important to understand standards of epidemiological investigation.

The utility of this type of study is any expectation to prove causation. Causation in epidemiological studies is not obvious. Probabilistic standards of causation are appropriate for epidemiological studies, not necessity-sufficiency standards. "...Epidemiological studies can never prove causation; that is, it cannot prove that a specific risk factor actually causes the disease being studied. Epidemiological evidence can only show that this risk factor is associated (correlated) with a higher incidence of disease in the population exposed to that risk factor. The higher the correlation the more certain the association, but it cannot prove the causation. ..."

Studies revealing association, or correlation, are meaningful and reveal new important insights.

Spatial analysis presents an important component of research in general, including the field of epidemiology. There are also limitations inherent in epidemiological study due to privacy standards of personal medical records. Studies that use individual patient data are routinely, and necessarily, aggregated to census tract level or zip code.

risks, but they also often have limited access to health care. These social determinates of health—i.e. increased exposure to environmental risk and limited access to health care resources—combine to perpetuate these disparate outcomes.¹³¹ The deleterious effects of water scarcity and lack of health care resources have cascading effects that effect entire neighborhoods, as diseases are communicable; the combined effects of these risks mean that entire communities are further deprived of opportunities to flourish.

In the case of Detroit, the abstract of the Henry Ford Hospital Global Health Study provides us with a preview of such a strong association between social vulnerability and water-associated illnesses.¹³² The study, conducted by researchers from the Henry Ford Health System's Global Health Initiative and Division of Infectious Diseases, examined 37,441 cases of water-borne illnesses between January 2015 and February 2016 in Detroit. Researchers compared that data with a

list of addresses where water had been shutoffs, finding a significant connection between water-related illnesses and DWSD shutoffs. Currently and controversially, only the abstract of the study is released. Preliminary findings indicate that patients with water related illness were 1.48 times more likely to live on a block that has experienced water shutoffs.¹³³

Additionally, mental health issues are also associated with lacking water, as water deprivation can exacerbate any existing mental health problems.¹³⁴ For example, irregular bathing and sanitation can negatively affect a sense of self-worth and the ability to perform at work or school.¹³⁵ Not to mention the accompanying stress of obtaining water on an emergency basis and worrying about how to pay to have service restored.

The compound effects of water shutoffs in Detroit, both in terms of clinical and non-clinical outcomes, actively contributes to Detroit's "social vulnerability." As defined by the CDC, social vulnerability

“Through daily interaction with families forced to manage their lives without running water, We the People of Detroit gained insight into the ways deprivation of water disrupts essential family functions and rituals, heightens vulnerability to disease, especially among the children, and causes deep emotional trauma, some of which concerns the inability to provide security to one’s children, as well as the difficulty of preserving one’s standards of household organization and self care.”

We the People Community Research Collective, Mapping the Water Crisis:

is the way in which exposure to certain social factors compromises people’s immunity.¹³⁶ These factors include poverty, crowded or unsafe housing, housing insecurity, and lack of transportation, among others. The situation in Detroit speaks to the way in which water inequity and insecurity contributes to people’s social vulnerability, as it leads to compromised physical and mental health while also worsening existing problems faced by sick and immune-compromised.

The Social Costs of Shutoffs

The costs of shutoffs are not limited to effects on the body. Shutoffs also have adverse social costs for individuals, families, and entire neighborhoods. Water shutoffs can contribute to foreclosure and blight, splitting up families, and even worsen water quality for entire neighborhoods, including homes where water service is uninterrupted. In addition, shutoffs can create feelings of shame and enforce a culture of silence that is only worsened by the practice of painting arrows in front of houses where water has been disconnected.

We the People of Detroit Community Research Collective has done and continues to do important research into the social and health costs of water issues in Detroit. Their report, *Mapping the Water Crisis: The Dismantling of African American Neighborhoods in Detroit, Volume I* (2016), visually represents data relating to emergency management, the history of DWSD and GLWA, home values

and foreclosures, and the relationship between all these issues and shutoffs.¹³⁷ The Community Research Collective has been an integral resource in the making of this report.

Mapping the Water Crisis points to the significant correlation between high unpaid water and sewerage bills and high instances of property tax foreclosures.¹³⁸ This is in part due to DWSD allowing delinquent water bills to also attach as liens to properties in the same way unpaid property taxes are attached as a lien on a property. The 2014 Detroit Blight Removal Tax Plan codified this relationship, stating that homes with water lines that have been disconnected, removed, or damaged are subject to demolition.¹³⁹ If the bill amounts go unpaid or underpaid for three years, the property is eligible for foreclosure. While the water bills may not be the only or primary cause for foreclosure, they can shorten the timeline to foreclosure.

High rates of foreclosure compound the existing social problem surrounding urban blight in Detroit. Importantly, high water utility bills are affecting communities already heavily hit by the city’s foreclosure crisis. We know that during the national foreclosure crisis of 2007, Detroit was especially impacted; thus the areas where the existing rate structure causes higher bills are already suffering from other economic harms.

It is important to remark here that many home mortgage loans that set households up for foreclosure were not due to a household’s failure to balance their checkbooks. Rather, in Detroit especially, Black African American households were marketed subprime loans with unnecessary risks at a right higher than their White counterparts—regardless of where they lived and regardless of financial assets.¹⁴⁰



Image from the film I Do My Dying. Courtesy of Kate Levy, available online at detroitmindsdying.org

root shock and displacement are perpetuated by draconian shutoff policies.

Water shutoffs also actively destabilize families. In an attempt to protect the safety of children, Child Protective Services (CPS) also considers a home without running water to be unfit for housing.¹⁴⁴ Extended water shutoffs put children at risk of being removed from their homes. Shutoffs thus threatens family cohesion, which is associated with an incredible number of positive outcomes. These include economic and physical well-being, long-term mental and physical health, interaction with the criminal justice system, and income and education.¹⁴⁵

The threat of a child being removed from the care of their parents reinforces the culture of silence around shutoffs—if a child mentions that they do not have water at home, the teacher is required to report it. Still, schools across Detroit have responded by providing extra supports for children who have had their water disconnected. At the height of the shutoff crisis, one school opted to open at five in the morning to allow children to wash their clothes and shower before school.¹⁴⁶

In addition to delving further into these social costs, We the People of Detroit Community Research Collective is currently conducting original research into the effect of water shutoffs on water quality in neighboring homes. Dr. Jade Mitchell and Dr. Jennifer Carrera have partnered at Michigan State University to conduct water experiments in neighborhoods in Detroit to test the water age and quality in homes where water has been shutoff or unused for an extended period of time. This experiment is a model for research that empowers and directly involves community members. A Community Advisory Board not only advised on the type and scope of water research, they also own the information (including residents' names and addresses) collected by community members who were trained as field workers. Dr. Mitchell's team tests water samples, but the samples are collected and owned by the community.

While results are still preliminary, once more conclusive evidence is gathered, the results of the

experiment will be shared with the community so that they can decide on further action.

Conclusion

Water shutoffs have a variety of negative effects on individuals, families, and communities— from home foreclosure to family break-up to higher instances of water-related illnesses. The wide-reaching negative effects of shut-offs underscores the importance of protecting the human right to water, and prohibiting draconian collection practices that result in acute threats to human health and well-being. Water shutoffs also actively perpetuate disparate outcomes along race and class lines.

This is in part due to the way in which negative consequences associated with water scarcity contribute to high instance of daily stress, the effects of which are borne by low-income communities and communities of color. The cumulative health effects of daily stresses is often discussed in terms of "toxic stress" or "toxic inequality," referring to the biophysical effects of cumulative stress in response to adversity, which is disproportionately experienced by marginalized groups. Social marginalization can increase people's "allostatic load," or the wear and tear on the body resulting from prolonged exposure to chronic stress. Within the literature on toxic stress, toxic inequality, and allostatic load, repeated patterns of racial differences exist. In fact, measures of increased allostatic load are thought to explain, in part, the persistent disparities of racialized health outcomes and in particular, the racial disparities in low infant birthrate and infant mortality—disparities that are shown to exist despite level of education, income, or employment.¹⁴⁷

Water shutoffs produce have of negative consequences for the well-being of communities and public health— a problem on worsened by the multidimensional and persistent stress associated with water scarcity. All of these harms are disproportionately endured by low-income people and people of color.

THREATENING COMMUNITY SPACES: WATER INEQUITY AND DETROIT CHURCHES

"I really do think this is a prelude to other attack... Every attack on the church is an attack on the black community."

– Pastor Alan Evans of The Open Door Church of God in Christ in Detroit

"We don't mind paying our fair share... [but] you're putting us out of business... This is redlining on steroids"– Reverend James Michael Curenton of United Church of Christ

Churches are cornerstones of Detroit communities, particularly of communities of color, and also the second-largest property owners in Detroit. Importantly, they are uniquely affected by water inequity.

More specifically, as discussed in Section II of this report, the current water distribution situation requires that customers pay unmetered drainage fees based on the quantity of impervious surfaces— such as parking lots and roofs— on their properties. As churches often have large quantities of impervious surfaces—from the size of the church itself, parking lots large enough to accommodate whole congregations, satellite community buildings, and even impervious surfaces on vacant properties churches have acquired—they are incredibly burdened by unmetered drainage fees.

Currently, DWSD-R customers are charged \$750 per square acre of impervious surface. Note that drainage fees are costs associated with managing combined sewage overflows, or overflows of sewage and other potentially hazardous materials when the combined sewage system is overburdened. Overflow management is a symptom of Detroit's antiquated infrastructure. As described in Sections I and II, Detroit bears the burden of this antiquated system because of historic, systemic inequities.

Currently, the existence and financial well-being of 400 Detroit churches is endangered due to their inability to afford these charges.

In the past four years alone, Second Ebenezer Church, with a 40-year history and hundreds of congregants, has already seen their bill go from \$1,900 per month to \$8,000, and they are bracing for further hikes.

The Cathedral of St. Anthony's monthly bill rose from \$165 to \$1,200 per month. The burden drainage fees put on churches threaten communities' religious and secular support networks. In addition to buying up vacant lots in their communities, churches—as well as mosques, synagogues, and other places of worship—provide affordable housing, mentoring, scholarship awards, health support, voting support, programs for youth, older adults, and women, as well as crucial advocacy. Even if churches are able to afford the drainage fees, they still pose economic burdens, thus threatening churches' capacity to provide these key community services.

Church leaders and congregants are vocal advocates in the fight for water equity. They and their congregants offer a wealth of knowledge about the needs and capacities of the neighborhoods they serve. Their guidance, wisdom, and knowledge are essential in establishing a sustainable Detroit.

Foreclosures due to unpaid water bills in Detroit are not only alarming because of immense threats demolition poses for families and community, but also given the history of blight removal practices in the city decades ago, under the rhetoric of "urban renewal." In Detroit and elsewhere, blight removal-centered development strategies demolished incredible numbers of affordable housing units—far more units that were built under the program.¹⁴¹ These demolitions intensified existing problems with housing quality and neighborhood opportunity. The changes enacted under these blight removal projects also deepened segregation and destroyed existing neighborhoods where strong social ties and connections existed.¹⁴²

Studies surrounding the effects of blight removal urban renewal strategies in the 1940-50s have revealed the significant connections between displacement and diminished health and well-being, often associated with a phenomenon called "root shock." Even when residents were able to move to nicer neighborhoods, they experienced a loss of belonging and a loss of appreciating and benefiting from deep social ties of the place they called home.¹⁴³ Root shock refers to the negative psychosocial impacts of displacement, a metaphor to the negative effects when plants is removed and transplanted elsewhere. This work has focused on displaced community residents moved in urban renewal projects in Philadelphia, Pittsburgh, PA and Roanoke, Virginia. Problems associated with

WATER ACTIVISM IN DETROIT

Detroit's robust nonprofit and grassroots infrastructure has mobilized in a variety of ways to fight water inequity in Detroit. In 2005, as challenges to accessing clean and affordable water in Detroit became increasingly apparent, the Michigan Welfare Rights Organization (MWRO)—which has long advocated for the rights of welfare assisted and low-income people—partnered with Michigan Legal Services and DWSD to design an income-based water affordability plan (WAP). The plan, written by affordable utilities expert Roger Colton was approved by the city council, but never implemented by DWSD.

In response to continued water shutoffs, the People's Water Board (PWB) was founded in 2008. The Water Board is comprised of a coalition of organizations that hold that water is a human right and should be accessible and affordable for all. Founding members of the Board included a number of organizations committed to environmental and social equity: MWRO, East Michigan Environmental Action Council, the People's Water Board, Sierra Club, Michigan Emergency Committee Against War & Injustice, Rosa Parks Institute, Detroit Black Community Food Security Network, Detroit Green, and American Federation of State, County and Municipal Employees Local 207. In the years leading up to the bankruptcy, the Water Board and other water advocacy organizations drew local and national attention to water access issues through outreach, forums, and public actions.

While Detroit was under emergency management, a variety of other activists became key allies in the water struggle. Notable are Detroiters Resisting Emergency Management (D-REM) and The People's Platform.

As shutoffs reached an all-time high in the summer of 2014, Detroit's nonprofit and grassroots infrastructure—specifically PWB, We the People of Detroit, and the Detroit Water Brigade—mobilized to provide immediate, on-the-ground assistance to shutoff victims by starting water hotlines and delivering water. The Detroit Water Brigade, for example, has: established community distribution hubs for bottled water, pulling together volunteers, resources, and a compassionate strategy. Each hub is located in each of Detroit's seven districts, beyond its Highland Park headquarters; created the Water Affordability Fund to supplement DWSD assistance programs; conducted door-to-door information campaigns; constructed rainwater collection systems; collected cold weather gear to help those denied access to water (and therefore, heat circulation).

In 2014 the People's Water Board filed a complaint with the UN Human Rights Counsel, which resulted in two UN special rapporteurs visiting Detroit. Meanwhile, Kate Levy— an activist and independent filmmaker— began work on *Detroit Minds Dying*, an in-progress documentary about access to affordable water in Detroit. Several of the images in this report are from that film, and we are indebted to Levy and other actors which made the film possible.

Public actions amidst widespread shutoffs took the form of large public marches and even actively blocking Homich shutoff trucks— Homich was the private company contracted to carry out 70,000 shutoffs over a two-year period. Two actions of this sort took place over the summer of 2014, leading in the arrest of nine activists.

Meanwhile, Moratorium Now began weekly demonstrations at the DWSD headquarters.

Also, in response to shutoffs in the summer of 2014, Detroit civil rights organizations and citizens effected by the shutoffs filed a law suit against the city, on the grounds they did DWSD did not provide adequate shutoff notices and shutoff water to the most vulnerable Detroiters, while also not shutting off water to commercial delinquent accounts. The case, *Lyda et.al v. City of Detroit*, advocated for a moratorium on shutoffs and the implementation of a water affordability plan.

In recent years, resistance continues in myriad forms. We the People's Community Research Collective has completed crucial research on the effects of austerity and water inequity of on low-income communities of color in Detroit, recently publishing a report entitled "Mapping the Water Crisis." The Collective's work has been, and continue to be, fundamental to investigative efforts surrounding water inequity in Detroit, and correspondingly, central to the production of this report.

There are countless other allies who played key roles as activists responding to the water crisis. For example, Anishinawbe Women and Men, representing indigenous peoples of the region, have undertaken multiple annual Mother Earth Walks, raising awareness for threats to the public trust of water. Another organization, the Detroit Light Brigade has staged "letters in light" and projected messages of resistance on buildings during public actions.

SECTION IV

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THE LONG HISTORY OF DETROIT'S WATER & SEWERAGE DISTRICT

The Long History of Detroit's Water and Sewerage District

THE WATER CRISIS IN Southeast Michigan—like cities across the US—unfolds on a landscape created by over a century of the creation and development of cities and neighborhoods and regions. Decision-makers and policy that set the terms of this growth were designed according to racial prejudices and bias—and in places like Detroit, cities were even established during the period of chattel slavery, colonization of native land to expand the size of settler's territory—not to mention more recent decades that were informed by the Jim Crow system and profound economic change. It is not at all controversial to point out ways in which current cities and regions have inherited systems and institutions with basic design flaws and that addressing these flaws is a difficult and ongoing project. In the context of the regional DWSD system racialized systems are very literally concrete and easily intelligible. Inheriting systems from the country's racially divided history is not abstract.

Detroit's challenges—such as deindustrialization, white flight, and stark racial divisions—are not unique to the Southeast Michigan metropolitan region. Instead, they reflect familiar consequences of unfair and inadequate public investment. In the case of drinking and waste water infrastructure, decreasing revenues and unsustainable debt burdens hinder adequate affordable pricing structures and create pockets of water poverty across the country. Meanwhile, service providers are left to manage aging infrastructure that is not suited to withstand the impending consequences of global climate change.

The distribution of resources follows infrastructure design—especially in the case of drinking and wastewater system. Decisions at the national, state, and community level combine with and influence individual decisions people make every day about where to live and work. While these decisions may not be explicitly motivated by racism and other prejudices, they result in the unequal allocation of resources and opportunities along

race and class lines. Detroit's water and sewerage infrastructure is put to the service of the universal goal and mission—to provide users with access to high quality wastewater service, safe and healthy drinking water, and do its part to ensure the quality of surface waters and its public health benefits.

There are contested narratives about the cause of Detroit's fiscal problems—and the dominant narrative reflects the way many cities' fiscal challenges are discussed in popular media. Struggling cities are framed as being unique or exceptional—the drivers of the problem are unique and limited to that specific location. Detroit is discussed as a “casualty” of the erosion of the US manufacturing economy and has been uniquely impacted because of the city's dependence on that industry. Cities are also described as struggling because local leaders and politicians were incompetent or corrupt—again suggesting that a specific city is experiencing unique harms. These factors are not unrelated to the fiscal challenges of some places. However, these are not at all the systemic and structural roots of fiscal distress. Such narratives can create popular support to support policies that simply remove decision making from cities and place it in the hands of supposedly more reliable decision makers. Detroit's emergency management and bankruptcy process offers a clear example of this suppression of local democratic control and the generation of popular support and justification provided through shallow and inaccurate analysis.

Detroiters Subsidize Regional Suburban Growth 1940s-1970s

Suburban development and urban infrastructure are closely tied. Development does not occur where water and sewerage services are unavailable, so that the ability to connect to Detroit's existing water and sewerage plants allowed the suburbs to form. Meanwhile, suburban development sapped population and resources from the city of Detroit.



Image from the film I Do My Dying. Courtesy of Kate Levy, available online at detroitmindsdying.org

In the 1950s, when the population began to shift from urban to suburban areas, the role of DWSD in subsidizing suburban growth was hotly contested. In 1954, L.H. Lenhardt—General Manager of the system since 1936—expressed concern about further expanding the water system and urged suburbs to develop their own infrastructure.¹⁴⁸

His successor, Gerald J. Remus, director between 1955 and 1973, took the opposite stance and immediately reversed Lenhardt's suggested policies. The water system underwent a rapid expansion during Remus's directorship and took on a great amount of debt to do so.¹⁴⁹ In 1954, the city served 44 suburban wholesale customers. During Remus's eighteen years as director, 51 additional suburban municipalities were added, bringing the total to 96 in 1973.¹⁵⁰

During this period of suburban expansion, it became apparent that the regional growth of the water system was a political issue that went far beyond civil engineering and was deeply embedded in racially inequitable development agendas. Remus was appointed to manage the water and sewerage system by Mayor Albert Cobo, whose

rhetoric and policies revealed an obvious preference for the interests of the wealthy and white.¹⁵¹ While Cobo was overseeing large-scale urban renewal initiatives, Remus was funding water infrastructure. These plans had a lasting impact on the racial landscape of today's Detroit and continue to influence the demographics of the city and suburbs.

Cobo's urban renewal projects were largely focused on blight removal and left Black residents in a greater housing crisis than the one the renewal ostensibly solved. This period of blight-removal-focused urban planning is often marked by the 1949 Housing Act, but even before the creation of this act, some cities, including Detroit, were already practicing "slum clearance." One example of this practice in Detroit is the Gratiot housing project, a redevelopment project that left residents living in conditions as poor as in their previous neighborhoods. In cities across the country, far greater numbers of affordable housing units were removed than rebuilt.¹⁵²

Urban renewal and blight removal policies evolved into redlined maps, investment guidelines that cod-

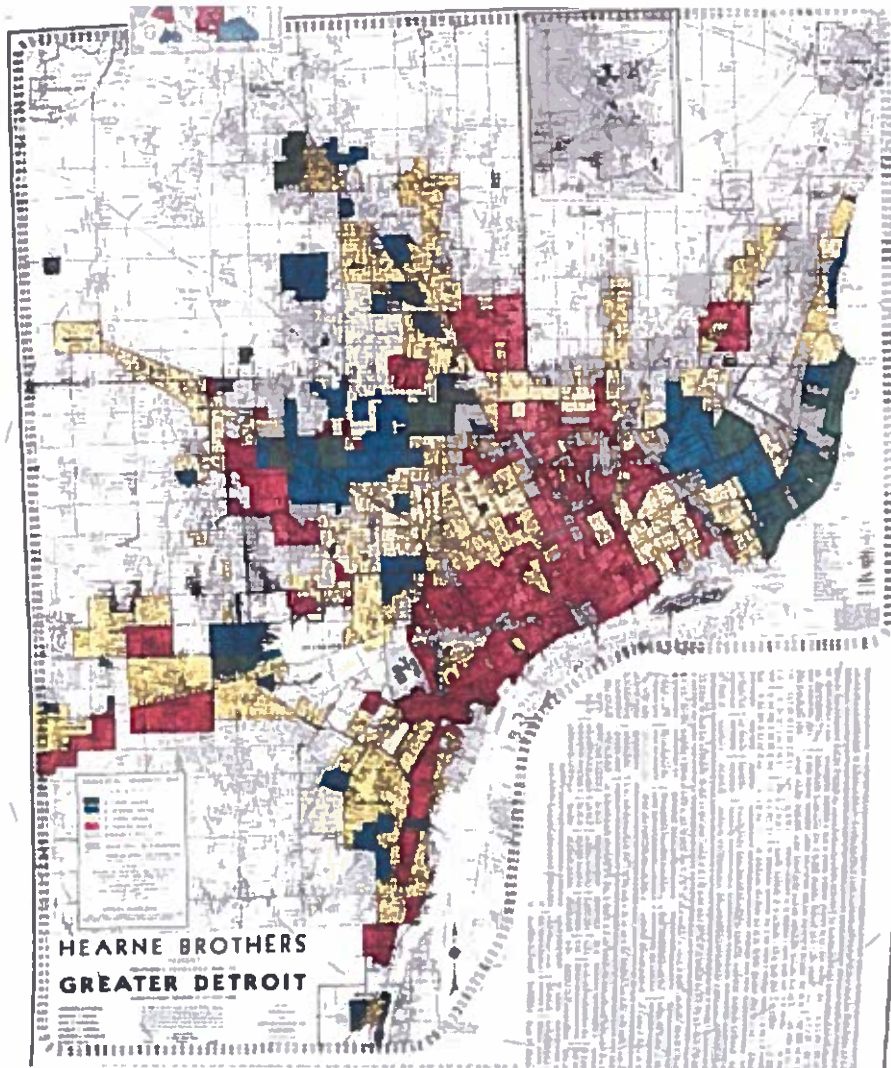


FIGURE 8

A REDLINING MAP OF DETROIT

Source: Robert K. Nelson, LaDale Winling, Richard Marciano, Nathan Connolly, et al., "Mapping Inequality," *American Panorama*, ed. Robert K. Nelson and Edward L. Ayers, accessed March 19, 2018, <https://dsl.richmond.edu/panorama/redlining/#loc=10/42.3475/-83.1365&opacity=0.71&sort=71&city=detroit-mi&text=bibliograph>.

ified racially inequitable development on paper and in practice. Redlining—which gets its name from the color of ink used to markup maps into “good” and “hazardous” investments—refers to the practice of withholding mortgage lending from specific urban neighborhoods, and particularly from neighborhoods with high proportions of immigrants and people of color.¹⁵³ Lender drew these boundaries using highly subjective and prejudiced criteria but they have made a lasting impact on the racial distribution of cities across the United States.

In 1939, a redlined map of Detroit indicates that 28 percent of the city was a “hazardous” investment, while 51 percent was “definitely declining.”¹⁵⁴ Lenders only gave mortgage loans for homebuyers seeking to live in one-fifth of the city’s neighborhoods. In other words, banks decided only one-fifth of the city’s land was worthy of investment. By this time, any new water infrastruc-

ture funded by DWSD was outside the city. The banks considered Detroit a bad investment, and the city’s water department followed suit.

By the late 1940s and with funding support from the federal government, the construction of the Davidson and Edsel Ford Expressways was underway. In Detroit, as in many other cities, expressways fragmented local neighborhoods in the city and created enclave communities where residents were separated by race. At the same time, highways enabled affluent white people to travel to their newly built homes in the suburbs. Water and sewerage systems grew to match these patterns of growth—creating systemic infrastructural barriers which underwrite the history of segregation and disparate investment in Detroit.

City planners were not necessarily motivated by personal animus toward the city’s Black residents,

but their actions and policies existed within a larger system that rested on structural inequality. For example, some White business owners saw Black neighborhoods as valuable sites for future development and wanted Detroit's Black residents to leave those areas—a goal that was actualized through coded blight removal policies that removed Black residents from these areas to the benefit of select business owners' financial gain. These strategies were enacted by political leaders and planners operating under the pretext of a New Deal system, in which benefits ostensibly flowed to everyone, but in practice flowed towards White populations.

Jobs moved to the suburbs, along with the mobile white population. Economic barriers, along with more pointed exclusion in hiring and housing practices, prevented much of the Black population from leaving the urban center. In Detroit, population numbers plummeted, the job market shrank, and poverty and segregation grew.

Every suburban municipality in Detroit's metropolitan region owes its existence and strength to the forward-thinking effort of the city of Detroit. Detroit used its credit and resources (both financial and human) to bet on and support the future growth of the entire region. Water and sewerage infrastructure were central to this growth. Detroit has severely neglected long-overdue upgrades to its water and sewerage system. While Detroit's system has languished, infrastructure was improved in the suburbs. The region's storm and sanitary system was engineered, built, and paid for by DWSD. It did so in preference to the suburbs and in recognition of the growth potential in the region—and it did so at the expense of essential upgrades to the outdated infrastructure system within the city of Detroit.

As you approach any city in the United States by air, you can tell exactly where the water and sewerage infrastructure ends. At that endpoint, suburban development ceases. As you approach a city by car, all development you see occurred only after the infrastructure development of water and sewerage. When a city creates its water system, it is sowing the seeds for all future growth. When a city allows infrastructure to crumble, communities are gutted.

Regulatory Oversight and Outside Management of DWSD 1977-2013

Economic decline in Detroit is often portrayed as an isolated event brought on by a lack of competent local management—an assessment that ignores the structural and historical factors that pose comparable challenges to local governments

across the country.

In 1977, the EPA initiated a suit against DWSD because its wastewater treatment plant's effluent discharge exceeded the amount permitted by its National Pollution Discharge Elimination System permit (NPDES).¹⁵⁵ NPDES permitting regulations were implemented in 1972 under the Clean Water Act.¹⁵⁶ Over the course of the 37-year EPA suit, DWSD management submitted multiple strategic plans aimed at bringing the DWSD system up to the standards of federal regulations created in the 1970s

Detroit was not alone in finding itself falling short of these federal regulations.

A consistent problem that left DWSD and other utility providers under court jurisdiction was the long-term feasibility of plans to resolve water quality issues, and in particular, the availability of sufficient financial resources to enact corrective plans. The original complaint that started the 37-year EPA suit was that DWSD's wastewater treatment plan violated the Clean Water Act.

In the absence of resources for massive public investment in infrastructure—significantly in terms of human resources—Detroit failed to meet the EPA's requirements, and the court's authority was protracted. The structural flaw of beneficial environmental legislation in the 1970s, including the Clean Water Act, was inadequate federal investment to support local utilities' efforts to meet new standards.

Ultimately, this created the need for the system to take out debt and create pricing structures predicated on cost-recovery, not affordability, models. Thus, during that period, the utility experienced increasing financial stress as risky debts were taken on in attempts to bring DWSD system up to federal standards and to make necessary updates to the system in general.

US District Court Judge John Feikens oversaw DWSD for over thirty years during the EPA trial.¹⁵⁷ During Feikens' oversight, he signed an agreement requiring Detroit to pay for 83 percent of combined sewerage improvements outside of Detroit, leaving the suburban wholesale customers responsible for only 17 percent of services they received.¹⁵⁸ This 83/17 split—also known as the 1999 Rate Settlement Agreements—applied specifically to "Non-Detroit Only" and "Non-Common to All" facilities, and there is little technical data to support this disproportional agreement.¹⁵⁹ This plan was approved and subsequently led to hugely inflated sewerage costs for Detroit customers. As described in the Section II of this report, the 83/17 split still applies to many costs today.

While overseeing the water and sewerage department, Judge Feikens also appointed Victor Merca-

TABLE 2

DEMOGRAPHIC CHANGE IN DETROIT: 1910-2010

Year	Total Population	Percent Black
1910	465,766	1.2
1920	993,675	4.1
1930	1,568,662	7.7
1940	1,623,452	9.2
1950	1,849,568	16.2
1960	1,670,144	28.9
1970	1,511,482	44.5
1980	1,203,339	63.1
1990	1,027,974	75.7
2000	951,270	81.6
2010	713,777	82.7

Data for 1910 to 1970 from Sugrue, Thomas J. (1996, 2014) *The Origins of the Urban Crisis*, Princeton University Press: Princeton, NJ. Data from 1980-2016 taken from US Census Bureau.

do as director of DWSD. Mercado had formerly worked for private water companies Thames North America and United Water and was personally involved in the privatization of several municipal water systems. During Mercado's tenure, many union jobs were outsourced to private contractors and DWSD's maintenance and repair staff was cut by 13 percent.¹⁶⁰ In 2014, Mercado was convicted of colluding with the mayor to fix \$72 million worth of fraudulent DWSD contracts.¹⁶¹ The EPA case was finally closed in 2013, and DWSD would have been returned to the City had emergency manager Kevyn Orr not taken over two days prior.

Predatory Lending, The 2008 Financial Crisis, and Water Access in Detroit

During the final years of federal oversight of DWSD, substantial financial deregulation at the federal level and austerity financing in local and state governments enabled banks to aggressively market predatory lending deals—in the form of adjustable-rate subprime mortgages—to working class Detroiters. The destruction this caused in economically burdened neighborhoods is well-known and has played out in communities across the United States. Detroit had one of the highest

rates of subprime lending and foreclosures in the country: since 2005, at least 139,699 homes—or one in three homes in Detroit—have been foreclosed due to mortgage defaults or unpaid taxes.¹⁶² A 2015 Detroit News investigation revealed that 56 percent of homes foreclosed because of mortgage defaults are now “blighted.”¹⁶³

The less well-known story is that municipal entities, and DWSD in particular, were subject to the same predatory lending tactics that impacted individuals. In 2005, the City of Detroit entered into a speculative \$1.4 billion-dollar deal with UBS AG and Merrill Lynch Capital Services that included an interest rate swaps.¹⁶⁴ Interest rate swaps are structured to offset higher costs of borrowing that issuers with lower credit ratings may face with traditional bonds. These interest rate swaps are risky—and that risk was realized by many cities, including Detroit. If certain terms in the bond agreements are met, the bank can recall the bonds and cities are left to face exceptional costs. This is exactly what happened to many such issuers when the financial crisis hit and the markets crashed, DWSD was left with \$537 million in fees to terminate the swaps deal.¹⁶⁵ DWSD had to borrow in order to pay off those swap termination fees and “refinance” debts. This further raised the utility debts—borrowing that did not go to pay for its services or its

little substantive change was realized.

In situations of shortages of public revenue, public functions are often devolved to private agencies under the pretense of cost-saving measures. As low-income people, women, and communities of color are often more dependent on public employment, municipal resources and social services, cutting municipal services has a disproportionate impact on them, thus perpetuating inequitable outcomes.

In situations of shortages of public revenue, public functions are often devolved to private agencies under the pretense of cost-saving measures. As low-income people, women, and communities of color are often more dependent on public employment, municipal resources and social services, cutting municipal services has a disproportionate impact on them, thus perpetuating inequitable outcomes. As the Detroit's revenue crisis deepened, water rates and shut off numbers increased. Local water activists organized and responded. The experience of these residents and organizers informed much of this report in discussion and using research they have conducted.

Municipal Bankruptcy and Emergency Management

After decades of deindustrialization, depopulation, and systemic divestment, Detroit's annual revenue became inadequate to meet its annual expenditures. In 2013, after declaring the city in a state of "financial emergency," Michigan's then governor Rick Snyder appointed Kevyn Orr as Detroit's Emergency Manager.

Orr is a lawyer who left his post at the international corporate law firm Jones Day to assume his role as the city's emergency manager. Subsequently, Jones Day became the legal firm representing the city.¹⁷⁰ After Detroit, Orr went on to serve as an aid to Atlantic City's emergency manager before returning to Jones Day.

Emergency management has roots in the 1986 appointment of a receiver for the city of Ecorse, Michigan.¹⁷¹ In 1988, Public Act 101 created an "emergency financial manager" for the specific case of Hamtramck.¹⁷² In 1990, Public Act 72 was passed, which enabled the appointment of an Emergency Financial Manager for any local government or governmental unit, including public schools.¹⁷³ And in 2011, Public Act 4 renamed the position to Emergency Manager and expanded the authority of the appointed position.¹⁷⁴

The concept of an appointed emergency manager or emergency financial manager was challenged in court by Sugar Law Center. Ultimately, Public Act 4 was repealed by voters in the 2012 general

election. However, Michigan state government seemed insistent on the expansion of authority enabled by Public Act 4, and in 2012, the state legislature passed Public Act 436, reinstalling the ability to appoint an Emergency Manager.¹⁷⁵

In Detroit, not only was an emergency manager appointed as per Public Act 436, but the state legislature passed a separate law that formed a financial review commission that assumes ultimate authority over the city's finances upon exiting bankruptcy; the city is still subjected to state oversight three years after exiting bankruptcy, and after three consecutive balanced budgets, the financial review commission will vote to waive its authority.¹⁷⁶

Financial managers, which temporarily supplant local elected officials and financial officers, have broad control over municipal operations, including the abilities to strip elected officials of their power, cut municipal workers' pay, restructure departments, outsource service city services, and even alter collective bargaining contracts.¹⁷⁷ Given these extensive powers, critics of these practices have complained that emergency management is at odds with local democratic representation.

Under Emergency Management in Detroit, citizens felt as though the power of elected city officials—and correspondingly, the power of Detroit citizens—was effectively disenfranchised and subjected to unelected governance. In recent years, the majority of Michigan's Black population lived under Emergency Management. Correspondingly, critics have complained that emergency management has been used a vehicle for suppressing the democratic voices of people of color. A report produced by We the People of Detroit's Community Research Collective described,

"Since 2009, Michigan's Governor has appointed an emergency manager to govern nine Michigan cities (Allen Park, Benton Harbor, Escorse, Flint, Hamtramck, Lincoln Park, Pontiac, Detroit). Six of the cities account for 49.8% of the state's African American population; in Michigan, then, emergency management has served to politically disenfranchise residents in African-American majority cities." – We the People of Detroit Community Research Collective, Mapping the Water Crisis

During the city's financial emergency period, Orr was unable to reach a consensus with Detroit's creditors, unions, and pension board, and in July, per Orr's recommendation and Governor Snyder's approval, the city filed for Chapter 9 Bankruptcy. In December, the US Bankruptcy Court ruled Detroit eligible.

WATER AS A HUMAN RIGHT

Global water crises have called attention to the need to affirm the human right to water. The Human Right to Water and Sanitation (HRWS) was recognized by the United Nations General Assembly in 2010.¹

While foundational human rights documents do not make explicit reference to water, the right to water is implicated given water's centrality to human existence and thriving. The 1966 International Covenant on Economic, Social, and Cultural Rights advocates for "the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions."²

Similarly, the 1948 Universal Declaration of Human Rights notes that "Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age, or other lack of livelihood in circumstances beyond his control."³

The fulfillment of both of those rights requires access to clean and affordable water.

In 2002, the Committee on Economic, Social and Cultural stipulated that water accessibility has four dimensions:⁴

Physical accessibility, meaning that water resources are in safe physical reach

Economic accessibility, requiring that water is affordable for all

Non-discriminatory accessibility, stipulating that water be available for the most vulnerable groups of the population

Information accessibility, noting the right to seek and receive information about water issues.

In Detroit, water is not affordable, particularly for the city's most vulnerable residents. Moreover, victims of shutoffs were often not provided with notices and information regarding their water bills and water was shutoff unexpectedly. Mass water shutoffs in Detroit offer a clear illustration of the violation of the human right to water.

Sources:

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4 UN Office of the High Commissioner of Human Rights, "General Comment No. 15: The Right to Water (Arts. 11 and 12 of the Covenant), Adopted at the Twenty-Ninth Session of the Committee on Economic, Social and Cultural Rights, E/C.12/2002/11, January 20, 2003, http://www2.ohchr.org/english/issues/water/docs/CESCR_GC_15.pdf.

Resolution 64/292: The Human Right to Water and Sanitation

The General Assembly...

1. Recognizes the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights;

2. Calls upon States and international organizations to provide financial resources, capacity-building and technology transfer, through international assistance and cooperation, in particular to developing countries, in order to scale up efforts to provide safe, clean, accessible and affordable drinking water and sanitation for all;

3. Welcomes the decision by the Human Rights Council to request that the independent expert on human rights obligations related to access to safe drinking water and sanitation submit an annual report to the General Assembly.

At the time of Orr's appointment, he asserted that Detroit had \$18 billion in debt. The figure was certainly high, but as Wallace Turbeville noted, the figure is "highly inflated and in large part, simply inaccurate."¹⁷⁸ For example, \$6 billion in DWSD debt is included, which is not merely Detroit's responsibility but also the responsibility of the entire region.¹⁷⁹ DWSD's billions of dollars of debt was used to inaccurately portray Detroit's

crafted by the Emergency Management Team and presented in US Bankruptcy Court in February 2014 involved cutting pensions by 34 percent for most municipal employees, and by 10 percent for police and fire retirees. At the same time, the city opted to pay secured bonds in full.¹⁸³

At least since 2010, there have been efforts to regionalize operation of DWSD, and under Emergency Manager Orr, there was also a request for



Image from the film *I Do My Dying*. Courtesy of Kate Levy, available online at detroitmindsdying.org

as a local failure marked by local incompetence and corruption.

One month into Orr's tenure, in attempts to recover DWSD's value, the city entered into a \$5.6 million, two-year contract with private demolition company Homrich Wrecking Inc. to carry out 70,000 shutoffs on delinquent DWSD accounts.¹⁸⁰ Notably, this exceeds the funds allocated for the currently-in-place Water Residential Affordability Program (WRAP).¹⁸¹ The summer of 2014 constituted a massive spike in shutoffs, as DWSD customer service department announced that "everybody is getting cut off who is \$150 or 60 days in arrears. That is our policy, and we're ramping up on our enforcement of that policy."¹⁸²

The attempt to remedy Detroit finances by way of maximizing the value of the city's asset offers a clear illustration of austerity finance: a strategy where the field of solutions to fiscal stress is limited to reducing services and restoring revenue through regressive measures including increases in fees for basic utilities or increasing sales taxes. Indeed, similar measures were implemented in other areas. For example, the "Plan of Adjustment"

proposals to put the district under private management. In 2013, the city ultimately opted to regionalize DWSD through the creation of a new regional water authority: the Great Lakes Water Authority, or GLWA. As the following section discusses, the GLWA arrangement continues the historical inequities governing the distribution of water in Detroit.

Conclusion

An examination of the history of Detroit's water and sewerage system reveals two major themes that are prevalent in similar systems across the United States.

First, the water and sewerage system played an integral role in suburban and regional economic growth, determining areas of residential segregation and regional fragmentation. As urban water and sewer systems developed and evolved during periods of extreme racial inequality, the location and expansion of areas served by the infrastructure were, and continue to be, deeply divided by class and race. This is in part because utility sys-

AREAS FOR FURTHER INQUIRY: PUBLIC HEALTH CONSEQUENCES OF WATER ACCESS

There is a litany of well-established links between individual health outcomes and reliable access to clean water and adequate sanitation. There are similarly established links between water and sanitation access and public health outcomes. Situating Detroit within this long-standing line of research, it is wise to study public and individual health has been effected by the number of water shutoffs in the city of Detroit.

TK: Bits about Community Research Collective, mapping the water crisis

Understanding the specific effects in Detroit will enable the best targeted strategies to address effects that exist in Detroit. The spirit of such a study is not to simply reveal problematic outcomes, but far more importantly to direct attention to systemic problems that need attention.

This is another opportunity for Detroit to be a national leader in extending study of water access in the domestic context. Many studies have been done internationally, but more research needs to develop unique problems that are presented within the domestic context.

As a matter of public circulation and understanding of this type of study it is important to understand standards of epidemiological investigation.

The utility of this type of study is any expectation to prove causation. Causation in epidemiological studies is not obvious. Probabilistic standards of causation are appropriate for epidemiological studies, not necessity-sufficiency standards. "...Epidemiological studies can never prove causation; that is, it cannot prove that a specific risk factor actually causes the disease being studied. Epidemiological evidence can only show that this risk factor is associated (correlated) with a higher incidence of disease in the population exposed to that risk factor. The higher the correlation the more certain the association, but it cannot prove the causation. ..."

Studies revealing association, or correlation, are meaningful and reveal new important insights.

Spatial analysis presents an important component of research in general, including the field of epidemiology. There are also limitations inherent in epidemiological study due to privacy standards of personal medical records. Studies that use individual patient data are routinely, and necessarily, aggregated to census tract level or zip code.

tems developed in response to growing populations, and these population dynamics were deeply informed by race and ethnicity—for example, periods of immigration from European countries, the migration of Black people from the South to the North's industrial centers, and White flight from central urban areas.

The development of urban and suburban regions was deeply informed by an interest in segregating races and resources. Physical infrastructure bears the traces of this legacy and has played a significant role in perpetuating it. Infrastructure dictated where people lived and worked, where businesses could open, and where industry could grow. Thus, the footprint of utility services follows the historic patterns of regional and municipal segregation along race and class lines. Similarly, the water system's management practices and system operations reflect dominant and shifting stories of need, priorities, and management policy. In this way, Detroit's water and sewerage system

is not a technical feature of the city that standards apart from its social history. Instead, the water and sewerage system is a central component of structures that determine the inequitable distribution of resources within the region.

Secondly, for almost four decades leading up to, during, and following the bankruptcy, Detroit's water and sewerage department fell under multiple management structures that each implemented different policies in an attempt to ensure regional water quality. This included a long process to create a feasible and durable compliance schedule with the EPA to ensure the system would meet environmental quality standards. DWSD operated under court supervision from 1977 until 2013. Upon conclusion of the court process Kevyn Orr was appointed as emergency manager.

However, while the duration of outside system management in Detroit is exceptional, the extent to which the water utility has struggled to meet

federal regulations is unexceptional. Current environmental regulatory standards and practices date back to President Nixon's administration in the 1970s, and water utilities were pushed to implement changes to meet them.¹⁸⁴ The pressure to meet these standards presented challenges for many water systems, and particularly for those with limited financial resources. These challenges—and the fines that accompany them—continue to affect water utilities across the country.

The history of the water system in Detroit echoes the significance of the relationships between public infrastructure, the equitable distribution of vital resources, urban development, and structur-

al racism. Power comes from democratic voice and resources, and in the case of Detroit, both were denied. Suburban growth was enabled by Detroit's support, and that of the water system in particular. While blame for the current situation cannot and should not be placed on one event or a single individual, it is clear that the problem would not have developed to this extent if the community had more of a voice in the workings of this department that shapes their lives in so many ways. All discussion of the current water crisis must always fall in the context of the social and financial circumstances that created it.

ENDNOTES

Endnotes

- 1 "Regional Sewer Disposal System Lease" between City of Detroit and the Great Lakes Water Authority, June 12, 2015; "Regional Water Supply System Lease" between City of Detroit and the Great Lakes Water Authority, June 12, 2015; "Water and Sewer Services Agreement," between City of Detroit and the Great Lakes Water Authority, June 12, 2015; all available at http://www.glwawater.org/wp-content/uploads/2015/06/Executed_Package-REVISED-6-12-15.pdf.
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- 24 GLWA's debt, which was comprised of the assumption of DWSD debt, described in GLWA, "Comprehensive Annual Financial Report: Fiscal Year Ended June 30, 2016," July 2017: 22, <http://www.glwater.org/wp-content/uploads/2015/12/GLWA-CA-FR-6.30.2016-Final.pdf>.
- 25 United States Environmental Protection Agency, National Pollutant Discharge Elimination System, "Combined Sewage Overflows (CSOs)," <https://www.epa.gov/npdes/combined-sewer-overflows-csos>. For more on the impact of combined sewage systems on the well-being on communities, see Mary Anna Evans, "Flushing the Toilet has Never Been Riskier," The Atlantic, September 17, 2015, <https://www.theatlantic.com/technology/archive/2015/09/americas-sewage-crisis-public-health/405541/>.
- 26 Detroit Water and Sewerage Department, "Wastewater Master Plan Volume 1," October 2003: 3, <https://www.nrc.gov/docs/ML1126/ML112620177.pdf>.
- 27 See United States Environmental Protection Agency, "Green Infrastructure Permitting and Enforcement Series: Factsheet 2— Combined Sewer Overflows," accessed March 14, 2018, <http://allaboutwatersheds.org/library/EPA-Green-Infrastructure-Factsheet-2.pdf>.
- 28 "Water and Sewer Services Agreement" between City of the Detroit and GLWA, June 12, 2015, attachment 2, "Agreement to Revise CSO Project List," <https://outreach.glwater.org/LinkClick.aspx?fileticket=ZGgKOqkj-es%3D&tabid=39>.
- 29 While the original 1999 Rate Settlement Agreement is not available, its key tenets are outlined in the "Water and Sewer Services Agreement" between City of the Detroit and GLWA, June 12, 2015, attachment 2, "Agreement to Revise CSO Project List," <https://outreach.glwater.org/LinkClick.aspx?fileticket=ZGgKOqkj-es%3D&tabid=39>.
- 30 "Water and Sewer Services Agreement" between City of the Detroit and GLWA, June 12, 2015, attachment 2, "Agreement to Revise CSO Project List," <https://outreach.glwater.org/LinkClick.aspx?fileticket=ZGgKOqkj-es%3D&tabid=39>.
- 31 "Water and Sewer Services Agreement" between City of the Detroit and GLWA, June 12, 2015, attachment 2, "Agreement to Revise CSO Project List," <https://outreach.glwater.org/LinkClick.aspx?fileticket=ZGgKOqkj-es%3D&tabid=39>.
- 32 DWSD's 2018-2022 Capital Improvement Plan estimates \$52,575,000 in expenses related to Green Infrastructure projects over the five year period. However, when detailing the costs of particular projects later in the plan, the costs are much higher. Thus \$52 million is, modestly, Detroit's obligation as enumerated in the Shared Service Agreement. See Detroit Water and Sewerage Department, "2018-2022 Capital Improvement Plan Report," June 2017, available for download at <http://www.detroitmi.gov/DWSDimproves>.
- 33 Detroit Water and Sewerage Department, "Detroit Water and Sewerage Department Drainage Charge Questions and Answers," accessed February 26, 2018, <http://detroitmi.gov/Portals/0/docs/DWSD/FAQ%20-%20Drainage%20Charge%20and%20Credit%20Program%20-%202011232016.pdf>
- 34 Currently, the existence of at least 400 Detroit churches is threatened. See "Healthy Communities," Metropolitan Organizing Strategy Enabling Strength (MOSES), accessed February 26, 2018, http://www.mosesmi.org/healthy_communities.
- 35 A 2002 piece in Water Policy authored by Peter Rogers, Radhika de Silva, and Ramesh Bhatia described the way in which water pricing policies can be used to promote the equitable, efficient, and sustainable distribution of water. Importantly, they discuss the need for full-cost pricing (i.e. rate structures which take into account a robust cost-of-service, and the way in which increased water prices can improve distributional equity. See Peter Rogers, Radhika de Silva, Ramesh Bhatia, "Water is an Economic Good: How to Use Prices to Promote Equity, Efficiency, and Sustainability," Water Policy (2002), 1-17.
- 36 "Regional Water Supply System Lease" between the City of Detroit and Great Lakes Water Authority, Section 3.3, p. 13, Regional Sewer System Lease, Section 3.3: 3, <https://outreach.glwater.org/LinkClick.aspx?fileticket=ZGgKOqkj-es%3D&tabid=39>.
- 37 "Water and Sewer Services Agreement" between The City of Detroit and the Great Lakes Water Authority, Article 3, "Water and Sewer Service; Rates:" 11-12, <https://outreach.glwater.org/LinkClick.aspx?fileticket=ZGgKOqkj-es%3D&tabid=39>.
- 38 Notably, DWSD-R will be subject to the same rate increases as other wholesale customers; customers with greater or similar economic conditions than Detroit.
- 39 See "Memorandum of Understanding Regarding the Formation of The Great Lakes Water Authority," September 9th, 2014, executed by representatives from the City of Detroit, Wayne County, Oakland County, Macomb County, and the State of Michigan, http://www.dwsd.org/downloads_n/announcements/general_announcements/ga2014-09-09-regional_authority_MOU_executed.pdf.
- 40 "Regional Water System Lease" between City of Detroit and GLWA, Section 5.6d: 21, <https://outreach.glwater.org/LinkClick.aspx?fileticket=ZGgKOqkj-es%3D&tabid=39>.
- 41 These costs are detailed in the "GLWA Capital Improvement Plan 2018-2022," Version 1.1, November 29, 2016, Section 3.3, <https://outreach.glwater.org/LinkClick.aspx?fileticket=ZGgKOqkj-es%3D&tabid=39>.
- 42 Notably, the four percent rate cap factors in the costs associated with the currently-in-place Water Residential Assistance Program (WRAP). In determining the cap, GLWA employed consultancy firm Plante and Moran to conduct a "Lease Feasibility Study." They found that "The 4-percent revenue increase cap is sufficient to support the \$50 million lease payment, the \$45.4 million annual pension reimbursement and the \$4.5 million annual Water Residential Affordability Program." Although we do not have access to Plante and Moran's report, some details are provided in the July 2015 "Customer to Owner:

- Then-Now-Future" presentation, <https://outreach.glwater.org/LinkClick.aspx?fileticket=YrZxZJuQilY%3D&tabid=39>.
- 43 Oona Goodin-Smith, "30-year Flint GLWA Deal Gets Stamp of Approval," M Live, November 29, 2017, <http://www.mlive.com/news/flint/index.ssf/2017/11/30-year-flint-glw-water-deal.html>.
- 44 "Memorandum of Understanding Regarding the Formation of The Great Lakes Water Authority" September 9th, 2014, executed by representatives from the City of Detroit, Wayne County, Oakland County, Macomb County, and the State of Michigan, http://www.dwsd.org/downloads_n/announcements/general_announcements/ga2014-09-09_regional_authority_MOU_executed.pdf.
- 45 Great Lakes Water Authority, "2017 GLWA One Water Partnership," September 28, 2017, <http://www.glwater.org/wp-content/uploads/2015/12/One-Water-Partnership-Agreement-FINAL.pdf>.
- 46 See Michigan Department of Treasury, "Detroit Financial Review Commission," accessed March 22, 2018, <http://www.michigan.gov/treasury/0,4679,7-121-17515-1556-77310--00.html>.
- 47 "Water and Sewer Services Agreement" between the City of Detroit and GLWA, Section 5.3, "City Budget ;Detroit CIP; Application of Lease Payments," 17, <https://outreach.glwater.org/LinkClick.aspx?fileticket=ZGgKOqki-es%3D&tabid=39>.
- 48 "Regional Sewage Disposal Lease between City of Detroit and GLWA, Section 3.4, "Lease Payment," 13; "Regional Water System Lease between City of Detroit and GLWA, Section 3.4, "Lease Payment," 13. Both available at <https://outreach.glwater.org/LinkClick.aspx?fileticket=ZGgKOqki-es%3D&tabid=39>.
- 49 See "Regional Sewage System Lease" between the City of Detroit and GLWA, Section 8.2, "Arbitration," 27; See "Regional Water Supply System Lease" between the City of Detroit and GLWA, Section 8.2, "Arbitration," 26. Both available at <https://outreach.glwater.org/LinkClick.aspx?fileticket=ZGgKOqki-es%3D&tabid=39>.
- 50 "Regional Sewage Disposal Lease between City of Detroit and GLWA, Section 3.4, "Lease Payment," 13; Regional Water System Lease between City of Detroit and GLWA, Section 3.4, "Lease Payment," 13. Both available at <https://outreach.glwater.org/LinkClick.aspx?fileticket=ZGgKOqki-es%3D&tabid=39>.
- 51 "Regional Sewage Disposal Lease between City of Detroit and GLWA, Section 3.4, "Lease Payment," 13; Regional Water System Lease between City of Detroit and GLWA, Section 3.4, "Lease Payment," 13. Both available at <https://outreach.glwater.org/LinkClick.aspx?fileticket=ZGgKOqki-es%3D&tabid=39>.
- 52 Regional Sewer System Lease between the City of Detroit and GLWA, Section 3.3, "Lease of Leased Sewer Facilities," 12, available at <https://outreach.glwater.org/LinkClick.aspx?fileticket=ZGgKOqki-es%3D&tabid=39>.
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- 54 Joe Guillen, "For Poor Detroiters, Help for Water Bills Dries Up," Detroit Free Press, August 17, 2016, <https://www.freep.com/story/news/local/michigan/detroit/2016/08/17/funding-detroits-water-assistance-program-dries-up/88915566/>.
- 55 GLWA-WRAP Program Summary, "Year to Date Program Activity Report: March 1, 2016-December 1, 2017," secured through a F.O.I.A. request to DWSD, accessed November 2, 2017.
- 56 Quoted in Joe Guillen, "For Poor Detroiters, Help for Water Bills Dries Up," Detroit Free Press, August 17, 2016, <https://www.freep.com/story/news/local/michigan/detroit/2016/08/17/funding-detroits-water-assistance-program-dries-up/88915566/>.
- 57 Roger Colton, "A Water Affordability Program for The Detroit Water and Sewerage Department," January 2005, <http://www.isconline.com/downloads/Papers/2005%2001%20Detroit%20Water.pdf>.
- 58 Roger Colton, Email to Lauren Lyons (Contributing Writer), Personal communication with Roger Colton, January 2, 2018.
- 59 Roger Colton, "A Water Affordability Program for The Detroit Water and Sewerage Department," January 2005: 6, <http://www.isconline.com/downloads/Papers/2005%2001%20Detroit%20Water.pdf>.
- 60 Detroit Water and Sewerage Department, "Trust Receipts and Disbursements Worksheet: DWSD Local System," secured through a F.O.I.A. request to DWSD, requested November 2, 2017.
- 61 International Human Rights Law Clinic at UC Berkeley Law School, "The Human Right to Water Bill in California: An Implementation Framework for State Agencies," May 2013, https://www.ushmctwork.org/sites/ushmctwork.org/files/ihrcl_water_report_2013_final.pdf.
- 62 Founded in Detroit, NCLAWater is comprised of local, state, and national organizations advocating for legislation that guarantees "comprehensive access to safe, affordable drinking water and sanitation – the human rights to water and sanitation." They require that water be accessible, safe, and affordable. Learn more at <http://affordablewatermow.org/>.
- 63 This list of legislation was obtained through email correspondence between Alice Jennings and the authors, February 8, 2018.
- 64 A 2002 piece in *Water Policy* authored by Peter Rogers, Radhika de Silva, and Ramesh Bhatia described the way in which water pricing policies can be used to promote the equitable, efficient, and sustainable distribution of water. Importantly, they discuss the need for full-cost pricing (i.e. rate structures which take into account a robust cost-of-service, and the way in which increased water prices can improve distributional equity. See Peter Rogers, Radhika de Silva, Ramesh Bhatia, "Water is an Economic Good: How to Use Prices to Promote Equity, Efficiency, and Sustainability," *Water Policy* (2002), 1-17.
- 65 "Provisions for periodic review of the terms of the agreement are detailed in the "Water and Sewer Services Agreement" between the City of Detroit and Great Lakes Water Authority, June 12, 2015, Section 5.04, (c); Section 5.07, available at <https://outreach.glwater.org/LinkClick.aspx?fileticket=ZGgKOqki-es%3D&tabid=39>.
- 66 The currently proposed plan will be referred to as WAP from here on.
- 67 Implementing an income-based affordability plan is a central demand of the People's Water Board, member organizations of which include AFSCME Local 207, Baxter's Beat Back the Bullies Brigade, Boggs Center – Detroit, Cities of Peace Detroit, Detroit Black Community Food Security Network, Detroit Greens, Detroit Jews for Justice, Detroit Social Justice Team United Church of Christ, Detroit People's Platform, Detroiters Resisting Emergency Management, East Michigan Environmental Action Council, Ecumenical Theological Seminary, FLOW, Food & Water Watch, Great Lakes Bioneers – Detroit, Highland Park Human Rights Coalition, Immaculate Heart of Mary (IHM), MECAWI, Matrix Theater Company, Michigan Citizens for Water Conservation, Michigan Coalition for Human Rights, Michigan Unitarian Universalist Social Justice Network (MUUSJN), Michigan Welfare Rights Organization, Moratorium NOW, National Boricua Human Rights Network, Rosa and Raymond Parks Institute for Self Development, Sierra Club, Sisters of Mercy, Sisters, Servants of the Immaculate Heart of Mary (IHM), Justice Peace Sustainability Detroit Office, Small Ville Learning Farms, St. Peter's Episcopal Church, Voices for Earth Justice, We the People of Detroit

68 Notably, the EPA figures determine the affordability of water based on medium household income of service areas for water, while using figures for national MHI for determining the affordable burden for water. Colton's plan, on the other hand, determines affordable burdens on the basis of household, estimating the number of participants in the program. According to multiple sources, including the American Water Works Association, United States Congressional Budget Office, UNC Environmental Finance Center, independent experts, and EPA's own Science Advisory Board, median household income (MHI) is a poor input for calculations on affordability. Econometric studies have shown a very small correlation between MHI and poverty, making MHI a poor indicator for economic need. MHI does not take actual income distributions into account, meaning it does not capture economic impacts across different groups. Depending on the income distribution, lower income groups could face dire need even in areas without low MHI. The basic calculations EPA makes based on system-wide MHI do not factor in other household burdens, such as non-discretionary spending, which can vary widely between communities. Additionally, use of a single-year MHI number does not capture historical or future economic or demographic trends such as population

decline, changes in the unemployment rate, or other indicators of poverty like use of public assistance programs. See United States Environmental Protection Agency, "Affordability Criteria for Small Drinking Water Systems: An EPA Science Advisory Board Report," A Report by the Environmental Economics Advisory Committee of the EPA Science Advisor Board, December 2002, <https://nepis.epa.gov/Exe/ZyNET.exe/P100JOKY.TXT?ZyAc:tionD=ZyDocument&Client=EPA&Index=2000+Thru+2005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&ToC=Restrict=&ToC=To:Entry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmiQuery=&File=D%3A%5Czfiles%5CIndex%20Data%5C00000033%5C100JOKY.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75q8/r75q8/x150y150q16/425&Display=html&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL>; United States Conference of Mayors; American Water Works; Water Environment Federation. 2013. Affordability Assessment Tool for

Federal Water Mandates, at 4; Fisher, Sheehan, & Colton. 2005. "Defining "Affordable" Water Rates for Low-Income Affordability Programs." FSC's Law and Economics Insights 05 (2); nvironmental Finance Blog, UNC Environmental Finance Center. Percent MHI as an Indicator of Affordability of Residential Rates: Using the US Census Bureau's Median Household Income Data. <http://efc.web.unc.edu/2013/01/09/percent-mhi-indicator-of-affordability-of-residential-rates-using-the-u-s-census-bureau-med-household-income-data/>

69 Colton's plan sets the affordable burden on a sliding scale of 2-3 percent, depending on the household income.

70 United States Environmental Protection Agency, "Memorandum Assessing Financial Capability for Municipal Clean Water Act Requirements," January 13, 2013: 3, https://www3.epa.gov/nepdes/pubs/sw_regionalmemo.pdf.

71 Roger Colton, "A Water Affordability Program for The Detroit Water and Sewerage Department," January 2005, <http://www.fsconline.com/downloads/Papers/2005%2001%20Detroit%20Water.pdf>.

72 See City of Philadelphia, Bill No. 140607-AA, §19-1605. "Limitation on Action to Enforce Collection; Income Based Water Rate Assistance Program,"

	Number of Customers	Monthly Meters Charge	Annual Meters Charge	Total Revenue
Residential	\$260,439.00	\$1.00	\$12.00	\$3,125,268.00
Commercial	\$16,182.00	\$20.00	\$240.00	\$3,883,680.00
Industrial	\$1,506.00	\$275.00	\$3,300.00	\$4,969,800.00
Municipal	\$510.00	\$80.00	\$900.00	\$459,000.00
School	\$587.00	\$80.00	\$900.00	\$528,300.00
Housing	\$612.00	\$80.00	\$900.00	\$550,800.00
Total Revenue				\$13,516,848.00
Total Program Cost				\$13,515,916.00
Annual Excess/ (Shortfall)				\$932.00

- an amendment to Section 1, Chapter 19-1600 to the Philadelphia Code, <http://www.circleofblue.org/wp-content/uploads/2017/04/Philadelphia-Certified-Copy-140607-AA04.pdf>; Trincia L. Nadolny, "For Low-Income Residents, Philadelphia Unveiling Income-Based Water Bills," *The Inquirer*, June 19, 2017, <http://www.philly.com/philly/news/politics/city/for-low-income-residents-philadelphia-unveiling-income-based-water-bills-20170620.html>.
- 73 Note that start-up costs are not included in the budget, given that not all residents will enroll in the early days, or even the first year of the program. This budgeted surplus will be used for start-up costs. These ramp-up savings should be sufficient to fund all non-recurring start-up costs.
- 74 On November 27, 2017, our team submitted a Federal Open Information Act (FOIA) request to GLWA. Many of the figures we requested were not provided by GLWA, including data for average bills, number of customers in particular classes (residential, commercial, industrial, etc.), and the number of shutoffs. In order to comprehensively calculate the cost of the water affordability program and to present a cost recovery mechanism, these figures are required.
- 75 Baltimore WAP
- 76 Given the quantity of these classes of customers in Detroit in 2005, the costs of the program played out in the table below. As shown, the affordability scheme is offset by the meter charges.
- Roger Colton, "A Water Affordability Program for The Detroit Water and Sewerage Department," January 2005, <http://www.fsconline.com/downloads/Papers/2005%2001%20Detroit%20Water.pdf>.
- 77 We requested these figures from GLWA through a FOIA request, and they responded stating that they do not keep figures on customer classes of customers in the region, as they are a wholesale retailer. Although GLWA ought to keep up with the number of customers in the authority, one could also find these figures by requesting figures from each wholesale customer.
- 78 <https://www.wixomgov.org/Home/ShowDocument?id=1460>
- 79 Michigan State Constitution, Article IX §31, Initiated Law, approved Nov. 7, 1978, Eff. Dec. 23, 1978, [http://www.legislature.mi.gov/\(S\(0eesh-genoqup5s0adx0uxb\)\)/mileg.aspx?page=GetObject&objectname=mc-Article-IX-31](http://www.legislature.mi.gov/(S(0eesh-genoqup5s0adx0uxb))/mileg.aspx?page=GetObject&objectname=mc-Article-IX-31); Also see Eric Walcott, "What is the Headlee Amendment and How Does it Affect Local Taxes?" Michigan State University Extension, July 25, 2016, <http://msue.anr.msu.edu/news/what-is-the-headlee-amendment-and-how-does-it-affect-local-taxes>.
- 80 [how does it affect local taxes.](http://www.dwsd.org/downloads_n/customer_service/customer_information/collection_rules.pdf)
- 81 Bolt vs. City of Lansing, Supreme Court of Michigan, Docket No. 108511, Decided December 28, 1998, <http://caselaw.findlaw.com/mi-supreme-court/1309712.html>.
- 82 American Civil Liberties Union of Michigan, "Memorandum: A Water Affordability Plan for the City of Detroit Does Not Violate the Headlee Amendment," June 6, 2017, prepared by Michael P. Fancher, Staff Attorney—Racial Justice Project.
- 83 American Civil Liberties Union of Michigan, "Memorandum: A Water Affordability Plan for the City of Detroit Does Not Violate the Headlee Amendment," June 6, 2017: 3, prepared by Michael P. Fancher, Staff Attorney—Racial Justice Project.
- 84 Note that under the current structure, wholesale customers and DWSD Retail have their own "Collection Rules and Procedures" and related documents. It is thus possible for GLWA to encourage all wholesale customers and GLWA to implement the policies, or to author and implement new, system-wide procedures.
- 85 Note that the implementation of a comprehensive water affordability plan would likely decrease the likelihood of non-payment.
- 86 http://www.dwsd.org/downloads_n/customer_service/customer_information/collection_rules.pdf
- 87 City of Detroit Water and Sewerage Department, "Interim Collection Rules and Procedures," December 22, 2003, http://www.dwsd.org/downloads_n/customer_service/customer_information/collection_rules.pdf.
- 88 Roger Colton, "A Water Affordability Program for The Detroit Water and Sewerage Department," January 2005: 27, <http://www.fsconline.com/downloads/Papers/2005%2001%20Detroit%20Water.pdf>.
- 89 These recommendations are also in line with Colton's proposal.
- 90 See "What is Green Infrastructure?" The United States Environmental Protection Agency, accessed March 7, 2018, <https://www.epa.gov/green-infrastructure/what-green-infrastructure>; The United States Environmental Protection Agency, "Green Infrastructure for Stormwater Control: Gauging Its Effectiveness with Community Partners," October 2015, <https://www.epa.gov/green-infrastructure/what-green-infrastructure> <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100NE3S.txt>.
- 91 DWSD's Annual "Green Infrastructure Progress Reports" can be found at <http://www.detroitmi.gov/How-Do-I-Find/Annual-Report>.
- 92 <https://www.semcoq.org/green-infrastructure>
- 93 Detroit Future City, "139 Square Miles," August 2017: 47, <https://detroitfuturecity.com/wp-content/uploads/2017/11/DFC-139-SQ-Mile-Report.pdf>.
- 94 For more on Green Infrastructure projects underway in Detroit, check out DWSD's website, <http://www.detroitmi.gov/Government/Departments-and-Agencies/Water-and-Sewerage-Department/Green-Infrastructure-Projects>. Also see United States Environmental Protection Agency, "Green Infrastructure Targeting in Southeast Michigan: An Outcome-based Strategic Planning Framework to Identify and Evaluate Green Infrastructure Opportunities," https://www.epa.gov/sites/production/files/2017-02/documents/epa-semcoq-targeting-report_011017_508.pdf.
- 95 Kathleen Wolf, Katrina Flora, and Elizabeth Housley, "Research on the beneficial aspects of the experience of nature in cities: A literature review." Annapolis: TKF Foundation. See also Kathleen Wolf and Elizabeth Housley, "Feeling stressed? Take a time out in nature." Annapolis, MD: TKF Foundation
- 96 Payam Dadvand, Jordi Sunyer, Xavier Basagaña, Ferran Ballester, Aitana Lertxundi, Ana Fernández-Somoano, Marisa Estarlich, Raquel Garcia-Esteban, Michelle A. Mendez and Mark J. Nieuwenhuijsen, "Surrounding Greenness and Pregnancy Outcomes in Four Spanish Birth Cohorts" *Environmental health perspectives* 120, no. 10 (2012): 1481.
- 97 could save billions over the next 25 years. I think we need to cite how we got this number.
- 98 Jared Green, "The New Philadelphia Story is About Green Infrastructure," *The Dirt: Uniting the Built and Natural Environment*, blog by the American Society of Landscape Architects, December 18, 2013, <https://dirt.asla.org/2013/12/18/the-new-philadelphia-story-is-about-green-infrastructure/>.
- 99 "Professional Practice: Green Infrastructure," American Society of Landscape Architects (ASLA), accessed online, March 7, 2018, <https://www.asla.org/greeninfrastructure.aspx>.
- 100 Detroit Water and Sewerage Department, "Detroit Water and Sewerage Department Drainage Charge Questions and Answers," accessed February 26, 2018, <http://detroitmi.gov/Portals/0/docs/DWSD/FAQ%20-%20Drainage%20Charge%20and%20Credit%20Program%20-%2011232016.pdf>
- 101 Re: "In March 2017, for example, hundreds of local ministers of churches serving the city of Detroit and the surrounding communities wrote a letter to the mayor of Detroit requesting his advocacy on a number of measures to address the inequities presented by the current system"—need letter and reference

- 101 <https://data.detroitmi.gov/Property-Parcels/Land-Bank-Inventory/ysin-ur7i>
https://s3.us-east-2.amazonaws.com/dlba-production-bucket/City_Council_Quarterly_Report/January+2018+City+Council+Report+DLBA.pdf
- 102 "Memorandum of Understanding Regarding the Formation of The Great Lakes Water Authority" September 9th, 2014, executed by representatives from the City of Detroit, Wayne County, Oakland County, Macomb County, and the State of Michigan, http://www.dwsd.org/downloads_n/announcements/general_announcements/ga2014-09-09_regional_authority_MOU_executed.pdf.
- 103 https://www.epa.gov/sites/production/files/2017-02/documents/epa-semcog-targeting_report_011017_508.pdf
- 104 139 square miles page 71; https://s3.us-east-2.amazonaws.com/dlba-production-bucket/City_Council_Quarterly_Report/January+2018+City+Council+Report+DLBA.pdf
- 105 <https://www.epa.gov/water-research/best-practices-design-operation-and-maintenance-green-infrastructure>
- 106 An additional important objective of developing engineering prototypes is to make relevant information available or small businesses. Often, the most serious impediment to small and minority business development is the simple lack of information. Developing, posting and refining these prototypes is an ideal way to maintain a more equitable and sustainable business community.
- 107 Via WaPo: "As a percentage of their total incomes, which are larger, the rich generally spend less." "This is one reason that some economists are concerned about rising levels of inequality. The rich save more than the poor, and the more they have, the more they'll save. Money that's being saved isn't being spent, which means less business for everyone from the dry cleaner on the corner to the owner of a five-star hotel. In turn, that means less work for everybody and a lethargic economy." Source: Bureau of Labor Statistics (<https://www.bls.gov/cex/>) https://www.washingtonpost.com/news/wonk/wp/2015/04/14/where-the-poor-and-rich-spend-really-spend-their-money/?utm_term=.ec5a0b792966 <http://www.npr.org/sections/money/2012/08/01/157864524/how-the-poor-the-middle-class-and-the-rich-spend-their-money> Public-Use Microdata: <https://www.bls.gov/cex/pumd.htm>
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Endnotes: Executive Summary

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8. The project team orients its work and research within the attempt to enable the formation of a targeted universalist policy agenda for the future of GLWA's operation and management of the DWSD system—and the alignment of interests across the region. In short, targeted universalist policy is a platform that will enable groups with disparate needs to benefit from different strategies that are tailored for their circumstances. At the same time, designing policies that are designed to resolve structural barriers for those groups can also benefit other people and places. Ultimately, a well-aligned and well-designed set of targeted policies and strategies can supplement each other such that the entire service area can enjoy a universal goal of water security, increased environmental quality, and public health.
9. Articles of Incorporation of Great Lakes Water Authority, Article 4. https://www.oakgov.com/exec/Documents/great_lakes_water_authority/All_Comments_Clean_Final_090814_GDP.pdf Further details on the formation and definitions of Authorities are found in MCL 124.281 Sec. 1 and 2. MCL 124.281 Sec. 1. found here [https://www.legislature.mi.gov/\(S\(yq05baucoujntx4xbgjqppwg\)\)/documents/mcl/pdf/mcl-124-281.pdf](https://www.legislature.mi.gov/(S(yq05baucoujntx4xbgjqppwg))/documents/mcl/pdf/mcl-124-281.pdf) MCL 124.281 Sec. 2. Found here [https://www.legislature.mi.gov/\(S\(fy1bv2zccv1kr4bkkmuy0ctr\)\)/mileg.aspx?page=getObject&objectName=mcl-124-282](https://www.legislature.mi.gov/(S(fy1bv2zccv1kr4bkkmuy0ctr))/mileg.aspx?page=getObject&objectName=mcl-124-282) The general powers that a municipal authority has include adopt bylaws, sue and be sued in its own name, the ability to issue bonds, including revenue bonds, and the ability to "acquire, hold, and dispose of real and personal property in the exercise of its powers and the performance of its duties." See Act 233 of 1955, MCL 124.284 here [https://www.legislature.mi.gov/\(S\(guvjpk1pmukhv4muvbthys\)\)/mileg.aspx?page=getObject&objectName=mcl-124-284](https://www.legislature.mi.gov/(S(guvjpk1pmukhv4muvbthys))/mileg.aspx?page=getObject&objectName=mcl-124-284)
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Additionally, while the majority of retail systems have separate sanitary sewers, there are some retail systems that are CSO and that 'part' of the system then makes use of "Detroit's" CSO management structures. This document was able to provide some analysis of the details of system design throughout the region. However, a full analysis is still needed to provide a clearer appraisal of the mutual dependency and use between the DWSD, DWSD-R, and other retail clients.

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We the People of Detroit, founded in 2008, has been at the forefront of the activist response to the water crisis. We the People is dedicated to community coalition-building and to the provision of resources that inform, train and mobilize the citizens of Detroit to improve their quality of life. The organization has provided immediate disaster relief through delivering water to shut-off victims and advocated for policies that ensure access to affordable water.

We the People's Community Research Collective conducts original research on water, land, and education issues in Detroit. They are currently working on a three-part data visualization project, which uses data to visually represent the impact of austerity politics on Detroit. The collective is committed to using knowledge to equip Detroit citizens to fight for community equity and sustainability.

We the People's activism and research has been central to investigative work into the Detroit water crisis, and this report reflects and builds upon those crucial insights. Learn more at <https://wethepeopleofdetroit.com/>.

National Coalition for Legislation on Affordable Water is a coalition of national, state, and local organizations, religious institutions, legal organization, unions, and others working to win the passage of national legislation and state legislation to ensure comprehensive access to safe, affordable drinking water and sanitation— the human rights to water and sanitation. Learn more at <http://affordablewater-now.org/>.

The Great Lakes Environmental Law Center is a Detroit-based nonprofit that offers community education, policy support, and various legal services to address environmental, resource, and energy issues affecting communities in and around Detroit, all over Michigan, and throughout the Great Lakes region. Learn more at <https://www.glelc.org/>.

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The Haas Institute for a Fair and Inclusive Society brings together researchers, community stakeholders, and policymakers to identify and challenge the barriers to an inclusive, just, and sustainable society in order to create transformative change.

***Options for Implementation of a Statewide
Low-Income Water Rate Assistance Program***

***State Water Resources Control Board
January 3, 2019***

DRAFT

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Appendices can be accessed through the State Water Board website at:

https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/assistance/.

Introduction

In 2012, California enacted the Human Right to Water Act (Assembly Bill (AB) 685), establishing a state policy that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking and sanitary purposes. Since the passage of AB 685, the Legislature passed and the Governor signed various laws¹ aimed at making this policy a reality. There is, however, more to do. In recognition that many Californians may not be able to pay their water bills, AB 401 (Dodd, 2015) enacted the Low-Income Water Rate Assistance Act, which directed the State Water Resources Control Board (State Water Board or Board) to submit recommendations for a statewide Low-Income Water Rate Assistance Program (W-LIRA).

In this draft report, the State Water Board outlines possible components for developing a successful program to help low-income households pay their water bills. Specifically, the report identifies potential program recipients, different mechanisms for delivering benefits to low-income households, and possible funding sources to implement such a W-LIRA program. The purpose of this report is to present ideas for a W-LIRA program for public and stakeholder input, and the options outlined reflect discussions with public interest groups and stakeholders. The Board will use the input gathered in response to this draft to develop a final report to the Legislature in 2019.

In addition to welcoming feedback on this AB 401 draft report, the State Water Board also encourages review of the Office of Environmental Health Hazard Assessment's (OEHHA) draft *Framework and Tool for Evaluating California's Progress in Achieving the Human Right to Water*. Following the adoption of a Human Right to Water Resolution² in 2016, the Board enlisted OEHHA to develop a methodology for evaluating the state's progress in meeting the Human Right to Water policy. OEHHA's draft framework and tool can help evaluate and track our progress towards achieving safe, clean, affordable, and accessible water for all Californians.

While AB 401 is focused on assisting low-income households in paying their water bills, the State Water Board is committed to achieving the Human Right to Water in full. Multiple strategies will be necessary. This includes securing sustainable funding for the long-term operation and maintenance of water systems, consolidation of unsustainable systems, and improving technical, managerial, and financial capacity for systems serving disadvantaged communities. While the state continues to explore options for comprehensive solutions, developing a W-LIRA program will provide a necessary safety net for the most vulnerable Californians.

¹ These laws include: Senate Bill (SB) 88 (2015), SB 552 (2016), SB 1263 (2016), AB 401 (2015), AB 1668 & SB 606 (2018), AB 2501 (2018), and SB 998 (2018).

² State Water Board. Human Right to Water Resolution. Available at URL: http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2016/rs2016_0010.pdf.

Executive Summary

The Growing Water Affordability Challenge

Drinking water is a basic human need. Satisfying this need, however, is becoming more difficult for California's households, as the retail cost of water has risen substantially over the last decade and is expected to rise significantly over the coming years. Figure 1 shows that, adjusting for inflation, the average Californian household was paying around 45% more per month for drinking water service in 2015 than in 2007. The burden of rapidly-rising drinking water costs falls most heavily on the 13 million Californians living in low-income households, many of whom have seen their incomes stagnate during the same period. The high and rising costs of other basic needs for California residents, including housing, food, and other utility services, means that cost increases for any single need, such as water, can lead families to make difficult and risky tradeoffs which could harm their health and welfare. Expenditures to meet basic water needs are expected to continue to rise rapidly due to the need for water systems to replace aging infrastructure, meet treatment standards, diversify supplies, and maintain a well-trained workforce.

Figure 1. Inflation-adjusted Increase in average price of water (15 CCF³) for California Households



Source: American Water Works Association Data, 2007-2015

Need for a Statewide Program

Only 46% of California's population is served by a community water system (CWS)⁴ offering some form of a rate assistance program, and many of these programs have low levels of enrollment and limited

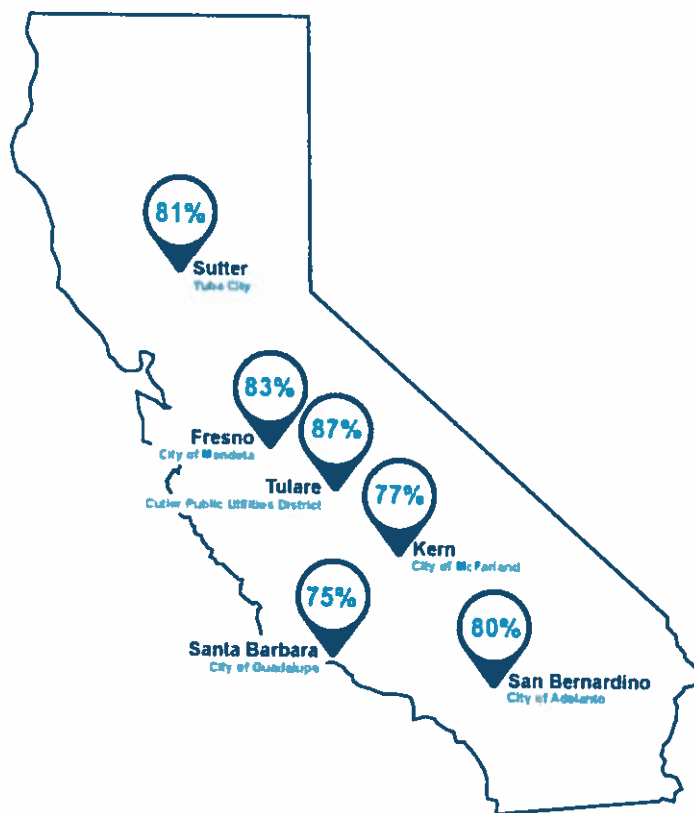
³ Centum cubic feet (CCF) is also known as a hundred cubic feet (HCF), which is 748 gallons. For a four person household, 12 CCF of use in a month equates to 75 gallons of water per person per day.

⁴ Community water systems serve communities with more than 25 people year-round. It is a term the Board's Drinking Water Division uses to distinguish them from other drinking water providers, such as domestic wells, truck stops, camp grounds, etc.

financial support. As a result, less than 20% of the state's low-income population currently receives benefits from a low-income rate assistance program. One reason for the limitation in program offerings is that publicly-owned water systems are constrained by Proposition 218⁵ in the use of their water fees and charges. Systems that do provide low-income rate assistance benefits are able to fund them from non-fee revenues.

There are also administrative obstacles associated with providing a rate assistance program to water users at the system level. Asking approximately 3,000 individual CWS to operate their own standalone rate assistance programs for their individual customer bases is infeasible. As illustrated in Figure 2, using 200% of the federal poverty level (FPL) as the baseline eligibility criteria for W-LIRA programs would mean that for many systems more than 50% of their customers would be eligible for assistance. To operate a low-income rate assistance program, these systems would likely have to impose outsized cost burdens on higher-income households served by the systems.

Figure 2. Large Water Systems with High Percentages of Low-Income Households That Could be Eligible for Rate Assistance



Note: Calculated using Census data and system water boundaries. The percentages shown above represent the proportion of residential customers served by the system who have incomes under 200% of the Federal Poverty Level.

⁵ Passed in 1996, Proposition 218 requires certain local government taxes, fees and assessments to go before the voters for approval.

Because developing a comprehensive low-income rate assistance program at the system level is not practical, the Board envisions a statewide program, with benefits distributed through other existing assistance program, such as utility bill credits, tax credits, or direct cash benefits.

The Board recommends progressive revenue sources (i.e. taxes or fees) in order not to burden some of the residents that this program seeks to serve. For example, taxes on personal and business income would provide progressive revenues, while fees on bottled water or alcohol would have a nexus to water use.

Eligibility criteria and benefit levels would influence the total program costs. AB 401 directed the Board to use 200% of the FPL as the primary eligibility criteria in its analysis; however, the Board seeks input on alternate eligibility criteria that can feasibly be implemented across the state (some of which are discussed in Appendix F). Benefit levels could be tied to the cost of water, other assistance programs, or certain affordability criteria. The Board developed the working proposal below to elicit input and inform a robust discussion. The program scenario would offer a three-tiered benefit to all eligible residential households (those with income under 200% of the FPL) in the state.⁶ The program would provide a benefit equivalent to the tiers below. The monetary value of the discounts provided in each tier would be based on a consumption level of 12CCF each month for each of the 3,000 community water systems, rather than each household's actual amount consumed (and actual bills), as explained below in Chapter 2.

Text Box 1: Potential Program Benefit Levels

Tier 1: 20% discount to all households that have incomes below 200% of the federal poverty level (FPL) in water systems where monthly water expenditures (at 12 CCF) are below \$90,

Tier 2: 35% discount to all households that have incomes below 200% of the FPL in water systems where monthly water expenditures (at 12 CCF) are between \$90 and \$120, and

Tier 3: 50% discount to all households that have incomes below 200% of the FPL in water systems where monthly water costs (at 12 CCF) are above \$120.

Because the average monthly water bill is around \$60 per month,⁷ most low-income households would be in Tier 1.

The proposed benefit levels would provide substantial assistance to all low-income households, but also a larger benefit to those in the CWS that have the greatest drinking water expenditure burden. Moreover, both the program eligibility criteria and first two benefit tiers correspond to the California Alternative Rates for Energy (CARE) program design where 4.3 million low-income households receive a 30-35% discount on their electric bill and a 20% discount on their natural gas bill. However, CARE benefits relate to customers' actual bill amounts rather the system-wide rates for a set level of consumption, as in this report's working proposal.

This scenario is projected to cost about \$606 million in the first year for benefit distribution and program administration. Costs would adjust over time based on changes in the number of eligible households and

⁶ The Federal Poverty Level is based on household size; so larger households would qualify with higher incomes than smaller households.

⁷ See Chapter 2: Program Design Scenarios: Eligibility, Benefit Level, and Total Program Cost.

water rates. The total annual cost includes ongoing program management costs, such as potential expanded household enrollment verification procedures, marketing and outreach, and benefit distribution system modifications, as discussed further in Chapter 4 and the Appendices. Modifications to this scenario would result in different cost projections. For example, shrinking eligibility to households earning up to 150% of the FPL would reduce program costs, while expanding eligibility to households earning up to 250% of the FPL would raise program costs. The same logic applies to the program benefit levels, including the amount of water use upon which calculations are based. In addition, initial program costs would decrease if the program were phased-in overtime, such as if benefits were initially only extended to low-income households in areas with higher water bills.

Although there are many options for improving water affordability, the need to address this growing crisis is clear. The Board looks forward to receiving feedback on this report and to working with stakeholders, the Administration, and the Legislature to develop and implement policy solutions.

Safe Drinking Water Must Be a Priority

The development of a W-LIRA program and other discussions on water affordability should not delay the urgent need to address the problem of unsafe drinking water. This is an urgent public health crisis and solutions are already well developed. Hundreds of thousands of Californians lack access to safe drinking water. A significant challenge is the lack of a sustainable funding for long-term operations and maintenance for drinking water systems. Over the past two years, the Legislature has proposed a modest surcharge of \$1 per month on certain California households to address the systematic challenges that prevent the delivery of safe drinking water to Californians.⁸ Low-income residents would be exempt from paying such a charge, and community water systems would be allowed to retain a portion of the funding for their expenses of collecting and transmitting the monies to the state.

⁸ SB 623, SB 844 and SB 845.

Chapter 1: Why help households pay for drinking water service? The need for Low-Income Rate Assistance in California

AB 401 mandates that the State Water Board, in collaboration with the Department of Tax and Fee Administration (formally known as the State Board of Equalization) and relevant stakeholders, develop a plan for the funding and implementation of a W-LIRA, which would include specified elements (see Appendix A for the full text of AB 401). This draft report (including its appendices) reflects the analysis from the planning process envisioned by AB 401, while allowing for additional public and stakeholder feedback.

Why help households pay for drinking water service?

Rising income inequality coupled with California's high cost of living means that meeting basic needs, including housing, food, clothing, transportation, healthcare, and utilities is increasingly a struggle for many households. Currently, 34% of Californians, roughly 13 million people, live in households with income under 200% of the federal poverty level (FPL), which in 2018 is \$50,200 for a family of four. When families are unable to pay their bills, they face difficult and highly consequential trade-offs, like skipping meals and going hungry, risking eviction, or facing potential disconnection for electric, gas, or water services.

An analysis of U.S. Census data reveals that the real median household income in California in 2017 was lower than it was in 2007.⁹ Across the nation more broadly, there has been a stagnation in real incomes for low- to moderate-income earners, and a lack of households moving out of poverty conditions spanning the last 30 years.¹⁰ At the same time, the largest necessary cost of living – housing costs – have shown rapidly increasing divergence from household income since 2000.¹¹ Low-income households need more support to make ends meet. Providing all low-income households with financial assistance to help pay their water bills is a small, but important way the state can support provision of basic necessities for all Californians.

Table 1 shows the results of the stagnation in household incomes for the lower end of the income distribution in California. Recent data shows that nearly 15% of California households have an income below the FPL and more than one-third of California households have an income below 200% of the FPL.¹²

⁹ Alternatively, the percentages of households under 100% or 200% of the FPL are slightly higher in 2015 than 2005.

¹⁰ Drew Desilver (2014). Pew Research Center. *For most workers, real wages have barely budged for decades*. Available at: <http://www.pewresearch.org/fact-tank/2014/10/09/for-most-workers-real-wages-have-barely-budged-for-decades/>; Elise Gold (2015). Economic Policy Institute. *2014 Continues a 35-Year Trend of Broad-Based Wage Stagnation*. Available at: <http://www.epi.org/publication/stagnant-wages-in-2014/>.

¹¹ California Housing and Community Development Department (2017). *California's Housing Future: Challenges and Opportunities Public Draft*. Available at: <http://www.hcd.ca.gov/policy-research/plans-reports/docs/California%27s-Housing-Future-Full-Public-Draft.pdf>.

¹² The percentage of households below the 100% and 200% FPL closely corresponds to the national averages, which are 16% and 35%. For reference, 200% of FPL for a 4-person household in 2015 was \$48,600. This income level roughly corresponds to the Board's 2015 median household income cutoff for defining "disadvantaged communities" (DAC) of \$49,454. The DAC threshold in turn is set at 80% of the state's median household income (which is \$61,818) and the metric is widely used to determine eligibility

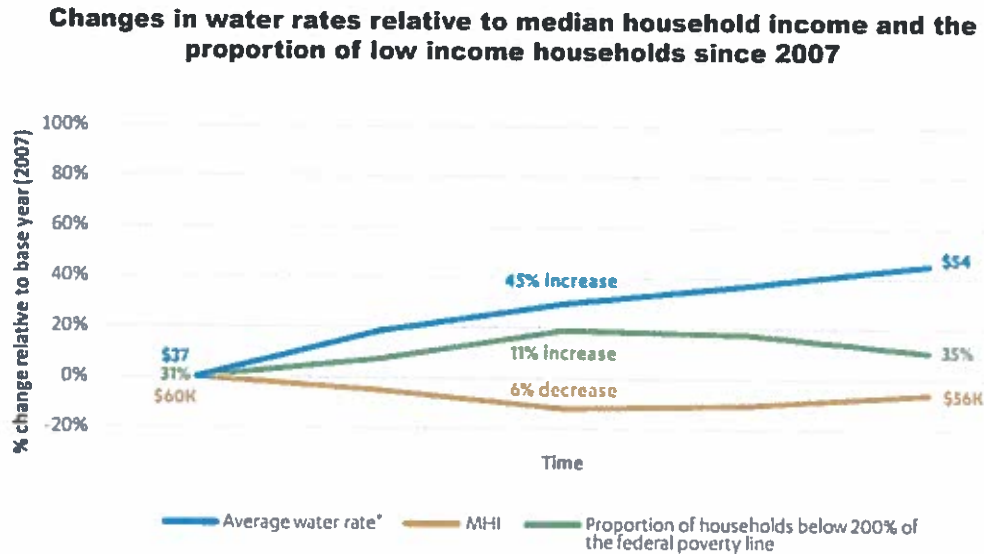
Table 1. Financially Disadvantaged California Households

Designation	% Percent of State Households
Below 100% of Federal Poverty Level	14%
Below 150% of Federal Poverty Level	24%
Below 200% of Federal Poverty Level	34%

Source: 2010-2014 American Community Survey Data

Figure 3 illustrates the combined effects of stagnating incomes for low- and median-income households and rising retail drinking water costs.

Figure 3. Changes in water rates relative to median household income and the proportion of low-income households since 2007 (adjusted for inflation)



There are at least four additional rationales to support the development of a W-LIRA program in California:

for other drinking water system financial assistance programs in California. The 200% FPL threshold is particularly relevant for the purpose of considering the need for a W-LIRA program because these income levels are most commonly used as eligibility criteria for existing low-income rate assistance programs. AB 401 also specifically mentions the 200% FPL threshold.

1. *The devastating health and livelihood impacts people experience where water is unaffordable,*
2. *The rapidly-rising retail cost of drinking water,*
3. *The general absence of robust low-income rate assistance program or affordability programs, when they are available for many other basic household needs, and*
4. *The inability of many individual water systems to support a rate assistance program on their own.*

Each of these motivations for a W-LIRA program is explained in turn below.

#1- Health and livelihood impacts

If water is unaffordable, low-income households will likely either consume less water than is healthy and/or consume less of other vital goods and services to pay for the water they need.¹³ In other words, low-income households face tradeoffs that harm their health and welfare.¹⁴ One example of this is in the City of Detroit, where 156,000 households struggled with increased water rates alongside necessary electricity costs for heating during a frigid winter. Households prioritized the immediate need of electricity over water, and the city experienced a high rate of water shutoffs due to non-payment.¹⁵

Unaffordable water service, especially in light of low-income households' extremely-constrained incomes, can lead to service disconnections. A major public health concern from water shutoffs is water-related illnesses. A recent study by the Henry Ford Hospital examined the public health implications of water shutoffs in the City of Detroit. By analyzing water-borne illnesses and comparing them to home addresses of water shutoffs, researchers found that patients diagnosed with skin and soft tissue diseases were 1.48 times more likely to live on a block that experienced water shutoffs. Following the release of the study in July 2017, a panel of experts, including physicians, called for the declaration of a public health emergency in the city because of the correlation between water shutoffs and water-related illnesses.¹⁶ For similar reasons, the City of Pittsburgh Water and Sewer Authority recently placed a moratorium on drinking water service shutoffs in the winter season.¹⁷ Moreover, the recent Hepatitis A outbreak across parts of California among at-risk populations without permanent shelter has been partially attributed to a lack of access to adequate water and sanitation facilities.¹⁸ At a broader scale, shutoffs and lack of affordable access to water can result in an economic burden to the state, as low-income families facing these challenges incur outsized healthcare costs, some of which are subsidized by the state.

¹³ Davis, Jon P. and Teodoro, Manuel P. (2017). "Financial Capability and Affordability." Chapter 22 in *Water and Wastewater Finance and Pricing: The Changing Landscape*, Fourth Edition.

¹⁴ Morduch, Jonathan, and Schneider, Rachel. *The Financial Diaries: How American Families Cope in a World of Uncertainty*. Princeton University Press, 2017.

¹⁵ Filson, J. and Avery, T. (2017). "Water Shutoffs in Detroit: An Ongoing Crisis." *Food & Water Watch*.

¹⁶ Chambers, Jennifer. Experts: Water shutoffs causing public health emergency. *The Detroit News*. [Online] July 26, 2017. Available at: <http://www.detroitnews.com/story/news/local/detroit-city/2017/07/26/detroit-water-shutoffs-health-study/104016812/>.

¹⁷ The Pittsburgh Water and Sewer Authority (2017). Winter Moratorium Program- Frequently Asked Questions. Available at: http://apps.pittsburghpa.gov/redtail/images/1647_WinterMoratoriumProgram_FINAL.PDF.

¹⁸ For instance, see California Department of Public Health (2018). "Hepatitis A Outbreak in California". Available at: <https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/Hepatitis-A-Outbreak.aspx>.

Households that cannot pay their water bill in turn face negative impacts to their credit, risk of loss of property, and/or eviction. An example of this is in the City of Baltimore where the water system often sells unpaid water bills as property liens in tax sales. Households that cannot pay back the bill in addition to charges and interest to the buyer of the lien lose the home to foreclosure. From 2014 to 2015, the number of homes sold at tax sales in Baltimore with water-only liens rose from 671 to 902.¹⁹ While the Board does not yet have a complete dataset for statewide water shutoffs, shutoff concerns were raised at the public meetings Board staff held around the state, and in the comment letters the Board received.²⁰

#2- The rapidly-rising retail cost of drinking water

Understanding drinking water affordability for households requires consideration of the necessary expenditure for water paid by a household, the income of the household, as well as the costs of other vital goods and services such as housing, utilities, food, transportation, and healthcare.²¹ Water affordability becomes a more pressing issue for households as water service rates rise.

The Board began maintaining water rate data for California's drinking systems in 2014. Using this data for estimation purposes, the average California household in 2015 paid around \$60 per month for 12 CCF of drinking water service. Longer-standing sources of rate data indicate that the retail price of water has risen dramatically above the pace of inflation in California (and the U.S. more broadly) over the last decade.²² Moreover, financial analysts project the retail price of water to rise significantly in California over the coming years.²³

As summarized in Figure 4, rising rates for water service are attributable to a number of factors, two of which are relatively unique to water within basic service sectors.²⁴ First, water has been historically underpriced compared to the true cost of service,²⁵ which has led to many water systems in California now having aging infrastructure that must be replaced. In addition, more stringent water quality standards

¹⁹ Jacobson, Joan (2016). *Keeping the Water On: Strategies for addressing high increases in water and sewer rates for Baltimore's most vulnerable customers*. The Abell Foundation.

²⁰ See https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/assistance/ for links to AB 401 comment letters.

²¹ For instance, see Teodoro, M. P. (2018). Measuring Household Affordability for Water and Sewer Utilities. *Journal-American Water Works Association*, 110(1), 13-24. While designing a statewide affordability program with an eligibility or benefit criteria which takes account of the cost of other vital goods and services for low-income households may be ideal, it was deemed infeasible for two reasons. First, it is not possible to obtain accurate and representative data on variation in other essential costs outside of large metropolitan areas, as shown in a close reading of Teodoro, 2018. Second, and perhaps more importantly, it is unreasonable to expect a potential statewide drinking water affordability program to compensate for the high local cost of other essential services given that this potential program has no federal or state general fund assistance and is being considered after the establishment of other much longer-standing benefit programs.

²² 2015 California-Nevada Water and Wastewater Rate Survey. American Water Works Association and Raftelis. Available at: <http://ca-nvawwa.org/canv/downloads/2016/CANVRateSurvey2015.pdf>.

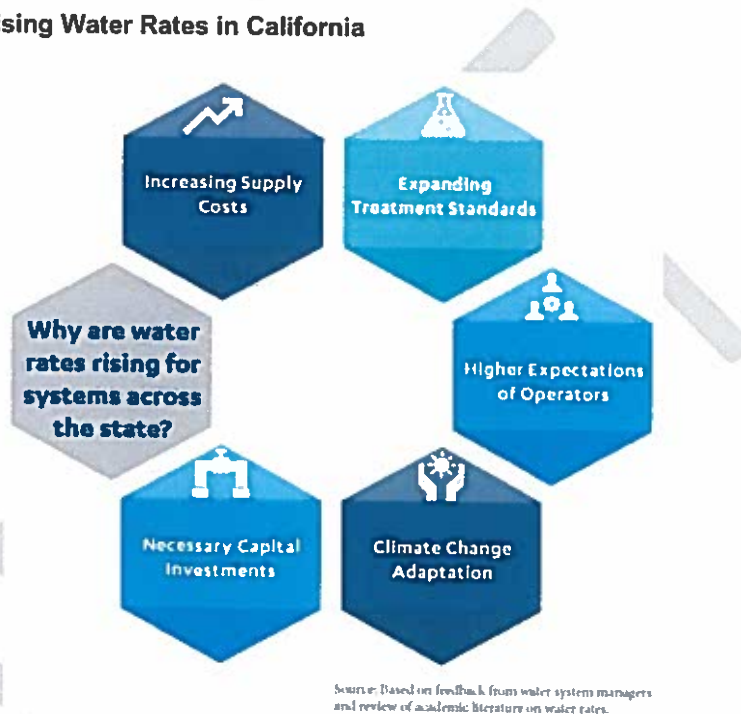
²³ Carroll, Rory. September 18, 2015. "California water prices set to rise next year: Fitch." Available at: <http://www.reuters.com/article/us-california-water-rates/california-water-prices-set-to-rise-next-year-fitch-idUSKCN0QN1PH20150818>.

²⁴ 2015 California-Nevada Water and Wastewater Rate Survey. American Water Works Association and Raftelis. Available at: <http://ca-nv-awwa.org/canv/downloads/2016/CANVRateSurvey2015.pdf>; [American Society of Civil Engineers, California Infrastructure Overview \(2017\)](#).

²⁵ For instance, see Timmins, C. (2002). Does the median voter consume too much water? Analyzing the redistributive role of residential water bills. *National Tax Journal*, 687-702.

require additional costs for treatment and operator training.²⁶ Second, the percentage of federal support in the total public spending on infrastructure for water utilities has fallen from over 30% in the 1970s to less than 5% in 2015.²⁷ In other words, state agencies and especially local water systems need to finance their own operations to a much greater extent than in the past.

Figure 4. Drivers of Rising Water Rates in California



Sources: Based on feedback from water system managers and review of academic literature on water rates.

Among these cost drivers, climate change adaptation will play a significant role in the future of water affordability as both populations and suppliers shift behaviors and practices in response to climatic impacts. At the household level, the effects of higher temperatures will be felt across the state, with increases of 5°F and 10°F predicted by the 2030s and late 2090s, respectively.²⁸ Numerous studies show these increased temperatures will result in greater residential water demand;²⁹ the most specific urban case study shows an annual per capita increase of 1.6 gallons per 1°F increase, for temperatures above 78°F.³⁰

Alongside this increase in demand, there will also be an increase in the difficulty of maintaining safe and consistent water supplies due to physical and hydrologic shifts, including drought, occurring throughout the state. One widely-recognized challenge is sea level rise, which is expected to increase and inundate

²⁶ Hanak, E., Gray, B., Lund, J., Mitchell, D., Chappelle, C., Fahlund, A., Jessoe, K., Medellin-Azuara, J., Misczynski, D., Nachbaur, J., Suddeth, R., Freeman, E., and Stryjewski, E. "Paying for Water in California." (2014). Public Policy Institute of California, pg. 35.

²⁷ U.S. Congressional Budget Office (2015), Public Spending on Transportation and Water Infrastructure, 1956 to 2014, Available at: <https://www.cbo.gov/publication/49910>; Eskaf, Shadi, September 26, 2015.

"Four Trends in Government Spending on Water and Wastewater Utilities Since 1956" Available at: <http://efc.web.unc.edu/2015/09/09/four-trends-government-spending-water/>.

²⁸ CalEPA & CPDH, 2013

²⁹ Pacific Institute, 2012; Wang et al., 2015; Neale et al., 2007

³⁰ Protopapas et al., 2000

groundwater with salts, decreasing groundwater availability for drinking water supplies.³¹ Additionally, the increased prevalence of wildfire burns across California described by Westerling et al. (2011) and Westerling & Bryant (2007) is diminishing watershed health and will likely lead to increases in the costs of drinking water supplies. Lastly, and most importantly for California, the Sierra Nevada snowpack, which currently supplies the state with over 60% of its water supply for urban and agricultural uses, is shrinking and will continue to do so, forcing water providers to seek alternatives.

In addition to past and expected future water rate increases for all customers, the water sector is different than other basic services in its variability in retail rates across different retail systems. Retail rate divergence by neighboring systems is not unique to California³² but is certainly very common within the state.³³ Again, the average California household paid around \$60 per month for 12 CCF of drinking water service in 2015, but there was tremendous variation in the price paid by households. Many systems (973) charge rates higher than the state average, with some charging one and a half (175), two (28), or three times (4) the average price for the same amount of water. The state's geography, population distribution, and hydrology mean that source water quality and quantity vary tremendously, and some systems face high costs to obtain and treat water.

Prominent examples of very high drinking water costs include those experienced by residents of Cantua Creek in Fresno County and Lucerne in Lake County. Residents in Cantua Creek pay roughly \$174 a month.³⁴ Residents in the Lucerne pay roughly \$350 in monthly water bills due to system upgrades.³⁵ Moreover, in the City of Fontana, residents will experience a 30.7% increase in water rates over the next three years.³⁶ Larger cities are not exempt from this trend; the City of San Francisco rates have risen 127% over seven years.³⁷ As more fully discussed in the report, differences in the geographic location, source water quality, regulatory oversight, and socioeconomic profile of systems drive variation in rates across water systems in California.

#3- Comparable programs exist in other sectors

Another justification for the creation of a W-LIRA in California is that statewide programs already operate to subsidize other essential services at the household level. As discussed in more detail in Appendix C, robust, relatively-longstanding mandated programs at the federal and state levels subsidize the

³¹ Hoover, et al., 2017

³² Gregory, Ted; Reyes, Cecilia; O'Connell, Patrick M.; and Caputo, Angela; Same Lake, Unequal Rates: Why our water rates are surging – and why black and poor suburbs pay more. (October 25, 2017). Chicago Tribune, Available at <http://graphics.chicagotribune.com/news/lake-michigan-drinking-water-rates/index.html>; Jordi Honey-Rosés, David Gill, Claudio Pareja (March 2016), British Columbia Municipal Water Survey 2016.

³³ For instance, see the analysis of retail price variation for 18 CCF in Los Angeles County in DeShazo, J.R.; Pierce, Gregory; and McCann, Henry. "Los Angeles County Community Water Systems Atlas and Policy Guide: Supply Vulnerabilities, At-Risk Populations, Conservation Opportunities, Pricing Policies, and Customer Assistance Programs." UCLA: Luskin Center for Innovation.

³⁴ Public comment made by Cantua Creek resident at the AB 401 Public Meeting. (2017). Fresno, CA. Additional information available at: <http://www.co.fresno.ca.us/home/showdocument?id=5925>.

³⁵ Dilling, Audrey. "Why This California Town's Water Costs Way More Than the National Average." (2017). *KQED News*.

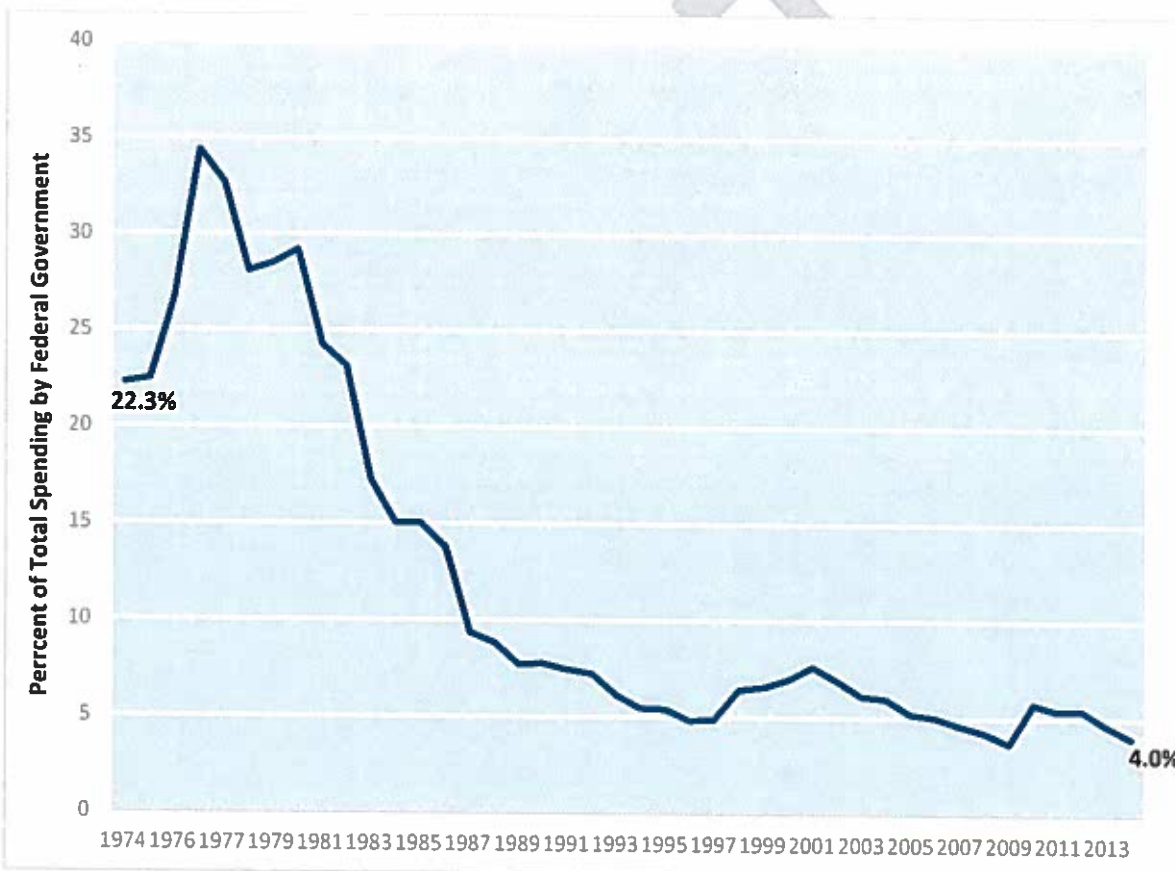
³⁶ "Water Rates for Fontana Water Company Customers Will Go Up 30.7 Percent, CPU Says." (2017). *Fontana Herald News*. Available at: https://www.fontanaheraldnews.com/news/water-rates-for-fontana-water-company-customers-will-go-up/article_af2cb0e4-6d97-11e7-a4e0-eb5fe175579c.html

³⁷ The Price of Water: Water Rates Dashboard-San Francisco. (2017). *Circle of Blue*. Available at <http://www.circleofblue.org/waterpricing/>.

affordability of basic energy and telephone services for low-income households who apply and are eligible.³⁸

By contrast, no state or federal programs provide affordability assistance directly to households for drinking water services. Similarly, the relative role of federal financial support for water utilities nationwide has fallen since the mid-1970s, as compared to local and state government financial support for water utilities. Figure 6 shows that the federal government supported over 30% of total spending on water utility infrastructure through the 1970s, but less than 5% by 2014.³⁹

Figure 6. The Percent of Total Public Infrastructure Spending on Water Utilities by the Federal Government (1974-2014)



Similarly, nationwide, programs addressing water affordability have traditionally been left up to individual CWS. This holds true in California except for large investor-owned utility systems, which are regulated by the California Public Utilities Commission (CPUC) to provide LIRA programs.

The State Water Board estimates that approximately 46% of the entire Californian population is served by a water system offering some type of rate assistance. Unfortunately, however, the presence of a rate

³⁹ See the Congressional Budget Office's March 2015 report *Public Spending on Transportation and Water Infrastructure, 1956 to 2014*, which contains detailed data of public spending on transportation and water infrastructure at local, state, and federal levels.

assistance program does not mean that the program adequately addresses the affordability need experienced by the system's population. The biggest obstacle faced by existing programs is their limited extent and inability to support those households that are most in need, because many low-income households do not pay a water bill directly, and because the existing programs have low enrollment levels and provide insufficient support. In addition, except for the investor-owned water systems, these existing rate assistance programs are funded by non-rate revenues to comply with Proposition 218, and therefore their funding is insufficient to provide benefits to all eligible households in their jurisdiction. Table 2 shows annual rate assistance programs expenditure data for drinking water systems serving 31% of the state's population in 2015. These systems all offered rate assistance programs and were most likely to have high enrollment rates as compared to other water systems.

Table 2. W-LIRA Program Expenditure for Sample Water Systems in California (2015)

Water Systems	Percent of State's Population Served by System	Amount spent on low-income rate assistance in 2015
Los Angeles Department of Water and Power (LADWP)	10%	\$26 million
CPUC Private Water Systems	14%	\$27 million
24 Other Large Urban Public Water Suppliers	7%	\$4.2 million
TOTAL	31%	\$57.2 million

Sources: LADWP and CPUC financial reports, and a survey of municipal systems conducted directly by the Board

#4: The limitations of standalone system rate assistance programs

The final justification for a W-LIRA program is the fact that many individual water systems in California economically cannot support a rate assistance program on their own. Although there are about 3,000 CWS operating in California, over 80% of the population is served by the 400 largest systems. While the most intuitive solution would seem to be to allow or enable the 3,000 individual CWS to operate their own standalone rate assistance programs for their customer base, the Board's research shows that individual CWS would bear vastly different cost burdens to provide assistance to eligible customers. Ultimately, this means that customers ineligible for assistance in one system (i.e., higher-income customers) might pay much more to support affordability for eligible customers in their system than ineligible customers would in another system. Although most of the systems with the highest eligibility burdens are classified as small or very small, more than 22% of systems throughout the state would have eligibility burdens of more than 50% of their residential customers.

On the other hand, large, more sophisticated systems also see high eligibility rates. Figure 2 illustrates that even among some systems which serve 3,000 or more customers, imposing a requirement to run a standalone rate assistance program would likely cause outsized affordability burdens as well. To operate a W-LIRA program in these systems, outsized cost burdens would need to be passed on to ineligible households within each CWS. Even if a CWS were willing to raise revenue for a rate assistance program in this way, it could face legal challenges from ratepayers arguing that the system's use of water rate revenues for rate assistance program benefits may be subject to Proposition 218. The likely result of encouraging or mandating affordability assistance in systems with high eligibility burdens would be that a sizeable number of CWS would simply not be able to operate a sustainable rate assistance program that would meet the goals envisioned by the Human Right to Water and the Low-Income Water Rate

Assistance Act. Given the challenges facing the many water systems with high eligibility burdens, a W-LIRA appears more feasible to address the statewide mandate of the Human Right to Water.

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Chapter 2: Program Design Scenarios: Eligibility, Benefit Level, and Total Program Cost

This chapter proposes a W-LIRA program scenario, with a focus on three key elements in the program design. *Eligibility* is defined as the number of program-qualifying households based on socioeconomic criteria. *Benefit* is the type and dollar amount of annual financial assistance received by an eligible household. *Estimated annual program cost* is equal to the number of eligible households multiplied by the household benefit per household and adjusted for expected enrollment (which decreases total costs) and administrative costs (which increases total costs). Table 4 shows a basic example program scenario cost calculation incorporating each of these three program design elements.

Table 4. Example W-LIRA Program Scenario Calculation

Eligibility	Estimated Number of Eligible Households	1,000
Benefit	Theoretical Benefit per Household	\$100
	Maximum Total Benefits to be Distributed	\$100,000
Annual Cost	Accounting for Expected Enrollment Level*	\$84,000
	Estimated Annual Program Operating Cost**	\$92,400

*This enrollment value mirrors the California Alternative Rates for Energy (CARE) program's enrollment level 84%, as explained in Chapter 4.

** Assuming 10% administrative costs to operate the program, as explained in Chapter 4.

Appendix E discusses the advantages and disadvantages of several alternative program designs with different eligibility and benefit criteria (and thus total costs) to the proposed scenario which were fully considered in the process of plan development and stakeholder engagement. Using the data and methods described in Appendix B, more than 70 program scenarios were evaluated and empirically estimated over the past three years.

The proposed program scenario would offer three-tiered benefit levels to all eligible residential households in the state, as described in Assembly Bill (AB) 401. In the context of a statewide water assistance program, there is no administratively feasible way to provide an individual percentage discount on each household level consumption,⁴⁰ unless there are verified data on household consumption reported to the program administrator of the assistance program.⁴¹ Therefore, this scenario would provide a benefit based on the cost of consuming 12 CCF as described below:

Tier 1: 20% discount to all households that have incomes below 200% of the federal poverty level (FPL) in water systems where monthly water expenditures (at 12 CCF) are below \$90,

Tier 2: 35% discount to all households that have incomes below 200% of the FPL in water systems where monthly water expenditures (at 12 CCF) are between \$90 and \$120, and

⁴⁰ This is how the four large energy investor-owned utilities operate the California Alternative Rates for Energy (CARE) program.

⁴¹ While this could be achieved via a data transfer process for some systems, the per household consumption-based bill discounts would prove administratively costly to implement across all water systems which either do not meter consumption, have different billing periods, or do not have fully digitized administrative operations (see Chapter 4 for more discussion of this challenge).

Tier 3: 50% discount to all households that have incomes below 200% of the FPL in water systems where monthly water costs (at 12 CCF) are above \$120.

The estimated total annual cost of such a program, and thus the annual revenue target for program operation, in its first year is \$606.4 million. Changes to the proportion of the state's households eligible for the program (those with incomes under 200% of the FPL) could raise or lower the cost of the program. Moreover, the annual cost of the program would rise if residential water rates at the 12 CCF consumption level continue to increase.

Proposed Program Scenario Factors

Eligibility: Baseline eligibility as 200% of the FPL

Most assistance scenarios used in the Board's analysis have a common eligibility criteria of household income equal to or below 200% of the FPL. There are several reasons for the establishment of this common eligibility criteria. Firstly, 200% of the FPL is explicitly defined as the "low-income" criterion in the AB 401 legislation text. Secondly, this eligibility criterion is inclusive: more than one-third of the state's households have incomes at or below 200% of the FPL. Thirdly, 200% of the FPL is a commonly-used criterion by other Low-Income Assistance Programs (LIRA) and social benefit programs (most notably CARE) in California. Use of 200% of the FPL has a clear precedent and allows for potential administrative cost efficiencies between eligibility for other programs and the new W-LIRA program.

Benefit Type: Percentage of total bill benefit

Water systems across the state charge vastly different total dollar amounts for the same volume of water consumed (i.e. 12 CCF), even within the same customer class (residential customers using the same sized pipe). Since all water systems— except those regulated by the CPUC— have discretion over rate design and levels consistent with cost of service requirements, there is wide variability in rate structure design, as further discussed in Chapter 1. (Chapter 1 also explains why some systems face much higher source water costs than others). Consequently, the Board faced the challenge of developing proposals for providing eligible households with equitable benefits based on a certain component of the bill.

Given the complexity in rate structures, a benefit assigned as a percentage of a residential bill at a specified consumption level (including all fixed and variable costs but excluding other non-water service related to charges and fees) is likely to be more equitable than a flat benefit discount, or a discount to a certain component of the bill. To illustrate this point, an example of the affordability support experienced by households served by different community water systems with different rate levels and structures (but the same consumption level, 12 CCF) is shown in Table 6 below.

Three Tier Structure

The tiered benefit structure was developed from the average statewide water expenditure of about \$60 a month for 12 CCF. Low-income households that pay more than 150% (Tier 2) and 200% (Tier 3) of the state average water bill would be eligible for a higher percentage of bill discounts structured through the Proposed Program Scenario. The tiered percentages of bill discounts were chosen with reference to those offered by CARE at 20% (Tier 1) and 35% (Tier 2), with the highest tier of 50% (Tier 3) increasing incrementally by another 15%.

The Proposed Program Scenario has the collective advantage of providing not only substantial affordability assistance to all low-income households, but also a larger benefit to those who face the

greatest drinking water cost burdens.⁴² The biggest disadvantage of this program scenario is that it would require verification of rate data at the system level, and, for newly enrolling households, verification of income data, raising the cost of program administration. The Board would need to verify the cost of 12 CCF for residential customers (for Tier 2 and 3 purposes), and households not already enrolled in the CARE program would need to document their eligibility status (income).

The 20% discount is equivalent to the CARE discount for natural gas service, as well as the high end of discounts currently offered by existing low-income rate assistance programs in California. A discount of 35%, also offered to CARE customers for electricity service, helps households that face water bills exceeding the state average by more than 150% to 200% of the bill average. Finally, the 50% discount tier accounts for the small number of water systems charging more than 200% of the state average for 12 CCF water bills and has a precedent in California Water Service where 50% is the benefit level for households served in very high cost areas.⁴³ Following annual updates to the Board's record of drinking water costs, information used to determine eligibility and benefit would be adjusted.

Consumption: 12 CCF of water monthly

This program scenario has the advantage of providing not only substantial affordability assistance to all low-income households, but also a larger benefit to those who have the greatest drinking water cost burden. Moreover, both the eligibility criteria and the first two benefit tiers correspond to the criteria laid out by the statewide CARE program for electricity and natural gas affordability. The 12 CCF consumption level accounts for indoor use for large households or a modest amount of outdoor use. As shown in Table 5, the benefit also allows the average California household to afford above 55 gallons/person/day, the current standard for indoor set by AB 1668 (2018) and provides for some outdoor use for a family of four.

Table 5. Daily Water Use Available to a Family of Four at 12 CCF Monthly

Daily Water Use Category	Amount Allocated
Indoor Use	220 gallons (55 gallons x 4)
Outdoor Use	75 gallons
Total Use	295 gallons

12 CCF = 8977 gallons. 8977 gallons = 295 gallons × 30.42 (365/12) days in average month.

For the statewide W-LIRA program, a benefit associated with a percentage of a fixed volume like 12 CCF, would be provided regardless of whether an individual household is consuming more or less than this level. A shortcoming of this approach occurs when necessary household level consumption exceeds 12 CCF, as no additional assistance would be provided compared to what the same household would receive if its necessary consumption was lower than 12 CCF. However, as described above, the 12 CCF consumption level addresses situations where more than four people reside in a household and where households can use modest amounts of water for outdoor irrigation. An additional benefit of using a fixed consumption level is that the W-LIRA program is less exposed to risk of manipulation and does not subsidize or incentivize over-use.⁴⁴ In addition, since most low-income households do not pay a water bill

⁴² While additional or alternative eligibility criteria or benefit tiers might allow for more refined targeting, going beyond the complexity of the primary scenario would be extraordinarily difficult for a statewide program.

⁴³ Available at: https://www.calwater.com/docs/rates/rates_tariffs/all/20180101-Low-Income Ratepayer Assistance - Schedule LIRA.pdf.

⁴⁴ On the other hand, using a benefit calculation which is untied to consumption but is set based on the

directly, there is no way to determine their water use, and providing them with benefits requires a uniform approach such as using a fixed consumption level (e.g. 12 CCF) for calculating a benefit level.

To illustrate how a benefit based on a fixed consumption level would work, an example comparing two eligible low-income households is shown below in Table 6. The two households are served by the same community water system but have different consumption levels. The monthly water bill for 12 CCF in this system is \$60, and thus the benefit distributed to each household will be \$12 (20% of \$60). Therefore, when allotting a percent discount to 12 CCF in the various billing tiers, households receive a positive conservation signal to the households that are able to consume less water, while reducing their water bill simultaneously.

Table 6. Illustration of Benefit for Fixed Volume Provided to Households with Different Water Consumption Levels

	Household A	Household B
Water Consumption Level	12 CCF	6 CCF
Initial Monthly Water Bill Amount	\$ 60	\$ 40
Monthly Benefit Received	\$ 12	\$ 12
Remainder of Bill to be paid by Household	\$ 48	\$ 28

Another reason that 12 CCF was chosen as the primary option for analysis is due to access to robust real data at that consumption level. As described in Appendix B, the independent analysis for this report was undertaken using self-reported, system-level expenditure at three consumption levels: 6, 12, and 24 CCF. Both 6 CCF and 24 CCF were also considered but not evaluated. In light of the state's water conservation priorities and public health goals, 24 CCF was considered too high of a level to subsidize. Conversely, 6 CCF was generally considered too low of a level of supply to support households, considering that many low-income households are larger than the state average.⁴⁵ Some organizations have provided a recommendation that the Board use a lower consumption level, such as 9 CCF, which more closely tracks basic indoor use.⁴⁶ The Board notes that besides the above stated reasons for using 12 CCF, the fundamental question relates to a value judgment about the types of uses and activities that should be subsidized. In the electric sector, the CARE program provides discounts for use up to 400% of the "baseline," demonstrating a willingness to subsidize consumption over basic levels.⁴⁷

rate set by the system for a consumption level is potentially open to manipulation by systems via rate setting. Systems could respond to a W-LIRA program by shifting the rate burden to consumption levels below 12 CCF, and thus elevate the benefit for eligible households. This type of strategic rate setting would harm a system's non-eligible households who consume less than 12 CCF of water and dampen the conservation signal to all households, and thus the net incentive to a given system to alter rates is unclear. In stakeholder meetings, water system representatives have also stated that they would not or could not practically engage in this type of strategic rate setting. If the W-LIRA program is established, the Board will monitor this potential for rate setting response to the program going forward.

⁴⁵ Using 2016 American Community Survey data, the average household under 225% of the FPL in California has 10% more members than the average household above 225% of the FPL.

⁴⁶ See for example, the Association of California Water Agencies comment letters.

⁴⁷ See [Public Utilities Code Section 739.1 h\(i\)\(1\)](#).

Enrollment and Administrative Cost Assumptions

To calculate the annual program cost for any W-LIRA scenario, the plan assumes an 84% enrollment of program-eligible households. This is the enrollment rate achieved by the CARE program, and is the highest enrollment rate observed among state or federal benefit programs. The plan also assumes an additional 10% administrative (or overhead) cost above the dollar value of benefits directly distributed to households for a statewide W-LIRA program. Accessing comparable data or calculating exact administrative cost burden, even for large state and federal benefit programs, is not straightforward. While some existing Board programs have lower overhead rates than 10%, most state or federal benefit programs have higher rates. Moreover, there are substantive start-up costs, including data management, marketing and outreach, billing system adjustments, and fund management that will require higher initial administrative costs and that will vary depending on the selected program option.

Around 34% of the state's households would be income-eligible for this program. Of this 34%, only a small proportion of households will be eligible for the higher tier benefits, 2% and <1% for Tiers 2 and 3 respectively. Building on these high-end estimates for eligibility and enrollment, the Board calculates the initial total annual cost of such a program, and thus the revenue target for program operation, to be \$606.4 million annually.⁴⁸

Table 7. Primary Scenario Breakdown of Eligibility and Cost by Tier

Tier Criterion (Cumulative) 200% FPL	Tier 1 Paying up to \$90	Tier 2 Paying at \$90- \$120	Tier 3 Paying Above \$120	Total
Estimated Number of Eligible Households*	4,045,564	198,040	106,041	4,349,645
Benefit Level per Household	20% of Water Bill	35% of Water Bill	50% of Water Bill	
Maximum Total Benefits to be Distributed	\$ 493.9	\$82.6	\$79.8	\$656.3
Accounting for an Expected Enrollment of 84%**	\$414.9	\$69.4	\$67.0	\$551.3
Total Program Operating Costs (in millions)***	\$456.40	\$76.3	\$73.7	\$606.4

*Accounting for all households in the state (including those not captured by the Board's 2015 rate data (2%) and those not served by CWS (6%)).

**This enrollment value reflects of CARE's enrollment estimation of 84%.

*** Assuming 10% administrative costs to operate this program.

⁴⁸ This figure is generated based on a \$656.3 million annual program cost at 100% enrollment. At a more feasible 84% enrollment target with 10% administrative overhead, the total cost is \$606.4 million.

Chapter 3: Revenue Collection Options

This chapter focuses on how a W-LIRA could be independently and sustainably financed through new revenue collection options. A range of options to finance the program were considered, including taxes on high personal income earners or businesses via the state income tax system, bottled water taxes, surcharges on non-eligible households' water bills, and other revenue sources (see Appendix G). The broad advantages and disadvantages of each potential revenue source are also discussed in Appendix G. The Board recommends that revenue sources be progressive (see Text Box 2) to avoid imposing additional financial burdens on low-income households. Examples of progressive state taxes include Proposition 63 (2004), the Mental Health Services (MHS) Act and Proposition 39 (2012) also known as the California Clean Energy and Jobs Act.⁴⁹ The MHS Act imposed a 1% special tax on personal taxable income in excess of \$1 million to fund MHS.⁵⁰ Prop 39 closed tax loopholes for out-of-state corporations.⁵¹

Text Box 2: Defining Progressive Revenue Sources

Generally, progressive revenue sources include taxes on income, capital gains, and property. Other taxes, such as sales and excise (production) taxes on certain goods impact economically disadvantaged populations to the extent that they consume these goods and depending on whether the goods or services being taxed are easily substitutable. For example, taxes on food are regressive because everyone needs to eat and there are no substitutes for food. Taxes on luxury goods, on the other hand, generally do not impact low-income households because they are less likely to purchase those goods.

While a personal income tax similar to Prop 63 and Prop 39 would generate significant revenues, additional funding would be needed to support a W-LIRA program as outlined in this document. Table 8 (below) describes a combination of revenue sources to fund a W-LIRA program as detailed in Chapter 2 scenario. A quarter percent tax increase on personal income above \$1 million, combined with sales tax revenues from bottled water sales is estimated to generate \$ 619.6 million.⁵²

Table 8: Potential Revenue Sources Scenario

Source	Revenue Estimate
Personal income tax	\$466 million*
Bottled water sales tax	\$153.6 million*
Total	\$619.6 million

* Estimate for income tax is based on 2017 tax receipts. Estimate for bottled water sales tax is based on California Department of Tax and Finance Administration estimate for fiscal year 2022-2023, which would be the first full year of tax collection for an initiative passed on the 2020 ballot.

⁴⁹ California Department of Education Website. California Clean Energy Jobs Act (Proposition 39). Available at: <https://www.cde.ca.gov/ls/fa/ce/>.

⁵⁰ 2004 Cal. Legis. Serv. Prop. 63; CAL. REV. & TAX CODE §§17043(a), 19602.5.

⁵¹ Available at: https://lao.ca.gov/ballot/2012/39_11_2012.aspx.

⁵² This figure is generated based on a \$656.3 million annual program cost at 100% enrollment. At a more attainable 84% enrollment target with 10% administrative overhead, the total cost is \$606.4 million.

The Board notes that the feasibility of passing any new tax or fee for this purpose, as required by Proposition 26⁵³, would require a supermajority vote in the state Legislature to come into effect. Additionally, the bottled water sales tax would require a ballot referendum.

The Board invites input on feasible and sustainable revenue sources for a W-LIRA program.

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⁵³ Proposition 26 was passed in 2010 requiring a supermajority vote of the Legislature to pass fees, levies, charges and taxes.

Chapter 4: Options for Benefit Distribution and Administrative Features of a Statewide Low-Income Ratepayer Assistance Program

Administrative considerations

The administrative mechanics of a W-LIRA would be vastly different depending on the method of the benefit delivery model (energy utility bill credit vs. tax credit vs. Electronic Benefits Transfer (EBT)). For a benefit delivered via the electric or gas bill, the CPUC and the Board would have administrative and oversight responsibilities, while the electric utilities (both publicly-owned and investor-owned) would be responsible for implementation to low-income customers. For a tax credit, the California Franchise Tax Board (FTB) would be responsible for implementation. In an EBT scenario, counties would have the bulk of the implementation and management responsibilities while the California Department of Social Services would likely have oversight responsibilities. Regardless of program design, revenue collection would be handled by the FTB and Department of Tax and Fee Administration (formally known as the Board of Equalization) depending on the revenue sources used for the program.

The administrative and management needs under any program design include tracking and delivering benefits, marketing, education, outreach, fund management, and designing and evaluating metrics for program effectiveness. The administrative costs would differ, however, between the program designs. For a tax credit, tax forms (and tax preparation software) would have to be modified. Under a community water system benefit distribution program, the system would be responsible for delivering benefits via bills, which would entail modifications to billing systems (and would have the previously-discussed other drawbacks). For an electric or gas program, the utilities would also require new accounting procedures to track W-LIRA funds apart from ratepayer contributions. For a benefit delivered via the California Department of Social Services' CalFresh program, counties would need new procedures to ensure each CalFresh recipient's EBT card was loaded with the appropriate dollar value. In independent EBT programs, a new set of administrative procedures, personnel, and information technology resources would be necessary.

The section below describes the challenges associated with each of the program scenarios. This is not meant to be an exhaustive list (see Appendix F for more detail), but rather provides additional factors that merit consideration in selecting a preferred program design.

The Board welcomes input on program design and administrative elements that should be included in the final report.

Benefit distribution via electric or gas bills

There are 65 electric and gas utilities in the state and each would need to modify its billing system to add the monthly W-LIRA credit. In addition, each utility would need to bill the state for its expenditures for delivering the W-LIRA credit along with applicable administrative costs. Those costs might include training for customer service personnel about the W-LIRA program, modifications to marketing, and education, and outreach programs. The utilities would have to work closely with the State Water Board to provide the appropriate benefit to each customer based upon water system rates and to modify benefit levels when recipients move from one water system to another within their service area. The CPUC, the State Water Board, the Legislature, and potentially the Commission on State Mandates would each have a role in determining which administrative costs and costs to maintain data privacy would be recoverable from the W-LIRA fund. In addition, some publicly-owned electric utilities would need to modify their LIRA enrollment criteria and take significant steps to increase overall enrollment levels.

Benefit distribution via CalFresh

Each of the 58 counties would need to modify its CalFresh program to incorporate the new W-LIRA benefit. They would have to work closely with the State Water Board to load the appropriate monthly benefit onto recipient EBT cards based upon water system rates and modify benefit levels when recipients move from one water system to another within the county. As with electric utilities, the counties would also face administrative costs associated with marketing, education and outreach, and billing the state for the costs of running the program. (Even if revenues were sent directly to the counties, they would still have to develop accounting mechanisms to ensure that revenues were aligned with expenditures). Furthermore, enrollment in CalFresh is limited to citizens, and any additional federal changes to the program such as additional eligibility verification requirements could impact enrollment levels and reduce the number of households that would benefit from the W-LIRA. (See Appendix I).

Benefit distribution via a new EBT program

As described above, creating a new program to deliver monthly benefits via EBT cards would involve start-up and ongoing administrative costs, including costs to ensure data privacy, for the counties. The counties would have to work closely with the State Water Board to provide the appropriate benefit onto recipient EBT cards based upon water system rates and modify benefit levels when recipients move from one water system to another within the county. Also, while a new stand-alone program could be clearly marketed as a water benefit and be extended to all low-income households regardless of citizenship status. Data management, including confidentiality and privacy protections, would need to be addressed. (See Appendix J).

Benefit distribution via tax credits

The FTB could apply the credits on individual tax filings annually based upon whether a filer met program eligibility criteria. The FTB would have to work closely with the State Water Board to provide the appropriate benefit to each taxpayer based upon water system rates and modify benefit levels when recipients move from one water system to another within the State. The Legislature or FTB would also have to determine how to calculate a benefit for a household that moved one or more times during the year.

Benefit distribution via water bills

As with the energy utilities, each of the nearly 3,000 CWS would need to modify its billing system to add the monthly W-LIRA credit and each 3,000 CWS would need to bill the state for its expenditures for delivering the W-LIRA credit along with applicable administrative costs (not to exceed 10%). Those costs might include training for customer service personnel about the W-LIRA program, and modifications to marketing, education, and outreach programs. In addition, low-income households would have to demonstrate their eligibility to their CWS, making the CWS responsible for verifying the income eligibility and distributing the benefits authorized by the Board.

Reasons to consider providing water benefits through other programs

Many low-income households pay for water indirectly through rent because they do not have individual water meters. Estimates vary as there is no perfect source for this information, but at least 29% to as

much as 46% of households in the state do not pay a water bill directly or are master-metered.⁵⁴ Table 9 below shows how water meters are much less prevalent than electric and gas meters.

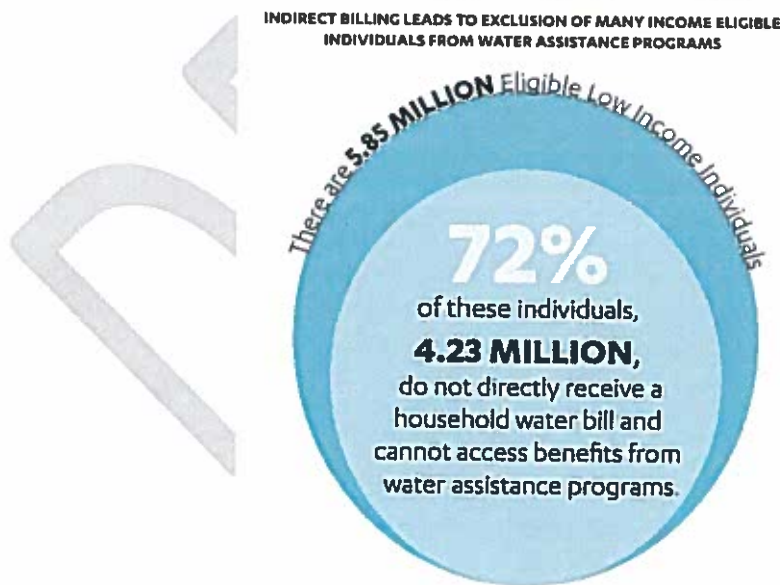
Table 9. Californian Households Reporting That They Do Not Pay a Direct Bill for Utility Service

Bill/service type	Prevalence
Water	44%
Natural Gas	13%
Electricity	5%

Source: 2015 American Housing Survey data on California sub-sample

As illustrated in Figure 8, there are households with incomes under 200% federal poverty level (FPL) and living in multi-family housing, an estimated 72% (or 1.4 million households) do not directly receive a water bill and thus cannot access benefits from water affordability assistance programs.⁵⁵ In the water sector, master-metering has effectively meant that no affordability benefit has been delivered to eligible households.⁵⁶

Figure 8: Low-Income Households That Do Not Receive a Water Bill



Compiled and estimated from American Community Survey and American Housing Survey data of the U.S. Census (2014)

⁵⁴ Varying estimates derived from 2015 Census, American Community Survey data for California, the Water Research Foundation's national 2017 report *Customer Assistance Programs for Multi-Family Residential and Other Hard-to-Reach Customers* and from the 2015 American Housing Survey to refine our assumptions of the number of master-metered accounts and the number of households each account serves.

⁵⁵ This estimate was made using data on the percentage of low-income (below 200% of FPL) tenants in different housing types who were master-metered and sub-metered from the 2015 American Housing Survey, which was then mapped onto the number of low-income households across the state derived from the 2010-2014 American Community Survey.

⁵⁶ While some drinking water systems maintain in their official documents that they allow income eligible master-metered households to apply for drinking water affordability programs in conjunction with their landlords, we have yet to identify a system which actually delivered a benefit to a non-metered customer.

Master-metering is particularly problematic for water affordability programs because eligible low-income households are much more likely to live in multi-unit dwellings. Each of the options discussed above and in Appendix M would allow low-income households to receive a benefit regardless of whether they pay a water bill directly or indirectly.

Conclusion

Drinking water costs have been rising much more quickly than inflation and the multitude of upward cost drivers are likely to intensify, leading to even greater water rate increases across the state. These rate increases will reduce affordability for low-income households already struggling with rising expenses for housing, food, other utilities, and other basic needs. This report offers a set of options for rate assistance programs with statewide coverage and meaningful benefit levels. These options have a significant cost, but these are costs that California can afford given our existing financial assistance to low-income households for other basic needs. The Board urges stakeholders to provide constructive feedback on this report so that the Legislature can act on water affordability.

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***Options for Implementation of a Statewide
Low-Income Water Rate Assistance Program***

***State Water Resources Control Board
January 3, 2019***

DRAFT

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Appendix A: Text of Assembly Bill 401, Dodd. Low-Income Water Rate Assistance Program

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Appendix N: Estimate of State Water Board Program Implementation Costs for Electric Benefit Delivery Program Option

Appendices can be accessed through the State Water Board website at:

https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/assistance/.

Introduction

In 2012, California enacted the Human Right to Water Act (Assembly Bill (AB) 685), establishing a state policy that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking and sanitary purposes. Since the passage of AB 685, the Legislature passed and the Governor signed various laws¹ aimed at making this policy a reality. There is, however, more to do. In recognition that many Californians may not be able to pay their water bills, AB 401 (Dodd, 2015) enacted the Low-Income Water Rate Assistance Act, which directed the State Water Resources Control Board (State Water Board or Board) to submit recommendations for a statewide Low-Income Water Rate Assistance Program (W-LIRA).

In this draft report, the State Water Board outlines possible components for developing a successful program to help low-income households pay their water bills. Specifically, the report identifies potential program recipients, different mechanisms for delivering benefits to low-income households, and possible funding sources to implement such a W-LIRA program. The purpose of this report is to present ideas for a W-LIRA program for public and stakeholder input, and the options outlined reflect discussions with public interest groups and stakeholders. The Board will use the input gathered in response to this draft to develop a final report to the Legislature in 2019.

In addition to welcoming feedback on this AB 401 draft report, the State Water Board also encourages review of the Office of Environmental Health Hazard Assessment's (OEHHA) draft *Framework and Tool for Evaluating California's Progress in Achieving the Human Right to Water*. Following the adoption of a Human Right to Water Resolution² in 2016, the Board enlisted OEHHA to develop a methodology for evaluating the state's progress in meeting the Human Right to Water policy. OEHHA's draft framework and tool can help evaluate and track our progress towards achieving safe, clean, affordable, and accessible water for all Californians.

While AB 401 is focused on assisting low-income households in paying their water bills, the State Water Board is committed to achieving the Human Right to Water in full. Multiple strategies will be necessary. This includes securing sustainable funding for the long-term operation and maintenance of water systems, consolidation of unsustainable systems, and improving technical, managerial, and financial capacity for systems serving disadvantaged communities. While the state continues to explore options for comprehensive solutions, developing a W-LIRA program will provide a necessary safety net for the most vulnerable Californians.

¹ These laws include: Senate Bill (SB) 88 (2015), SB 552 (2016), SB 1263 (2016), AB 401 (2015), AB 1668 & SB 606 (2018), AB 2501 (2018), and SB 998 (2018).

² State Water Board. Human Right to Water Resolution. Available at URL: http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2016/rs2016_0010.pdf.

Executive Summary

The Growing Water Affordability Challenge

Drinking water is a basic human need. Satisfying this need, however, is becoming more difficult for California's households, as the retail cost of water has risen substantially over the last decade and is expected to rise significantly over the coming years. Figure 1 shows that, adjusting for inflation, the average Californian household was paying around 45% more per month for drinking water service in 2015 than in 2007. The burden of rapidly-rising drinking water costs falls most heavily on the 13 million Californians living in low-income households, many of whom have seen their incomes stagnate during the same period. The high and rising costs of other basic needs for California residents, including housing, food, and other utility services, means that cost increases for any single need, such as water, can lead families to make difficult and risky tradeoffs which could harm their health and welfare. Expenditures to meet basic water needs are expected to continue to rise rapidly due to the need for water systems to replace aging infrastructure, meet treatment standards, diversify supplies, and maintain a well-trained workforce.

Figure 1. Inflation-adjusted Increase in average price of water (15 CCF³) for California Households



Source: American Water Works Association Data, 2007-2015

Need for a Statewide Program

Only 46% of California's population is served by a community water system (CWS)⁴ offering some form of a rate assistance program, and many of these programs have low levels of enrollment and limited

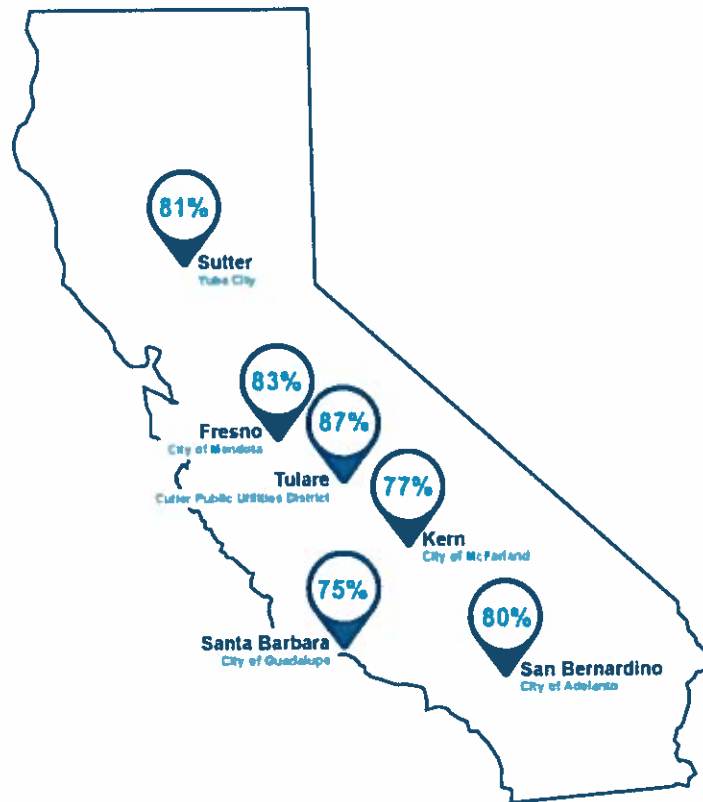
³ Centum cubic feet (CCF) is also known as a hundred cubic feet (HCF), which is 748 gallons. For a four person household, 12 CCF of use in a month equates to 75 gallons of water per person per day.

⁴ Community water systems serve communities with more than 25 people year-round. It is a term the Board's Drinking Water Division uses to distinguish them from other drinking water providers, such as domestic wells, truck stops, camp grounds, etc.

financial support. As a result, less than 20% of the state's low-income population currently receives benefits from a low-income rate assistance program. One reason for the limitation in program offerings is that publicly-owned water systems are constrained by Proposition 218⁵ in the use of their water fees and charges. Systems that do provide low-income rate assistance benefits are able to fund them from non-fee revenues.

There are also administrative obstacles associated with providing a rate assistance program to water users at the system level. Asking approximately 3,000 individual CWS to operate their own standalone rate assistance programs for their individual customer bases is infeasible. As illustrated in Figure 2, using 200% of the federal poverty level (FPL) as the baseline eligibility criteria for W-LIRA programs would mean that for many systems more than 50% of their customers would be eligible for assistance. To operate a low-income rate assistance program, these systems would likely have to impose outsized cost burdens on higher-income households served by the systems.

Figure 2. Large Water Systems with High Percentages of Low-Income Households That Could be Eligible for Rate Assistance



Note: Calculated using Census data and system water boundaries. The percentages shown above represent the proportion of residential customers served by the system who have incomes under 200% of the Federal Poverty Level.

⁵ Passed in 1996, Proposition 218 requires certain local government taxes, fees and assessments to go before the voters for approval.



Protecting the Common Waters of the Great Lakes Basin
Through Public Trust Solutions

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“Public Water, Public Justice”

FLOW Releases Model Legislation to Protect Michigan’s Public Waters and the Rights of the People Who Depend on Them from Unauthorized Privatization

Traverse City, Michigan – Drawing upon decades of experience and after a year of research, conversation, and analysis in collaboration with many people and organizations, FLOW today released “Public Water, Public Justice,” model legislation designed to protect Michigan’s public waters, and the rights of the people who depend on them, from unauthorized privatization.

The release by FLOW, the Great Lakes law and policy center, aims to focus the public debate and prime the legislative process, while also offering a blueprint for crafting similar legislation across the Great Lakes Basin.

“Public Water, Public Justice,” is available to the public on FLOW’s website and, in addition to the model legislation, includes a two-page bill summary, legal primer, and full report presenting the legal and socio-economic context of water rights and water crises in Michigan.

The release also marks the official launch of FLOW’s “The Campaign for Fresh Water,” a three-part initiative to be unveiled through the fall to engage the public in protecting and ensuring public access to the Great Lakes and groundwater in Michigan and throughout the Great Lakes watershed. The campaign’s overarching goal is to safeguard the health and availability of the public’s waters for generations to come.

The model legislation, developed by FLOW with key input from many partners and stakeholders, aims to bring Michigan’s colliding water crises under a comprehensive legal framework and rebalance Michigan’s priorities in protecting its water and its people.

At the same time that water-bottling giant Nestlé takes public water at virtually no cost and reaps windfall profits, thousands of Michigan citizens – both city dwellers and rural residents – lack access to clean, safe and affordable water. Over 100,000 Detroit households have suffered water shutoffs, and thousands of Flint children and residents have suffered lead poisoning in the fourth year of an ongoing water and public health emergency.

“For over two decades, citizens have witnessed government leaders and elected officials retreat from their paramount constitutional and common law duty to protect public water, health, and the common good above all else,” said Jim Olson, FLOW’s founder and president, water rights attorney, and a principal author of the model legislation. “This has resulted in a culture of indifference in which water, people, and health are last, and political agendas and economic interests are first, an indifference that led to the water shutoffs in Detroit, the Flint water crisis, and free sovereign water for a highly profitable bottled water industry, with nothing in return for the needs of the people of Michigan. It is time to right the ship, and restore the public trust and paramount common good on which water governance are founded.”

FLOW is calling on Michigan and the seven other Great Lakes states to pass this model legislation in order to:

- Affirm public ownership over water.
- Protect sensitive water resources.
- Prohibit the sale of water except for authorized bottled water by a licensing and royalty system.
- Recoup for public purposes royalties derived from these bottled water sales. This model law places royalties into a public water, health and justice trust fund to serve people and communities for specific dedicated public purposes, such as replacing lead service lines or creating water affordability plans for disadvantaged people in cities and rural communities.

“The seed for this project was sown in April 2017 during the hearing at Ferris State University in Big Rapids on Nestlé’s permit for its 210 million gallon-a-year bottled water well, and germinated during the Flint ‘Water Is Life’ conference held at Woodside Church in the fall of 2017,” said **Dave Dempsey, FLOW’s Senior Advisor, and architect of The Campaign for Fresh Water.** “That’s where large, organized groups of people from Detroit and Flint joined environmental and water advocates from across Michigan to decry the State’s collapse of water protection, and water service shutoffs, and ignoring its duty to protect these commons under the public trust doctrine and constitution.”

“My mother, Edna Leak, who passed away just shy of celebrating her 101st birthday was a compassionate water protector,” said **Lila Cabbil from the People’s Water Board.** “She used to say, ‘You know you can be fined for not giving a dog water, there should be a fine for not giving humans water. It’s not right!’ As her daughter, I too have seen firsthand in Detroit countless times how losing access to water takes a dreadful toll on health and human dignity. This model legislation – Public Water, Public Justice – counters water privatization, protects our water as a commons and human right, and works for water equity and justice. Let the tragedies of Flint and Detroit shape our future so that the people of Michigan never have to worry about access to safe, clean, affordable drinking water.”

FLOW sees this model legislation as a key effort to address the great inequity between bottled water companies like Nestlé and the great suffering of residents in Detroit, Flint, and increasingly beyond as the PFAS-contaminated groundwater crisis threatens drinking water supplies across Michigan.

“At FLOW we have faith that now is the time to shift our whole way of seeing and protecting water as public above all. It is time that we reject a governance culture that puts these interests last, and instead provide one that restores these shared common and paramount interests that respect water, health, and human dignity,” said **FLOW Executive Director Liz Kirkwood.** “It is our hope that this proposed law and report will inspire a groundswell of people from all walks of life to forge a new, water-first framework that prioritizes protection and public trust access to the Great Lakes and groundwater as a commons and human right.”

“This legislation affirms Michigan’s duty as steward of the Great Lakes for the public trust and its commitment to the people of the state that water is a human right. It is based on the historic principle that water is for the public and cannot be owned or sold. The legislation in this way codifies century-old Supreme Court rulings,” said **Noah Hall, Professor of Law, Wayne State University Law School, Founder and Scholarship Director, Great Lakes Environmental Law Center.** “And it advances human rights, recognizing that water is our most basic physical need. In this regard the legislation is a step forward where American law has been falling behind, as the human right to water has already been recognized by over 100 other countries. The Great Lakes and the people of Michigan deserve this legislation.”

For more information, visit FLOW’s website at www.FLOWforWater.org.

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Public Water, Public Justice Act : A Legal Primer for Model Legislation

OVERVIEW

The following primer provides a brief legal background to FLOW's model legislation, *Public Water, Public Justice*.¹ The purpose of the primer is to give the reader a general framework and understanding of the basic common law principles and constitutional and statutory provisions that guide water law and policy. They include:

- Water as public and sovereign for citizens;
- The reasonable use of water connected with land occupancy or ownership;
- The public trust doctrine that, at a minimum, protects navigable lakes and streams and the Great Lakes, but more recently embraces the science that groundwater, lakes, streams, wetlands and the hydrologic cycle are a singular system;
- The paramount concern for water and natural resources under state constitutions, (e.g., Michigan Constitution, Art. 4., Sec. 52); and
- The paramount public interest in public health (e.g., Michigan Constitution, Art. 4., Sec. 51).

These collective principles provide the legal authority and, in some instances, the legal duty for state governments to take responsible action, and to provide the standards and limitations necessary for protecting the public's paramount interests in both public water and health.

THE COMMON LAW OF SOVEREIGN OR PUBLIC WATER

After the American Revolution and formation of the United States, the common law concerning ownership and control of water passed from the British Crown to each sovereign state in common or as a commons; as a result, each state owns or holds water as sovereign and has a duty to control and manage water for the benefit of citizens. The navigable waters of lakes and streams, and the tributary groundwater or springs that feed them are considered a special commons held and controlled under solemn, perpetual legal principles, which protect fundamental rights and uses of water by citizens, known as the public trust doctrine. Under these general principles, water is subject to the general obligation that government must

¹ Copyright © 2018 FLOW. All rights reserved. FLOW's ("For Love of Water") *Public Water, Public Justice* Report, the accompanying summary of the model law, the full text of the model law and supporting legal primer may be used for educational or general purposes without obtaining consent from FLOW, provided the user gives appropriate credit to FLOW in conjunction with such use. Any commercial or other use or distribution of these materials for private gain or profit is prohibited. Any proposed law based on these materials should be tailored to the specific concerns, objectives, laws and policy of each state, province, or country, and should consult the law community with related legal expertise. FLOW and James Olson, principal author, emphasize that the model law and associated research, analysis, and materials are a "work in progress." FLOW believes the advancement of sovereign, common, public trust water, and the human and constitutional right to water and health and public justice are dynamic principles subject to improvement through the continuing, broad-based collaboration with government leaders, organizations and citizens to meet the challenges for water, quality of life, sustainable environment, communities, and economies in the 21st Century. Contact FLOW at www.flowforwater.org, 153 ½ East Front Street, Traverse City, Michigan 49684, (231) 944-1568. For simplicity's sake, footnote references are limited to a few; however, the legal references that form the basis of this primer can be found in several articles and reports on FLOW's website, www.flowforwater.org; Michael C. Blum and Mary Woods, *The Public Trust Doctrine in Environmental and Natural Resources Law* (Carolina Press, 2013); Olson, *All Aboard: Navigating the Course for Universal Adoption of the Public Trust Doctrine*, 15 Vt. J. Env. Law 135-191 (2015) (http://vjel.vermontlaw.edu/files/2014/01/Issue-2_Olson.pdf).

manage and protect these commons above all other interests. This means that water is not alienable any more than government can transfer its sovereign powers and duties to protect the health, safety and welfare of citizens.

In contrast to water as a commons or special commons held in public trust, the ownership or lawful occupancy of land, whether private or public, came down as proprietary, exclusive and possessory, alienable and transferable, subject to the paramount public interests in water and lakebeds protected by the public trust doctrine.²

Further, it should be understood that landowners or occupants *do not own* water; they have only a right to the *reasonable or beneficial use* of water in connection with the overlying land or land adjacent (riparian) to a lake or stream. Traditional limitations on reasonable use under the common law prohibited a landowner from *selling* water off tract or out of a watershed, because it was not a recognized reasonable use. This is because, quite correctly, courts and society understood that all the landowners and occupants in a watershed shared in common a right of reasonable use of the water moving through the watershed or community, and that the sale of water would break this shared use or commons. As noted above, the reasonable use of a landowner sits side-by-side with the sovereign interest in water as a commons and the rights and limitations imposed on all users to protect the public trust in navigable lakes and streams or their tributary waters.

THE PUBLIC TRUST DOCTRINE

Every state took title and control to the waters and bottomlands of all of the navigable lakes and streams within its borders at the time of each state's admission to the United States. This is called the "equal footing" doctrine.³ These state lands and waters are held in trust for the benefit of each state's citizens. The federal government reserved navigational servitude in the water and lands to protect the right of each citizen to travel and engage in commerce, including shipping over these waters, fishing, boating, swimming, drinking water or sustenance.⁴

Under the common law, each state also holds these navigable waters and the lakebeds under them in public trust for every citizen. Moreover, each state by common law has the power to determine the nature and extent of the public trust in its waters, whether they are navigable or not, and to protect the public's rights to use these waters, lakebeds, and other public common property for the protected uses of public land or natural resources, "like navigable waters" that are deemed to be of a "special character."⁵ Once water or land is determined to be subject to the public trust doctrine, the state has an affirmative duty to protect these public trust commons, and neither the state nor any other person can alienate or subordinate this public trust primarily for private gain, nor can they impair the public trust or protected public trust uses. Each citizen is a legally recognized beneficiary of the public trust with the right to the certain protected trust uses, including navigation, fishing, drinking water, sustenance, boating, bathing, swimming and other forms of recreation. The government is accountable to citizens, the beneficiaries, based on a solemn duty in perpetuity to protect these public trust waters, lands and uses.

² The exception is where there is an overriding public interest, such as walking the shores of the Great Lakes below the ordinary high water mark of navigable lakes or streams under the public trust doctrine. *Glass v Goeckel*, 437 Mich 667 (2005); *Gunderson v State Indiana DNR*, 90 N.E. 3d. 1171 (IN 2018); *State ex. rel. Merrill v Ohio DNR*, 955 N.E. 3d. 935 (OH 2011).

³ The most recent U.S. Supreme Court case on the subject is *Montana PPL v Montana*, 565 U.S. 576 (2012). As described by the Court, states took title "absolutely" to those bottomlands and waters.

⁴ *Id.* *Arnold v Mundy*, 6 N.J.L. 1 (1821); *Obrecht v National Gypsum Co.*, 361 Mich 399 (1960).

⁵ *Id.*, at 603-604; *Illinois Central R Rd v Illinois*, 146 U.S. 387, 437 (1892); *Obrecht v National Gypsum Co.*, 361 Mich 399 (1960); *Glass v Goeckle*, 473 Mich 667 (2005).

Since the 1980s, when the California Supreme Court limited a water diversion by Los Angeles of a tributary nonnavigable stream to protect the downstream navigable Mono Lake, courts have increasingly recognized the singularity and interconnected nature of the hydrological cycle, and limited the use of tributary streams or groundwater that affects flows, levels or interferes with riparian or public trust interests in lakes and streams. In the past two decades, courts in Hawaii, Wisconsin, Arizona, South Dakota and California have ruled that groundwater is subject to the public trust doctrine under the common law or in conjunction with constitutional provisions.

In addition, states have passed laws that recognize waters of a state—groundwater, lakes and streams—as a single hydrological system. For example, all of the Great Lakes states and the federal government in adopting the Great Lakes Compact recognized the declaration or finding that the waters of the Great Lakes Basin are held in trust for the benefit of citizens.⁶ Several Michigan water and natural resource laws also have declared a public trust in water.⁷

COMMON LAW OF LAKES, STREAMS, AND GROUNDWATER

Under the common law in most riparian states located east of the Mississippi, off-tract or out-of-watershed diversion of water for sale is either prohibited or limited to protecting the flows and levels of the groundwater, streams and lakes shared by other landowners or occupants in a watershed or community. This latter instance is known as the correlative rights doctrine. The Michigan Supreme Court adopted this doctrine in 1917.⁸ Under this rule of law, a landowner or occupant of land cannot divert water off-tract or out-of-watershed for sale if the removal of water diminishes the flow or level of a marsh, stream or lake, or materially interferes with a neighbor's well. The elegance of the off-tract or out-of-watershed rule is that it protects and recognizes a legal preference for water as a local common resource that feeds and nurtures the watershed where it flows.

In the past decade or so, states through their legislatures or courts have relaxed the off-tract or out-of-watershed limitation. These states have created gaps or loopholes in this common law distinction, opening the door for diversions and sale or exports of water off-tract or out-of-watersheds. The Great Lakes Compact and a handful of state water laws allowing the withdrawal of water for the sale of bottled water and other cases have opened the door for the *sale* in addition to the reasonable use of water, despite the fact that earlier court precedents limit the off-tract diversion or export of water.⁹

BOTTLED WATER FROM PRIVATE LARGE-VOLUME WELLS OR PUMPS

The relaxation of the off-tract limitation in groundwater law has led to an increase in bottled water operations and sale of water, at little or no cost to the operators—whether water bottlers acquire control of the water through private wells, like Nestlé, or through public municipal water systems and pay only for the delivery of water. In short, while the reasonable use of water in connection with land is integral to ownership and in relation to other users of water in the same stream, lake or groundwater aquifer, the

⁶ P.L. 110-342, Sec. 1.3.1.a.

⁷ E.g., MCL 30101 et seq. (lakes and streams); MCL 32502, 32503, 32505; MCL 324.1701 et seq. (Great Lakes); MCL 32702(1)(c), 32505 (groundwater, surface water, Great Lakes); MCL 324.31519 (dam removal); MCL 324.32606(dams); MCL 324.34105 (groundwater, surface water, irrigation district agreements).

⁸ *Schenk v City of Ann Arbor*, 196 Mich 75 (1017).

⁹ Notable court cases include the Michigan Court of Appeals in the first *MCWC v Nestlé Waters* case decided in 2005, which ignored the off-tract limitation in *Schenk v Ann Arbor*, 196 Mich 75, and fashioned a new “reasonable use balancing test” consisting of a number of factors, although one of the factors at least retained a preference for in-watershed uses and an overall requirement that assures adequate water in a stream or lake. Other courts have adopted a similar reasonable use factor test based on Sec. 858, Restatement, Torts, 2d.

conversion of *use* of water to *sale* in containers or bottles severs the water from the public sovereign commons. Except for an application and administrative fee to help defray the costs of the state's review, the actual conversion of water from a reasonable use to a right to sell sovereign water is at present essentially free.

BOTTLED WATER FROM PUBLIC OR MUNICIPAL WATER DEPARTMENTS

The same is basically true for the majority of bottled water labels, like Aquafina and Dasani, who obtain the water as customers from a municipal or public water department or utility service. A municipality withdraws public trust water from a public stream or lake or connected groundwater, and then treats, distributes, and discharges wastewater back to a public trust water course. The water and public waterworks system or infrastructure is public from start to finish. The water originates as public sovereign water, passes through public infrastructure and operations, and accrues revenues based on the nonprofit shared cost by statutory mandate to each user on the system,¹⁰ is treated as waste, and is discharged back to public trust waters. Customers on this public system receive water as a public service so they may *use* the water. However, a bottled water producer then on its own converts the public water from a *use* to *sale* of water without paying any additional fee for the conversion from use to sale or the right to sell the water. In effect, the public waterworks system and its users who share in the cost of the nonprofit service pay for or subsidize the sale of water by bottled water producers or those who sell water.

It should be noted that there is no way out of the system for the user who must pay his or her share of the cost: all customers who need or want to use public water from a public waterworks system must hookup to the system. Even though a landowner or occupant of land has a right to reasonable use of groundwater, they are prohibited from drilling and using their own well beneath their property where a public water utility exists.¹¹ On the other hand, a bottled water company can hookup and receives public water as a *user* based on a nonprofit cost fee or rate, packages the water, and *sells* it to a private consumer at highly marked up market prices with substantial private profit that is not shared with the other users who help pay the overall costs of the nonprofit system. From a broader perspective, this is not unlike a private company like Nestlé who withdraws water as a landowner for use, but bottles it and sells it at a substantial profit. In both instances, public water that is withdrawn and consumed as a public service or use, is severed and diverted for sale in bottles or containers; the sovereign, public and others users are subsidizing the seller's gain or profit.

EXAMPLES OF CONSTITUTIONAL OR STATUTORY DECLARATIONS OF WATER AS PARAMOUNT PUBLIC TRUST OR INTEREST

This section features a range of constitutional and statutory provisions that address a public interest or public trust in water and natural resources.

Arizona A.R.S. § 45-141. Public nature of waters of the state

- A. The waters of all sources, flowing in streams, canyons, ravines or other natural channels, or in definite underground channels, whether perennial or intermittent, flood, waste or surplus water, and of lakes, ponds and springs on the surface, belong to the public and are subject of appropriation and beneficial use as provided in this chapter.

¹⁰“Sec. 1 (2) The price charged by the city to its customers shall be at a **rate** which is based on the *actual cost of service* as determined under the **utility** basis of **rate-making**.” MCL 123.141. The effect of this language is to allow conversion of the rate or price charged for the water service into the sale of water at high profits without paying a royalty or fee that is correspondingly shared with the other users.

¹¹ E.g., Michigan Public Water Works Law, Section, MCL 123.141(2).

- B. This state may obtain any water that is necessary to maintain and protect public trust values that are identified by the commission.

In *Arizona Ctr. for Law in the Pub. Interest v. Hassell*,¹² the court recognized the connection between streams and groundwater, and application of public trust doctrine, which prohibited transfer of public trust lands or waters for private purposes.

California, Art. 10, Sec. 2

Sec. 2. It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare . . . The right to water or to the use or flow of water in or from any natural stream or water course in this State is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water.

In 1983, the California Supreme Court recognized the public trust doctrine at common law in *National Audubon v L.A. Superior Court*.¹³ The Court ruled that the City of Los Angeles was restricted in diverting water from a non-navigable water course where it impaired a navigable public trust lake. More recently, with climate change impacts of drought, flooding, fire intensifying, the courts and legislatures have recognized water, including groundwater, as a public trust.¹⁴ In a recent groundwater case, a court ruled that groundwater withdrawals were limited by the public trust doctrine the same as connected surface waters.¹⁵

Hawaii Constitution, Art IX, Sec. 1

Sec. 1. All public resources are held in trust by the state for the benefit of its people” and the “State and its political subdivisions shall conserve and protect” the State’s water resources.

Between 2000 and 2017, the Hawaiian Supreme Court has interpreted this provision to incorporate the public trust doctrine into the constitutional and common law of Hawaii. *Waiahole I* ¹⁶ “[T]he public trust doctrine applies to all water resources without exception or distinction.”¹⁷ The state water resources trust thus embodies a dual mandate of 1) protection and 2) maximum reasonable and beneficial use.¹⁸

¹² 837 P.2d 158, 162 (Ariz. App. 1991).

¹³ 658 P.2d. 709 (Cal.1983).

¹⁴ State has an “affirmative duty to protect the public trust in planning and allocation of natural resources.” *Center for Biological Diversity v FPL Group Inc.*, 83 Cal. Rptr. 588 (2008); however, for public trust to apply to groundwater there needs to be a hydrologic connection between activity and harm to public trust. *Santa Teresa Citizens v City of San Jose*, 114 Cal. App. 4th 689 (2003).

¹⁵ *Environmental Law Foundation v State Water Control Board and County of Siskiyou*. Decision, Cal. Ct of App. No. C083239, Aug. 29, 2018 (“The County’s squabble over the distinction between diversion and extraction is...irrelevant”), reversing *Siskiyou County v Superior Court*, 217 Cal. App. 4th 83 (2013); Richard Franks. *Public Trust Applies to State Groundwater Resources* (Legal Planet, Sept. 4, 2018).

¹⁶ 93 P. 3d. 444 (2005).

¹⁷ *Id.*, at 445.

¹⁸ *Id.*, 451; *In Re Water Use Permit Applications*, 93 P. 3d. 643 (2004).

officials. State officials claimed that these citizens had adequate remedy under the citizen suit provisions of the federal Safe Drinking Water Act (“SDWA”), but the Court rejected the argument because the SDWA provided for prospective injunctive relief only, and that there was no direct citizen suit provision for injunction or damages claimed by the citizens under Michigan law. Thus, the only available remedy would be a claim for violation of a constitutional right to health and person under the constitution. While the Court found a remedy directly under the constitution, the case demonstrates the need for citizen suit remedies under a statute to protect and enforce their right to water and health provided to them from public waterworks or water utilities.

Michigan Financing and Rates for Public Water Systems

Financing Public Water Systems, MCL 141.121

Sec. 21. (1) *Rates for services furnished by a public improvement shall be fixed before the issuance of the bonds.* The rates shall be sufficient to provide for all the following:

- (a) The payment of the expenses of administration and operation and the expenses for the maintenance of the public improvement as may be necessary to preserve the public improvement in good repair and working order.
- (b) The payment of the interest on and the principal of bonds payable from the public improvements * * * when the bonds become due and payable.
- (c) The creation of any reserve for the bonds as required in the ordinance.
- (d) Other expenditures and funds for the public improvement as the ordinance may require.

Setting Rates for Public Water Systems, MCL 123.141

Sec. 1 (2) The price charged by the city to its customers shall be at a **rate** which is based on the *actual cost of service* as determined under the **utility basis of rate-making**.

In the federal bankruptcy *Lyda* water shut-off case against the City of Detroit, the bankruptcy court rejected the notion that he had any authority to impose affordability plans or other measures on the city water department, because rates were based on the costs spread over the number of users.²⁶ The court noted that affordability or costs of assuring basic water needs, in an emergency or where residents cannot afford to pay their bill because of poverty or other exigencies, were not listed as a basis for setting sufficient rates.

Comment: In addition to Parts 1, 2 and 3 in the proposed Model *Public Water, Public Justice* Law, a Part 4 or standalone law should amend the definition of “rates” or “costs” as the “actual cost of service.” The definition of “cost of service” should include “the costs and expenses to assure affordability or other measures to assure basic water needs of residents are met.” This would acknowledge the reality that water services are a substitute requirement to hook up to and pay for water that would otherwise be part of their property right for the reasonable use of groundwater as an owner or occupant of their home. If all are required to hook up to the system and pay their share in the “costs,” then the fair and equitable way to spread these costs across the system should include the cost of assuring basic water needs (e.g. affordability plans or basic daily water limit at low fixed rate, that is spread across all users of different incomes or types).

²⁶ *In Re City of Detroit* (Lyda et al.), 2014 W.L. 6474081 (U.S.B. Ct., S.D., E.D., 2014); see also MCL 123. 141(2) “The price charged by the city to its customers shall be at a rate which is based on the actual cost of service as determined under the utility basis of rate-making” and “(3) The retail rate charged to the inhabitants of a city, village, township, or authority which is a contractual customer as provided by subsection (2) shall not exceed the actual cost of providing the service.”

Costs for purposes of budgeting for financing should also parallel this expanded and realistic definition of “cost of service.”

Pennsylvania Constitution, Art. I., Sec. 27

Sec. 27. The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.

In *Pennsylvania Environmental Defense Foundation v Commonwealth*,²⁷ the state's Supreme Court extended the public trust doctrine under Art I, Sec. 27 to the revenues received by the state for leasing fish and game and state park lands for fracking and other oil and gas development. The legislature authorized transfer of a portion of those funds received from public trust state lands into the general fund, rather than for conservation or public trust purposes. The court prohibited use of funds received from sovereign public lands and natural resources of the state, because the funds are impressed with a continuing public trust purpose.²⁸ Under Art I, Sec. 27, all public natural resources are subject to and must be managed by the sovereign owner of these natural resources under the public trust doctrine.²⁹ The state, however, has authorized public water utilities to enter into public-private partnerships;³⁰ this increases the importance of declaring the rights to water and health and obligations under the public trust doctrine in the delivery of water services.

Vermont Statutes, 10, Sec. 1390 (5)

(5) It is the policy of the state that the groundwater resources of the state are held in trust for the public. The state shall manage its groundwater resources in accordance with the policy of this section, the requirements of subchapter 6 of this chapter, and section 1392 of this title for the benefit of citizens who hold and share rights in such waters. The designation of the groundwater resources of the state as a public trust resource shall not be construed to allow a new right of legal action by an individual other than the state of Vermont, except to remedy injury to a particularized interest related to water quantity protected under this subchapter.³¹

So far, the Vermont courts have interpreted this law to impose a duty on the state department of natural resources to protect the public trust in both lakes and streams and groundwater from violations of the standards or principle of the public trust doctrine.³²

²⁷ 108 A.3d. 140 (2014).

²⁸ For a case involving impressing public trust duties and limitations on the funds received by a municipal water authority for servicing waters of the state, *Mayor and Council of City of Clifton v Passaic Valley Water Comm'n*, 539 A.2d. 760 (N.J. 1987).

²⁹ Note: If Michigan's MEPA is a legislative implementation of the constitutional mandate to protect the water and natural resources and the public trust in those resources, then the MEPA's duties to prevent and protect from impairment should similarly extend to groundwater.

³⁰ Act 12 of 2016 (PA). The law authorizes private investment in public waterworks systems, including authority to “enhance rates” beyond public utility cost-based approaches.

³¹ 10 V.S.A. Sec. 1390(5).

³² *In re Omya*, No. 96-610, V-tec., at 5.

Wisconsin Constitution, Art. 9, Sec. 1

Section 1. The state shall have concurrent jurisdiction on all rivers and lakes bordering on this state so far as such rivers or lakes shall form a common boundary to the state and any other state or territory now or hereafter to be formed, and bounded by the same; and the river Mississippi and the navigable waters leading into the Mississippi and St. Lawrence, and the carrying places between the same, shall be common highways and forever free, as well to the inhabitants of the state as to the citizens of the United States, without any tax, impost or duty therefor.

The Wisconsin courts have developed an extensive body of public trust law to protect navigable lakes and streams, including the Great Lakes. In doing so, the sovereign ownership and control of the state to its waters as a commons is recognized. While the Wisconsin public trust doctrine has been limited to navigable waters, the courts have extended the public trust doctrine to groundwater withdrawals to protect fishing, boating and, presumably, other public recognized protected trust uses, such as drinking water.³³ Like Michigan and other Great Lakes states, Wisconsin, in adopting the Great Lakes Compact, declared that the waters of the state, including groundwater, are held in trust for the benefit of citizens.³⁴

SUMMARY AND CONCLUSION

Water is a commons held by each state as sovereign and public water for the benefit of each citizen. Some public waters, including lakes, streams and in some instances groundwater, are held in public trust. Under public trust law, each state has an affirmative duty to protect public trust uses of each citizen, as a beneficiary of the trust. The protected public trust uses are private and public uses related to navigation, fishing, boating, swimming, drinking water, sustenance and other paramount public health needs. Common law principles like riparian, groundwater and the public trust doctrine protect reasonable private and public uses that connect to or benefit the land or watershed as a whole. Historically, the reasonable or public trust uses of water do not include the “sale” or alienation of water out of watersheds for private purposes and gain. Only recently have courts considered the withdrawal of water for sale, completely severed from the watershed provided there is adequate water.

Because the state holds the water as sovereign, there is no authority for the sale of water unless expressly authorized by law, such as through a license or franchise to serve a public purpose. In those instances where bottled water is licensed under a royalty system, the states should be fairly compensated for the license or privilege to sell the waters of the state. Fair compensation means no “free” or substantially subsidized water, so a royalty or fee must be paid to the state. Moreover, a sale of water off-tract or out-of-watershed should not be authorized if it would measurably impair or diminish the quantity or quality of any lake, stream, marsh, wetland or neighboring well.

If done properly, there is no constitutional or legal impediment to declaring water sovereign, public, held in public trust to protect public trust and private reasonable uses of water. In fact, these principles require the state or local governments to prohibit impairment, diminishment of water quantity or quality, to prohibit the sale of water or its privatization by private persons, and if allowed in narrow circumstances, only where there is no harm, a public purpose, license, and a royalty or fee. The royalties or fees must be placed in a trust fund and held for specific public trust purposes and needs.

³³ *Lake Beulah Mgmt. Dist. v. Dept. of Nat. Resources*, 799 NW 2d 73 (Wis. 2011).

³⁴ Wis. 281.443.1m(a)(1).



Public Water, Public Justice Act: **A Report from FLOW**

PUBLIC WATER, PUBLIC JUSTICE:

A PROPOSAL TO PROTECT THE PARAMOUNT PUBLIC INTEREST OF PUBLIC WATER AND HEALTH FOR THE PEOPLE OF MICHIGAN AND GREAT LAKES¹

**A REPORT FROM FLOW
SEPTEMBER 2018**

¹ Copyright © 2018 FLOW. All rights reserved. FLOW's ("For Love of Water") *Public Water, Public Justice* Report and the accompanying summary of the model law, the full text of the model law and supporting legal primer may be used for educational or general purposes without obtaining consent from FLOW, provided the user gives appropriate credit to FLOW in conjunction with such use. Any commercial or other use or distribution of these materials for private gain or profit is prohibited. Any proposed law based on these materials should be tailored to the specific concerns, objectives, laws and policy of each state, province or country, and should consult the law community with related legal expertise. FLOW and James Olson, principal author, emphasize that the model law and associated research, analysis, and materials are a "work in progress." FLOW believes the advancement of sovereign, common, public trust water, and the human and constitutional right to water and health and public justice are dynamic principles subject to improvement through the continuing, broad-based collaboration with government leaders, organizations and citizens to meet the challenges for water, quality of life, sustainable environment, communities, and economies in the 21st Century. Contact FLOW at www.flowforwater.org, 153 ½ East Front Street, Traverse City, Michigan 49684, (231) 944-1568.

PREFACE BY JIM OLSON

For over two decades, citizens have witnessed government leaders and elected officials retreat from their constitutional and common law paramount duty to protect public water, health and the common good. Instead, government has favored special economic interests over the duty to safeguard water and health. We have been living in a culture of government indifference in which water, people and health are last, and political and economic interests are first. Lives have been injured and communities turned upside down because of this failure.

Detroit water shutoffs continue without real relief. Flint citizens continue to struggle and suffer, with insufficient attention and lack of support to rebuild their community and lives. Michigan approved yet another permit for Nestlé to take 210 million gallons a year for free, except for token annual registration and administrative fees. Citizens in Flint and Detroit are forced to buy bottled water because they don't have access to safe water. Detroit schools can't open without bottled water. Ohio has dragged its feet since the western one-third of Lake Erie turned into green toxic algae and Toledo's drinking water was shut down in 2014 and a tourist-based economy damaged. Recently, state officials declared a state of emergency in Parchment, Michigan because of the risk of exposure to per- and polyfluoroalkyl substances ("PFAS") more than 20 times the 70 parts per trillion current state limit. This summer, an extreme rainfall event in the Upper Peninsula overwhelmed infrastructure and caused untold damage and destruction, largely due to government indifference toward the increasing intensity and frequency of weather events from human-induced climate change.

Undoubtedly, jobs and economy are vital to our quality of life, but in what manner and at what cost to the lives of hundreds of thousands of people? How much externalized damage to the environment is enough? At what point do citizens and leaders reject this indifference and favoritism toward political and economic interests, and reestablish the overarching paramount interest in water, health and common good? What should citizens, communities, towns and leaders do?

Over the last nine months, I have had the privilege to help FLOW find a holistic approach that would address these complex interconnected concerns in a model law. This past May, I circulated a draft of a proposal for a model water and justice law with our Executive Director Liz Kirkwood and Senior Policy Advisor Dave Dempsey and Board Chair Skip Pruss, highly regarded sages on public policy, water, environment and energy in the Great Lakes Basin. After much discussion, review and collaboration with many organizations and people, and many iterations of the draft law over the summer, FLOW is pleased to release a model *Public Water, Public Justice Law* for citizens, communities and leaders in Michigan and the Great Lakes Basin. The model law, bill summary, this full report and accompanying water law primer are offered as a pathway for education, dialogue and enactment of a comprehensive law. This law declares water as sovereign and held in public trust by state governments for the benefit of citizens, to protect their paramount right to safe, clean and affordable water, public health and a sustainable environment in the challenging decades to come.

The seed for this project was sown during a Michigan Department of Environmental Quality hearing in Big Rapids last April 2017. The hearing showcased the second application for a water permit by Nestlé to divert 210 million gallons of groundwater a year from the headwater creeks near Evart, Michigan for its bottling plant 30 miles to the south. Hundreds of well informed citizens from all over the state crowded the large hall, lined the walls and sat on the floor, and one by one voiced their concerns. Citizens from Detroit and Flint and leaders and members from Michigan's recognized Indian tribes spoke passionately and powerfully, decrying the damage, risks to health, inequity and injustice in Detroit and Flint, while the state authorizes water for Nestlé virtually for free and risks sensitive wetlands and cold-water creeks: *Why do you leave us without water for our homes when we can't afford a \$200 water bill, when a bottled water company like Nestlé gets a permit to take water virtually free? Why is it that we and our children*

were exposed to lead and disease, that we have to use bottles of water to cook or wash when Nestlé receives hundreds of millions of dollars in profits a year? Why are you forcing our children to be separated from our homes because we are without water? Why is it that you can let a private corporation subordinate 12,000-year old glacial springs and creeks for the convenience of a label with the words "spring water" so a water bottling company can serve a market niche and charge more per bottle? How can you issue a permit from "spring water" in the same watershed where courts have already determined that 400 gallons per minute for bottled water substantially impaired and harmed the upper reaches of a stream and two lakes with nearly the same kind of glacial hydrogeology?

As we left the hearing room at Ferris State University that evening, I sensed I had just witnessed a turning point in Michigan's history. For the first time I could recall, citizens from every walk of life had united as one voice to stop the deterioration of our water, health and social justice. It wasn't just hunters and fishermen, conservationists, or environmentalists. It was African Americans, civil right activists, tribal leaders, elders, children, business men and women, teachers, doctors, scientists and lawyers insisting to government and its leaders that it was time for a paradigm shift in water law and policy that puts our public water, health and social justice first, above all else.

If the seed for this project was sown at Ferris State, it germinated during the "Water Is Life" conference hosted by Woodland Church in the fall of 2017. Inspiring talks, informative workshops, and sobering, stirring testimony from participants called for a new unified, holistic approach to defeat the government's lack of accountability and action to protect water, health and justice. It seemed unconscionable that over the past 30 years our government leaders had let people sink to the bottom in favor of a narrower political economic agenda. There had to be an approach that tied together in one law a solution to the chasm of inequity and discontinuity of justice between the extreme profit of bottled water and the devastating tragedies in Detroit and Flint, and at the same time promoted resilient communities and a sustainable economy and environment.

We faced many challenges. A model law would have to connect the inalienable nature of public water held by a state as sovereign for the broader needs and benefit of its citizens with the need for individual reasonable use of water for domestic, agriculture, industrial and commercial or private purposes. At the same time, it was necessary to restore the paramount value of water and dignity of people and connect this with public infrastructure and water services in Flint, Detroit, our suburbs and rural towns. It was important to prevent companies from taking water from public supplies at nonprofit rates and turn around and sell it, without state authorization, at high profit. We had to find a way to address the poignant, unconscionable injustice between the hundreds of millions of dollars that packaged water companies make off essentially free water from those in cities or small towns who cannot afford or are denied access to safe, clean water because of contamination or failing infrastructure. Finally, we had to find a way to prevent the continuing adverse impacts from the effects of large-volume water withdrawals and diversions for bottled water that diminish and harm the public trust in our fish, habitat and public enjoyment of our hydrologically connected groundwater, springs, wetlands, lakes and streams.

Today, we present the *Public Water, Public Justice Law*, its report and supporting documents with immense gratitude to everyone who has participated and helped us finish and release this model law. The model law is presented in three parts, designed as one model law or three separate stand-alone laws. Part 1 declares waters of the state sovereign, asserting a paramount right to clean affordable water and health subject to the affirmative duty under public trust law for the state to protect the fundamental right to water. Part 2 prohibits the sale of water itself, but preserves the reasonable use of water incident to land ownership or occupancy; accordingly, the law distinguishes the reasonable use of water in connection with the land from the severance and sale of water in distant markets. If a packaged water company wants to sell water, it must demonstrate no impairment to the public trust through interference with a reasonable use, and that it will not diminish the flows and levels of wetlands, streams or lakes. Only if these strict

environmental standards are met can a company apply for a license to sell water from the sovereign state under Part 3. Part 3 requires a license and royalty from the state. A royalty of 25 cents per gallon, approximately 5 more cents for a 16-ounce plastic bottle, is paid annually into what we labelled the “Public Water, Health and Justice Trust Fund.” The Trust Fund board consists of urban and rural citizens, water engineers and professionals, representatives of government, local water systems, commerce, conservation and citizens at large who are appointed by the Natural Resources Commission. The board is charged with administering the funds for preferred dedicated purposes, including affordability, health, medical monitoring, emergency infrastructure or groundwater pollution threats, help for local governments and other entities like schools. The model law also creates public notice and comment, hearings, oversight, accountability, government and citizen enforcement.

We could not have finished this project without the incredible support and water justice vision of the Mahogany Foundation along with the invaluable contributions of many people and organizations. We are deeply indebted to you all. The young, talented, dedicated staff at FLOW carried and improved the model law and report. The peer review and thoughtful comments from water law experts Professor Noah Hall at Wayne State University, Professor Oday Salim, now at National Wildlife Federation and University of Michigan, Professor Nick Schroeck at University of Detroit Mercy Law School, and Skip Pruss helped us assure that we had designed a comprehensive architecture based on sound principles of water and public trust law.

Cyndi Roper, (Natural Resources Defense Council), encouraged us to move this forward, because of the imminent public need. The constructive comments and questions from the participants in our Water Is Life Coalition grounded us to address the needs of people and the environment. These extraordinary people include Lila Cabbil (The People’s Water Board), Monica Lewis-Patrick (We the People of Detroit), Sylvia Orduno (Michigan Welfare Rights Organization/The People’s Water Board), Claire McClinton (Democracy Defense League), Wenonah Hauter, Mary Grant and Emily Wurth (Food & Water Watch), Maude Barlow and Emma Lui (Council of Canadians), Peggy Case and Karen Turnbull (Michigan Citizens for Water Conservation), Miranda Fox and Stiv Wilson (Story of Stuff), Shannon Abbott, (Grand Rapids Water Protectors), Melissa Mays (Water You Fighting For), Holly Bird (Grand Traverse Band of Ottawa and Chippewa Indians), Alissa Weinman (Corporate Accountability International), Paul Baines and Luke Evans (Great Lakes Commons), and Lin Grist (Wellington Water Watchers). Similarly, we received wonderful guidance from other colleagues, including comments from David Holtz, Allison LaPlatt, Anne Woiwode (Sierra Club), and James Clift and Kate Madigan, (Michigan Environmental Council). And I personally am thankful for the critical response by participants in the People’s Water Board “teach in” when I was given the opportunity to present an outline of the proposed law. Finally, I want to thank Alice Jennings, Kurt Thornbladh and Tom Stephens, leading social justice lawyers in Detroit, for letting me participate in the *Lyda v City of Detroit* bankruptcy court case and appeal, an opportunity that gave me deeper insight into to what happens to families, homes, children and neighborhoods when the paramount needs of public water and health are ignored by a government bent on narrower agendas infected with political interests.

We invite you, the reader, to join with us and others in what could be the most critical challenge that we, our children and their children will face in this century. It is past time that we right the ship of water, health and the public trust in water and governance. All of us, beyond partisanship and self-interests, must unite the principles of the human right to water, health and the public trust in water to promote transparency, accountability and the *paramount* common good, now.

It is our deepest hope that a groundswell of people from our leaders, legislators, local governments, organizations and citizens from all walks of life will work together to reach for and achieve a new framework for water and health. This, we hope, will spark a sea change in the way we value, protect, use and sustain water for the common good. It is time to rebalance the scales of justice to promote and protect

these paramount interests and values from subordinate to paramount. If we do this, we will make good decisions about water use, land development, infrastructure, community, health, energy, food, economy and quality of life.

Jim Olson,
Traverse City
September 19, 2018

INTRODUCTION

The people of Michigan collectively own the waters of the state as sovereign – but the lack of state assertion of its sovereign ownership and duty to protect water and public health allows private for-profit corporations to remove these waters and sell them for mammoth profits without explicit legislative authorization to do so. This is not only inconsistent with the need for state authorization to sell water that belongs to all of us, but it violates the governmental duty to assure that the diversion and sale of water do not impair our lakes, streams and wetlands, and it is a raw deal for the citizenry.

To prevent alienation of the public’s water and to protect sensitive water resources, particularly in times of critically threatened groundwater, lakes and streams, and public health, Michigan and the seven other Great Lakes states should pass model legislation like the model bill recently drafted and proposed by FLOW and its founder and legal advisor Jim Olson, after review and comment from other experts and affected interests.

This proposed legislation is designed to affirm state sovereignty and public trust duty to protect the right to water and health; require licenses for any water that is authorized for sale; comply with protective water quantity, quality and environmental standards; recoup for public purposes royalties derived from any authorized water sales; dedicate those royalties in trust to satisfy the rights to access affordable, safe and clean water; assure communities can sustain public water infrastructure and public water sources; provide public notice, participation and rights of enforcement for violations of governments’ legal duty; and provide adequate and fair funding to local communities for safe water lines and other needs of residents, schools, businesses and public buildings and facilities. To do otherwise is to fall short of government’s constitutional, public trust and legal duties as sovereign of our public trust waters to protect the right to water and assure adequate, clean, affordable water and public health.

THE MICHIGAN CONTROVERSIES

Nestlé Waters High-Volume Water Diversions for Sale of Bottled Water

In 2001, the Michigan Department of Environmental Quality (“DEQ”) issued a permit to the Nestlé Corporation to withdraw and divert 400 gallons per minute (“gpm”) of groundwater that feeds Sanctuary Springs and the headwaters of a stream and two lakes. In 2003, a circuit court issued an injunction shutting down the high-volume water wells at Sanctuary Springs after finding the operation violated the common law of groundwater and the Michigan Environmental Protection Act. In 2005, the Court of Appeals affirmed the lower court’s findings, found the operation caused substantial and unreasonable harm, and ordered the lower court to assure adequate water in the stream and lakes by limiting Nestlé’s diversions for sale. Today, the Nestlé Corporation is limited during dry months at Sanctuary Springs to an average of 125 gpm to protect the water courses, adjacent wetlands and rights of riparians and the public.

On April 2, 2018, the DEQ issued a permit to the Nestlé Corporation to extract up to 400 gpm of groundwater that feeds the headwaters of two creeks in Osceola County near Evart, 30 miles north of the Sanctuary Springs wells. Nestlé bottles and sells the water across the Midwest. The DEQ’s decision came in the face of over 80,000 comments in opposition to the proposed permit, signaling the strength of public opinion. News of the permit’s issuance was met with widespread and understandable outrage. The DEQ approved the permit without having in hand sufficient existing hydrological data demonstrating the increased withdrawal would have no adverse impact on creeks, wetlands and sensitive resources associated with the headwaters of Twin and Chippewa Creeks. Michigan Citizens for Water Conservation (“MCWC”) and the Grand Traverse Band of Ottawa and Chippewa Indians have filed petitions contesting the validity of the DEQ permit decision.

In sum, current state law, policy and DEQ decision-making allows a bottled water company like Nestlé to:

- Obtain a permit authorizing a 60% increase in its water withdrawal without demonstrating it can be done in an environmentally sound manner;
- Take waters of the state, divert them from watersheds and convert them to a commodity for sale that reaps considerable private profit;
- Pay almost nothing to compensate the public for the use of sovereign public water.

This makes no sense as a matter of law and policy. It overlooks fundamental constitutional and legal principles inherent in the public trust doctrine and the public nature of water and health and shortchanges the public. It is an abdication of responsibility by the State of Michigan. Change is necessary to bring the State back in line with its constitutional, statutory and moral obligations.

Detroit Water Shut-Offs and Flint Water Infrastructure and Health Crisis

Especially galling to many citizens is the fact that Nestlé pays nothing for the water it removes and sells (an annual \$200 application fee). At the same time, residents in Flint and Detroit and elsewhere pay unconscionably high rates for water bills – as high as \$150 to \$200 a month for a few thousand gallons for essential needs. As a result, thousands of residents who are not able to afford these rates are cut off from water service, or cannot use the water because of health risks, such as lead infrastructure and lead-in pipe to their homes. Adding insult to lifelong injury, many residents are now forced to buy bottled water.

Nestlé pays only a one-time \$5,000 administrative fee for the processing of its permit and a \$200 per year application fee. Although Nestlé does not disclose volume sales from its individual bottled water wells and facilities, it is estimated that Nestlé receives over one-half billion dollars in revenues a year off its Michigan wells and bottling operations. The other 49 water bottling operations in Michigan also pay to the state at most only permit fees. Nestlé, Aquafina and Dasani make up a large percentage of bottled water sales. Aquafina and Dasani acquire water as users served by the Detroit public water system based on extremely low rates determined by a legally mandated cost-based system where prices or rates are determined by dividing the costs by the number of users. Bottled water companies who receive water from public water and infrastructure systems turn around and sell the water at high profits, similar to Nestlé.

While the federal government and state have offered some help to Flint during the crisis, the amount is relatively small compared to the responsibility the federal and state governments bear for the existing and future costs and obligations the city owes and will owe to maintain, improve, and operate its system. The same is true of Detroit, but like Flint with decreasing population, the cost per resident and user is disproportionately higher. Detroit continues to shut off water to thousands of residents, as it did beginning in 2014 as ordered by Detroit's emergency manager to improve Detroit's balance sheet and chances of exiting bankruptcy. Detroit, Flint and other residents who cannot afford high water bills lose their water service for fundamental needs or rights to hydration, cooking, bathing and health. To date, the affordability plans, water rate structures, procedures and other approaches to financing water services for those who cannot afford it have been inadequate, unjust and unfair.

In sum, current state law, policy and DEQ decision-making continue to place business, political and economic interests before the paramount public concern and right to water, health and the environment by:

- Lack of sufficient funding for the water infrastructure, health and education for the residents of Flint;

- Inadequate funding for affordability or other approaches to assure every resident and citizen adequate, clean, safe water;
- Overemphasis on private profit and efficiency;
- Continued institutional discrimination against communities and residents facing serious economic inequality and patterns of social and racial injustice; and
- Resistance to liability and accountability.

Founded to uphold the public trust doctrine as the central organizing principle for water resource protection and stewardship, FLOW is calling for historic reforms in the laws of Michigan and other Great Lakes states that put sovereign public water, public trust and the right to water and public health in their rightful and essential place in this arena of policy and law. These water crises share common threads—private profit first, people second and a continuing lack of serious government commitment. The U.S. EPA Office of Inspector General just released a report that places blame and accountability on the shoulders of the EPA and Michigan top officials. Michigan’s fixation on saving cities from bankruptcy with emergency managers eviscerated the democratic and constitutional protections that safeguard people’s right to water, health and dignity.

THE GREAT LAKES COMPACT

The Great Lakes Compact arose out of concerns regarding a 1998 proposal to ship 50 tankers annually of Lake Superior water for sale to Asian markets, an idea that met a fierce regional public outcry. Ironically, while the Compact bans or severely restricts water exports in pipelines, canals, aqueducts and other infrastructure, it contains a gaping loophole that permits the export of water for sale.

The eight-state Great Lakes Compact and a side agreement among the states and the provinces of Ontario and Quebec ban water transfers out of the Great Lakes in ships, trucks, rail tankers, pipelines, canals, aqueducts and other infrastructure. Ironically, the Compact exempts from this ban the transfer out of the Great Lakes Basin of water in containers 5.7 gallons or less in volume. This inconsistency is not based on environmental impact or consideration of public trust law. It is purely an accommodation for an industry that turns a public resource into private profit. The proposed law corrects the Compact’s inconsistency by banning the out of Basin transfer of water in these smaller containers unless it does not impair public trust uses, is licensed by the state, and is subject to royalties that benefit public water.

The Compact, however, leaves open the door for states to go beyond its minimum requirements. States in their discretion may treat proposals to export water from the Basin in small containers as diversions. To date, no state has done so.

THE LATEST NESTLÉ PERMIT

The original Nestlé case illuminated a gap in Michigan law – lack of statutory authority to govern water withdrawals. In 2006, the state enacted a law governing such water withdrawals. Its central feature is a screening tool that is designed to determine whether a proposed withdrawal will adversely affect a stream. When the tool assessed Nestlé’s proposed increase to 400 gpm in 2016, it didn’t pass muster. The company then appealed to the DEQ to perform a site-specific analysis. This resulted in the April 2 permit.

MCWC is now once again contesting the permit for 400 gpm, arguing the DEQ failed to follow Michigan law. Its central argument is that the DEQ never obtained the required data on presently existing environmental, hydrological and hydrogeological conditions at the site. This failure means that an evaluation of the actual effects on water flows and levels and resulting environmental impact of pumping at Nestlé’s requested rate of 400 gpm prior to issuing the permit isn’t possible, because the required data

was not provided by Nestlé. Equally disturbing, the DEQ rubber-stamped an earlier approval for 250 gpm without the required permits under the Safe Drinking Water Act and water withdrawal law. In addition, although data from MCWC's own citizen scientists was submitted by MCWC as requested by DEQ public notices, as well as other data sets and analyses submitted by experts working in conjunction with FLOW, that data and those analyses were not given the legally required full consideration by the DEQ. In short, it appears that the interpretation of the law was skewed in favor of the permit.

WATER INJUSTICE

At the same time that Nestlé is taking public water at virtually no cost and reaping windfall profits, thousands of Michigan citizens – both city dwellers and rural residents – do not have access to clean, safe and affordable water. Nearly 12% of U.S. households face unaffordable water bills. Thousands of residents of Detroit have suffered water shutoffs, and the citizens of Flint, in the fourth year of a water crisis, still do not have reliable access to safe drinking water. Thousands of Flint children and residents suffered lead poisoning from their tap water because a perfect storm of state, local and private political interests pushed Flint off Detroit water to temporary water from the Flint River, causing untold health, nuisance, property loss, excess water bills and, ironically, dependence on millions of bottles of water. Thousands of private drinking water well owners in rural areas have contaminated water supplies, and there is no source of public funding to assist them in obtaining clean drinking water.

Federal assistance to local water systems is currently 74% below its peak in 1977. This has contributed to the inability of public water utilities to address failing and aging infrastructure. An infrastructure panel appointed by Michigan Governor Rick Snyder estimated a gap of \$900 million annually over the next 20 years between water infrastructure needs and available funding. Both the Snyder and Trump administrations have cut public funding and loans for infrastructure, putting pressure on municipalities to privatize their water systems. The public interest demands that the state assure access to clean, safe and affordable water to all citizens of Michigan and not subsidize corporations' sale of bottled water with little return and privatization of public water systems with higher bills, mostly poorer service or endangered health.

THE PUBLIC TRUST DOCTRINE

The Public Trust Doctrine holds that public water and certain common public property and natural resources like navigable waters are preserved in perpetuity for public use and enjoyment. Citizens are legal beneficiaries of this trust to protect their uses of water for fishing, sustenance, boating and navigation, drinking water, bathing and health. Applying a banking analogy, the state serves as a trustee to maintain the trust or common resources for the benefit of current and future generations who are the beneficiaries. Just as private trustees are legally and judicially accountable to their beneficiaries, so too are state trustees in managing public trust waters and uses.

In addition, any private, public or commercial existing or proposed use, diversion or discharge cannot harm the waters of the Great Lakes by measurably diminishing or reducing the flow, changing the levels, polluting quality or impairing the trust uses of the waters of the Great Lakes Basin. Furthermore, those who seek to use, continue to divert or alter the waters of the Great Lakes Basin have the burden of proof to show they will not impair, pollute or harm the water. If they do not satisfy this burden of proof, through public notice, participation and government accountability, the proposed action is not authorized and cannot be permitted under the public trust and other water laws of Michigan.

Lastly, under the public trust doctrine, the waters of the Great Lakes Basin can never be controlled by, transferred, sold as a commodity or subordinated by private interests for primarily private purposes or gain. Our rights to use the waters of the Great Lakes Basin cannot be alienated or subordinated by our

governments to special private interests. This means that all reasonable private use and public uses must be protected against loss and harm to water and that these protected uses must be accommodated so long as the public trust waters and ecosystem are not harmed and the paramount public right to public uses is not subordinated or impaired. *FLOW* believes the public trust doctrine is a time-tested, flexible and indispensable framework for the management and regulation of water resources and the uses of those waters, including removal of water for sale.

State Constitutions—e.g., Michigan Constitution’s Declared Paramount Concern to Protect Water and Public Health

Article 4, Section 51:

Sec. 51. The public health and general welfare of the people of the state are hereby declared to be matters of *primary public concern*. The legislature *shall pass* suitable laws for the protection and promotion of the public health.

Article 4, Section 52:

Sec. 52. The conservation and development of the natural resources of the state are hereby declared to be of *paramount public concern in the interest of the health, safety and general welfare* of the people. The legislature *shall provide for the protection of the air, water and other natural resources of the state from pollution, impairment and destruction*.

PRINCIPLES GUIDING A NEW POLICY

FLOW’s proposal for reform is based on the tenets of the public trust doctrine. The following principles should guide state policy.

1. Water is public, held by each state as sovereign in public trust for the benefit of the people.
2. Because water is public or held by the sovereign, it may be used within limits of reasonable use in connection with property, municipal public water works, developer, industry, farming, utilities. Such uses are considered proper if not unreasonable in extent and do not cause harm.
3. The reasonable or reasonably beneficial use does *not* mean a landowner, city or corporation has the right to *sell* the sovereign water. That right can only be granted by the state as sovereign; if a law has not granted the right of sale, including the wholesale of water intended for sale in a container to an intermediate consumer, it should be considered unlawful or unauthorized.²
4. While there is no “right to sell water” within the traditional notions of reasonable use, a court or state legislature can (as did Michigan and states who signed the Great Lakes Compact) redefine and set terms as it sees fit, so long as it benefits the public and does not subordinate the state’s interest; this means the state or province (as Canada does) can license water to private concerns for sale as bottled water, but it is subject to the sovereign interests of people and overarching public trust principles.

² The prohibition on sale of water would not prohibit the wholesale of water from a public or quasi-public water works system, where another governmental water system would distribute the water as a service for use by its residents and customers. It would prevent, however, the wholesale waterworks system acquiring the water from selling the water, as distinct from delivering the water as a service.

5. If a state chooses to license the sale of water within a narrow range of circumstances, such as existing bottled water operations from public waterworks systems or grandfathering bottled water sale operations,³ it must do so with care consistent with the limitation on the state as sovereign to divest its control of water for the benefit of citizens or as a public trust; the state should expressly declare that the waters of the State are not a commodity, that the license does not commodify water but grants a privilege to sell within a narrow range of circumstances and conditions; water remains subject to the sovereign and people's interest (or Crown's if in Canada). It is a privilege, not a right. If the license is based on a withdrawal and transfer that impairs materially or measurably the flow, level or quantity characteristics of streams, lakes, wetlands, creeks or it interferes with others' use of groundwater, it cannot be authorized or licensed; further, it must be determined by the state that it is primarily in the public interest, and it must be based on fair and adequate compensation to avoid any subsidy through an appropriation or transfer of water by the sovereign state, province or Crown.
6. A license is for a term, and subject to revocation or modification as a result of unforeseen events, such as those attributed to climate change or breach of covenants or conditions.
7. In addition, where water is withdrawn from groundwater that is connected to creeks, streams and lakes that are subject to the public trust doctrine, then it is considered part of one hydrologic system, and the removal of water may not impair public trust uses or the ecosystem.
8. Public trust uses protected from interference or impairment include navigation, fishing, swimming, boating and sustenance (e.g, drinking water). This means the water removal cannot impair these uses. If it does, the removal is not authorized. The public trust rights and uses are paramount, as well as the government's duty to protect these uses. These obligations and standards are continuing, perpetual, and, if violated, the license or removal of water can be revoked.
9. Once bottled water is authorized, all who want to bottle and sell inside and outside state must be treated equally in accordance with international trade law and the commerce clause of the U.S. Constitution.
10. The state as sovereign cannot subsidize the removal of water for sale; unlike the use of water in connection with land, the sale of water means severance and conversion of a right to use water to water itself (as opposed to incorporated in a product) as a commodity; water can be incorporated into a product, but it cannot be incorporated into itself. The severance of water and conversion into a private sale breaches the fundamental limit and duty imposed by the state's sovereignty and overall public trust in public water. This should not be done without fair compensation and protections from harm or risks, which would help avoid subsidy of, or subordination of, others' use of water by private persons for a private purpose; this could include a provision calling for fair and just compensation for granting the conditional privilege of selling water, in this instance bottled water.

³ The requirement of a license, royalty and compliance with all other laws and regulations can implement immediately or within a reasonably short period of time. However, if a state or province decides to prohibit or grandfather existing bottled water sale operations, it should be done in a fair, non-discriminatory manner that allows for the existing operation and withdrawal of water to be amortized or gradually phased out in a reasonable manner over a reasonable period of time consistent with the exigencies and circumstances of each situation.

PROPOSED LEGISLATION

FLOW's model legislation contains the following key provisions:

- A declaration that water in its natural state and withdrawn and delivered through a public water works system is held by the sovereign and subject to the duty to benefit and protect for all citizens, and it is held in public trust where groundwater, springs, creeks, streams and lakes form a hydrologically connected whole.
- A declaration that persons have a human and/or constitutional right to access safe, clean, affordable, healthy water.
- A prohibition on the transfer or diversion for purpose of sale of water apart from its origination watershed or source-tract, except as narrowly allowed through stringent application of water, health, environmental standards, licensing and emergency water crises and needs as provided under the Act.⁴
- Authorization of the sale of bottled water⁵ only if: (a) it is licensed under the Act; (b) it is not "spring water" (or not prohibited based on the common law non-diminishment of streams, lakes, groundwater and wetlands standard); (c) it will not interfere or impair other uses or the environment; and (d) private wells or municipal or public waterworks systems, unfair subsidies below fair public rates or fees for the sale of water are prohibited.
- Establishment of a royalty (e.g., 25 cents per gallon, about a 5-cent increase in a 16-ounce bottle whether the source of water is public waterworks, municipal system or a private water source.
- Creation of a Public Water, Health and Justice Fund, managed by a fairly constituted trust fund board, into which royalties are deposited.
 - Dedication of trust fund revenues to promote: (a) access to clean, affordable water, or to municipalities who provide tiered or reverse-tiered pricing; (b) public notice, participation in local and state decision-making regarding access and affordability, health and other needs of residents, and funding of public infrastructure, assuring systems are in place for equitable, affordable access; (c) implementation of conservation technology and research; (d) special health needs; (e) assurance of public water source protection; and (f) a reserve fund that guards against depleting the fund and provides a source of funds for unanticipated needs or circumstances.
 - Establishment of a trust fund board that is fairly constituted and representative of the public and local governments, water and public health experts, and citizens, subject to public trust obligations in water, with rights of government and citizens to notice and hearing, public participation, and enforcement, including public water protection and justice citizens' suits to enforce the rights, duties and procedures, including costs and fees.

⁴ It is important to emphasize that water itself is not a commodity, and that if the state as sovereign allows exceptions for sale of water by license, it is a privilege and remains subject to the sovereign interests of a state or Crown interest of a province; in this way, the sovereign interest and public trust are not and can never be deemed a commodity; under trade laws or constitution, a person or firm holding a license would recognize it is a privilege to sell and does not create a right to the water itself or a permanent right to consider or sell water as a commodity.

⁵ It is recognized that there is a range of options to address the sale of water, including (a) outright prohibition, (b) prohibition of sale of water except presently permitted bottled water facilities and operations; (c) prohibition of spring water sources, but allowing bottled water from municipal public water systems or emergencies, subject to licensing and royalties, and compliance with other measures as proposed in this model law; as noted in the accompanying text, the royalties would be held in a trust fund and the funds themselves impressed with a public trust duty to fulfill the dedicated purposes or preferred uses designated in the act and that are considered a recognized public trust use, like sustenance and drinking water.

IMPLICATIONS FOR OTHER STATES AND THE PROVINCES

The same public trust principles and public interest considerations apply equally in all Great Lakes states as well as the provinces in Canada. Whether water is public and considered held in trust in the states or Crown property in Canada, there is no reason why provisions tailored or taken from this model law cannot be imposed. Protecting water as a public resource, and preventing its alienation for private benefit is not only prudent policy, it satisfies the obligation of state and provincial governments acting as trustee of public trust water resources, especially to protect water as a public, human or constitutional right, for the public health and needs of citizens, free of discrimination and unfair restrictions and treatment.

Moreover, it behooves the region to adopt a consistent public trust framework, licensing process and royalty structure for proposals to extract public water for sale. Doing so will prevent the commercial bottled water industry from exploiting a weak point in the region's current water stewardship regime. It will also establish a priority for protecting public water, health and communities first and foremost, safeguarding against private takeover or control of public water infrastructure and systems and assuring funding for participation and processes for fulfilling this public trust and constitutional accountability.



Public Water, Public Justice Act: Bill Summary

BILL SUMMARY: The Great Lakes belong to all of us. And yet, state policy in Michigan allows private for-profit corporations to extract the waters of the state and sell them for mammoth profits. This is not only inconsistent with public trust law, but a raw deal for the citizenry. At the same time that Nestlé is taking public water at virtually no cost and reaping a windfall, thousands of Michigan citizens – both city dwellers and rural residents – do not have access to clean, safe and affordable water. Over 100,000 Detroit households have suffered water shutoffs and thousands of Flint children and residents have suffered lead poisoning and the loss of affordable drinking water in the fourth year of an ongoing water crisis. No current law addresses both the sale of water for profit and the protection of drinking water and public health with new infrastructure funds.

FLOW developed this model legislation, *Public Water, Public Justice*, to bring these colliding water crises under a comprehensive legal framework and to recalibrate Michigan's priorities on protecting its water and its people. Michigan and the seven other Great Lakes states should pass this model legislation drafted by FLOW in order to: (a) affirm public ownership over water, (b) protect sensitive water resources, (c) prohibit the sale of water except for the sale of bottled water authorized by a royalty licensing system, and (d) recoup for public purposes royalties derived from these bottled water sales. This model law places royalties into a public water, health and justice trust fund to serve people and communities for specific dedicated public purposes, such as replacing lead service lines or creating water affordability plans for disadvantaged people or cities and rural communities.

WATER FOR PRIVATE PROFIT IS VIRTUALLY FREE: On April 2, 2018, the Michigan Department of Environmental Quality (DEQ) issued a permit to the Nestlé Corporation to extract up to 400 gallons a minute of groundwater that feeds the headwaters of two creeks in Osceola County near Eart. Nestlé bottles and sells the water across the Midwest. The DEQ's decision came in the face of over 80,000 comments in opposition to the proposed permit, signaling the strength of public opinion. News of the permit's issuance was met with widespread and understandable outrage. The DEQ approved the permit without having in hand site-specific hydrogeological data demonstrating the increased withdrawal would have no adverse impact on sensitive resources associated with the headwaters of Twin and Chippewa Creeks.

Especially galling to many citizens is the fact that Nestlé pays next to nothing for the water it extracts and sells. Outside of a one-time \$5000 administrative fee for the processing of its permit, Nestlé pays only \$200 per year to the DEQ for the withdrawal. In sum, current state law, policy and DEQ decision-making allow Nestlé to take waters of the state and convert them to a commodity that ultimately reaps billions in private profit, and to pay almost nothing for the use of public water.

WATER INJUSTICE: At the same time that Nestlé is taking public water at virtually no cost and reaping windfall profits, thousands of Michigan citizens – both city dwellers and rural residents – do not have access to clean, safe, and affordable water. Nearly 12% of U.S. households face unaffordable water bills. Thousands of residents of Detroit have suffered water shutoffs and the citizens of Flint, in the fourth year of a water crisis, still do not have reliable access to safe drinking water. Thousands of private drinking water well owners in rural areas have contaminated water supplies and no source of public funding to assist them in obtaining clean drinking water.

Federal assistance to local water systems is currently 74% below its peak in 1977. This has contributed to the inability of public water utilities to address failing and aging infrastructure. An infrastructure panel appointed by Michigan Governor Rick Snyder estimated a gap of over \$900 million annually for the next

20 years between water infrastructure needs and available funding. The public interest demands that the state assure clean, safe and affordable water to all citizens of Michigan.

THE GREAT LAKES COMPACT: The eight-state Great Lakes Compact and a side agreement among the states and the provinces of Ontario and Quebec ban water transfers out of the Great Lakes in ships, trucks, rail tankers, pipelines, canals, aqueducts and other infrastructure. Ironically, the Compact exempts from this ban the transfer out of the Great Lakes Basin of water in containers 5.7 gallons or less in volume. This inconsistency is not based on environmental impact or consideration of public trust law. It is purely an accommodation for an industry that turns a public resource into private profit. The proposed law corrects the Compact's inconsistency by banning the out of Basin transfer of water in smaller containers unless it does not impair public trust uses, is licensed by the state, and is subject to royalties that benefit public water.

KEEPING WATER PUBLIC: Who owns the Great Lakes? We do. The 35 million people of the Great Lakes are the beneficiaries of these waters, with our state governments serving as trustees to protect these shared waters for the benefit of current and future generations. It makes sense that certain natural resources like water should be preserved in perpetuity for drinking, public use and enjoyment. And this is the essence of the common law known as the public trust doctrine.

The public trust doctrine prohibits the navigable waters of the Great Lakes Basin from being controlled by or transferred to private interests for private purposes or gain. Our rights to use the water of the Great Lakes Basin cannot be alienated or subordinated by our governments to special private interests; this means that all reasonable private use and public uses may be accommodated so long as the public trust waters and ecosystem are not harmed and the paramount public right to public uses is not subordinated or impaired. FLOW believes the doctrine is a necessary underpinning for the management and regulation of water resources, including extraction of water for sale.

PROPOSED LEGISLATION: FLOW's model legislation contains the following key provisions:

1. A declaration that **water in its natural state is held by the sovereign** and subject to the duty to benefit and protect for all citizens, and it is held in public trust where groundwater, springs, creeks, streams and lakes form a hydrologically connected whole.
2. A declaration that **persons have a right to access safe, clean, affordable, healthy water.**
3. A **prohibition** on the transfer or diversion for purpose of **sale of water** apart from its origination watershed or source-tract, except as narrowly allowed by license under the Act.
4. **Authorization of the sale of bottled water only if it is licensed** under the Act and **it is not "spring water," and it will not interfere or impair other uses or the environment.**
5. **Establishment of a royalty** (e.g. 25 cents per gallon, about a 5-cent increase in a 16-ounce bottle) whether the source of water is public waterworks, municipal system or private.
6. Creation of a **Public Water, Infrastructure, Health and Justice Fund** for royalties managed by a fairly constituted trust fund board, with rights of public notice, participation and enforcement, including public water protection and justice citizen suits to enforce the law and its requirements.
7. Dedication of **trust fund revenues** to: (a) access to clean, affordable water, or to municipalities who provide tiered or reverse-tiered pricing; (b) public infrastructure, provided systems are in place for equitable, affordable access; (c) conservation technology and research; (d) health needs; (e) water source protection.

MODEL PUBLIC WATER, PUBLIC JUSTICE ACT¹

This Act consists of three Parts:²

1. **Part 1:** Amends Part 327, 1994 PA 451, Natural Resources and Environmental Protection Act (NREPA), MCL 324.32701 et seq.;
2. **Part 2:** Amends Section 17, Safe Drinking Water Act (SDWA), MCL 325.1017;
3. **Part 3:** Amends Part 5, 1994 PA 451, Natural Resources and Environmental Protection Act (NREPA), MCL 324.501 et seq.

Preamble

A model bill to protect and sustain the reasonable use and public trust in the sovereign waters of the state; to protect the sovereign waters of the state from unauthorized sale or improper impairment; to protect the public access to and health in water and the public trust in public water infrastructure and services; to provide for licensing and a royalty fee for the authorization by the state as sovereign to grant the right to sell water lawfully withdrawn from the sovereign

¹ Copyright © 2018 FLOW. All rights reserved. FLOW's ("For Love of Water") *Public Water, Public Justice Report*, the accompanying summary of the model law, the full text of the model law and supporting legal primer may be used for educational or general purposes without obtaining consent from FLOW, provided the user gives appropriate credit to FLOW in conjunction with such use. Any commercial or other use or distribution of these materials for private gain or profit is prohibited. Any proposed law based on these materials should be tailored to the specific concerns, objectives, laws and policy of each state, province, or country, and should consult the law community with related legal expertise. FLOW and James Olson, principal author, emphasize that the model law and associated research, analysis, and materials are a "work in progress." FLOW believes the advancement of sovereign, common, public trust water, and the human and constitutional right to water and health and public justice are dynamic principles subject to improvement through the continuing, broad-based collaboration with government leaders, organizations and citizens to meet the challenges for water, quality of life, sustainable environment, communities, and economies in the 21st Century. Contact FLOW at www.flowforwater.org, 153 ½ East Front Street, Traverse City, Michigan 49684, (231) 944-1568.

² Alternately, the three Parts that amend Michigan law can also be structured as a single draft bill or a series of stand-alone or "tie-barred" bills. In addition to the parts presented, amendments may be required to the organic law of public utilities or public service commissions. Some states, such as Ohio, have integrated public waterworks and systems into public utility laws. Michigan's organic law for the Michigan Public Service Commission authorizes regulatory authority over water utilities, but it has never been implemented. In any event, public notice, participation, claims, relief, and enforcement may need to be added. Moreover, rate, fees, pricing, financing, affordability, health, and access to adequate, safe water may need redefinition of what is meant by "costs" that can be covered by rate and pricing structures.

waters of the state in containers not more than 5.7 gallons, and to establish a Public Water Trust Fund dedicated for certain uses and purposes to persons and local governments, and recognized tribal governments, and other public facilities or communities consistent with the intent and purposes of this Act.

Part 1: Amendments to Part 327, 1994 PA 451, NREPA, MCL 324.32701 et seq.

Section 1. Declarations and Findings (Amends Part 327, NREPA).

- (1) The waters of the State of Michigan (“state”) are held by the state as sovereign and in public trust for the benefit of the people of Michigan.
- (2) As trustee, the State of Michigan shall protect and sustain the integrity of flows, levels, and quality of water, fish and aquatic habitat for the use and enjoyment by citizens now and in the future.
- (3) As trustee, and based on the paramount public interest in the waters of the state and public health of its citizens, the state shall provide for and protect the right of access to safe drinking water, water sources, public water supply, public waterworks and infrastructure, public health, and fishing, navigation, recreation, conservation, and the reasonable use of water in connection with state sovereign ownership and control, any rights of a tribe within Michigan reserved by a treaty with the United States, or the ownership or lawful occupancy of land, not limited to domestic, agricultural, commercial, industrial and public utility uses.

Section 2A. Definitions.

- (1) “Affordability” means [as a placeholder: measures or other assistance to assure equal access to adequate clean, safe water and sanitation, without discrimination, interference or inequitable or unjust termination of the right of access to water by any person or household of persons with insufficient income from hardship or disability to pay the full rate or price for access to a minimum water supply to protect health and sanitation for their dwelling].³
- (2) “Community public water supply” or “public community water supply” mean [reference SDWA definitions], and any community water supply under the control of a tribe within Michigan recognized by the United States.
- (3) “Consumptive use” means the same as that term is defined in Section 32701(k), Part 327, NREPA, MCL 324.32701(k). “Consumptive use” does not include the withdrawal, diversion or transfer of water for the purpose of packaging water for the sale of bottled water in containers greater than 5.7 gallons.

³ **NOTE:** There are several ways to achieve access to adequate clean, safe water, including assured minimum water quantities per month at fixed rates, tiered public pricing or rate structures, federal and state assistance, or redefining what constitutes a “cost” shared across the number of users of the system.

- (4) “Department” or “department” means the Department of Environmental Quality for purposes of interpreting Section 32723, Part 327, NREPA, 1994 PA 451, and Section 17 of the Safe Drinking Water Act, MCL 325.1017; the term “department” means the Department of Natural Resources for purposes of interpreting Part 5 of the NREPA, 1994 PA 451.
- (5) “Disadvantaged Community” shall have the same meaning as defined in Part 54, of the NREPA, MCL 324.5402 or 42 USC 300j-12(d) and accompanying regulations.⁴
- (6) “Diversion” means diversion as defined in Section 32701(p), Part 327, NREPA, MCL 324.32701(p), and also for the purpose of this Act, the term “diversion” means the transfer of water by any means, including in a container intended for immediate or end-use consumer from its source in one watershed to another watershed.
- (7) “License” as used in this Act means the authorization pursuant to Section 502 and 503, Part 5, NREPA, MCL 324.502 and 503 by the state as sovereign to allow the withdrawal, removal, diversion or transfer of waters of the state by any person for the purpose of the production and sale of bottled water.
- (8) “Person” means “person” as defined in Part 3, NREPA, MCL 324.301(h).
- (9) “Private water source” or “source watershed” means the location from which a withdrawal from waters of the state originates, including a non-community water supply as defined in the Safe Drinking Water Act, MCL 325.1001 et seq.
- (10) “Public domain” in Section 301(i), Part 3, NREPA, MCL 324.301(i) is amended to mean all land and waters of the state owned in its proprietary or sovereign capacity or land deeded or conveyed to the state under state law.
- (11) “Public water supply” means a community public water supply or waterworks as defined in the Safe Drinking Water Act, MCL 325.1001 et seq.
- (12) “Royalty fee” means the compensation to the state as sovereign for the authorization of a license to allow a withdrawal, diversion or transfer by any person from the sovereign waters of the state for the purpose of producing and packaging water for the sale of bottled water.
- (13) “Sale of water” means the production, packaging or delivery of water from a water source or public water supply in containers or by any other means in exchange for money or other consideration.

⁴**NOTE:** There are various definitions of assuring affordability in disadvantaged communities. See *Protecting Drinking Water in the Great Lakes: A Primer on Existing State Policies and Using the Safe Drinking Water Act* American Rivers and Great Lakes Env. Law Center, 2018, pp. 36-37.

- (14) "Sale of bottled water" means water withdrawn from a water source or public water supply and transferred or diverted to a plant or other facility for the sale of water in a container or package of not more than 5.7 gallons.
- (15) "Spring water" means "spring water" as defined in 21 C.F.R. 165.110 for bottled water.
- (16) "Watershed" means the watershed of primary rivers and the sub-watersheds of their tributary streams and creeks.
- (17) "Waters of the state" means the term "waters of the state" as defined in Section 32701(rr), NREPA, MCL 324.32701, and includes water withdrawn from the waters of the state and delivered through public waterworks or public water utility systems.
- (18) "Withdrawal" has the same meaning as defined in Section 32701(ss), NREPA, MCL 324.32701.

Section 2B.

The definitions in Section 2B of this Act and Section 32701, MCL 324.32701, shall have the same meaning for purposes of Parts 5 and 19A, NREPA, 1994 451, as amended, and Section 17 of the Safe Drinking Water Act, MCL 325.1017.

Section 3. Prohibition of Diversion or Transfer for the Sale of Water.

Except as provided in Sections 3A, 4, 5 and 6 of this Act, no waters of the state shall be withdrawn, taken, diverted or transferred out of any watershed of the state for the purpose of the sale of water in any size container, package or in any other manner to another watershed within or outside of the territorial boundaries of the state.

Section 3A. Exceptions to Prohibitions of Section 3.

Subject to the provisions and standards of this Act, the prohibition in Section 3 of this Act and Part 327, MCL 324.32704, does not apply to any one of the following:

- (1) the withdrawal, treatment, distribution and delivery of water services by a public or private water utility or community public water supply or waterworks system (this exception does not apply to the distribution or delivery of water to a person who receives water from a public waterworks or public water utility system for the purpose of the sale of water).
- (2) products into which water from a private well or public waterworks system or public water utility is incorporated or water incorporated into or used in a product other than water itself (Note: it is declared for purposes of this Act, that water cannot be incorporated into itself and therefore is not a product).

- (3) the sale of water on premises from a private well or public waterworks system in a glass, bottle or other container, incidental to a wholesale or retail restaurant, food service or other business or commercial operation.
- (4) the sale of water of the state in containers with a capacity of not more than 5.7 gallons, but only if all of the following standards are duly established and determined to be met by the Department of Environmental Quality:⁵
 - a. determination of full compliance with the requirements, standards, and determinations of Section 17 of the Safe Drinking Water Act, MCL 325.1017, as amended, including the provisions in Part 2 of this Act.
 - b. determination that the water source that is transferred or diverted is not spring water as defined in 21 C.F.R. 165.110.⁶
 - c. determination of full compliance with the requirements of Section 32723, Part 327, MCL 324.32723; if the applicant submits a groundwater or other water model to predict the effects and adverse impacts, the determination under this subsection must include a finding that the model is consistent with an adequate characterization of flows, levels and water quality based on actual hydrological, hydrogeological, water quality and environmental conditions.
 - d. determination that the withdrawal and transfer for the sale of water will not impair or interfere with another water source, community public water supply or any other public or private water well, infrastructure, waterworks system or with the water services and the public health, safety and welfare.
 - e. determination that the withdrawal, removal, transfer and the sale of bottled water is in compliance with all other federal, state, local law and regulations, including any rights of a tribe within Michigan reserved by a treaty with the United States.
 - f. issuance of license and payment of a royalty as authorized and determined by the Department of Natural Resources as the designated trustee of the sovereign waters of the state to sell bottled water in containers with a capacity of not more than 5.7 gallons, as provided in Part 3 of this Act.

Section 3B. Prohibition of Section 3 does not apply to recognized reasonable use of waters of the state.

⁵ **NOTE:** Subsection (4) is a placeholder. Alternative approaches include (a) no exception for bottled water with an amortization provision consistent with potential "takings" claims under U.S. Constitution or constitution and investor damage or anti-discrimination claims under GATT, NAFTA, or other applicable trade laws; (b) limited to existing bottled water sale production and sale facilities and operations, subject to compliance with all other provisions of this Act (this may require analysis of state sovereignty over water or public trust waters and the anti-discrimination provisions of applicable trade law).

⁶ Alternatively, this provision could allow withdrawal and transfer of "spring water" but "only if it is in compliance with the requirements of Part 2, Section 2(5) of this Act." (See Section 2(5)(a) and (b), below).

The prohibition of Section 3 does not apply to a lawful and reasonable use of the waters of the state in connection with the use and enjoyment of land by an owner or occupant or their guests, including any lawfully recognized traditional and artificial reasonable uses of water such as agriculture, manufacturing, generation of electricity or an industrial use or process. Except as provided in Part 2, Section 3A of this Act and subject to Part 3 of this Act, the sale of water withdrawn from the waters of the state is not a reasonable use.

Section 4. Rule Making Authority.

The department shall exercise its general powers and authority to promulgate rules and regulations to implement the provisions of this Part.

Part 2: Amendments to Section 17, Safe Drinking Water Act, MCL 325.1001 et seq.

Section 1.

Section 4, Safe Drinking Water Act, 1976 PA 399, MCL 325.1004, is amended as follows:

* * *

(12) A community or non-community public water supply or other water source or supply facility or operation shall not furnish water for the sale of bottled water unless permitted pursuant to the Safe Drinking Water Act, 1976 PA 399, and Parts 1, 2 and 3 of this Act, including obtaining a license pursuant to Sections 1, 2 and 3 of Part 3 of this Act, being amendments to MCL 502 and 503, Part 5, NREPA, MCL 324.501 et seq., and in compliance with any other requirements of federal, state and local laws or ordinances.

Section 2.

Section 1017, Safe Drinking Water Act, 1976 PA 399, MCL 325.1017, is amended as follows:

* * *

(5) In addition to all other requirements of Parts 1 and 2 of this Act, a person shall not be permitted to withdraw and transfer more than 50,000 gallons a day for the sale of bottled water as spring water unless it is established by the applicant and determined by the department that:

(a) there is sufficient existing actual data and information that characterizes to the fullest extent possible the hydrological and geological conditions required to accurately measure and calculate the effect on the flows, levels and other physical conditions of the groundwater, springs, wetlands, creeks, streams, lakes or ponds that have a direct hydrological connection to the spring water source; and

(b) based on the actual data and information required by the preceding subsection (5)(a), the withdrawal and transfer of spring water will not

measurably diminish and impair the flow, level and other physical parameters of the wetlands, creeks, streams, lakes or ponds, fish and other wildlife and plant habitat or the public trust in those features, wildlife and habitat.

(6) Any decision or determination required by Part 2 of this Act shall take into account and be conditioned on the potential for, or occurrences of, increased intensity and frequency of weather events due to changes in climate.

(7) An approval of a permit by the department under subsection (3) of Section 1017, 1976 PA 399, shall not take effect unless the person also has obtained a valid license from the state for the sale of water pursuant to Sections 1, 2, 3, 4 of Part 3 of this Act, being amendments to MCL 324.502 and 503.

Section 3. Rule Making Authority.

The department shall exercise its general powers and authority to promulgate rules and regulations to implement the provisions of this Part.

Part 3: Amendment for Licensing by Department of Natural Resources of the Sovereign Public Waters of the State for the Sale of Bottled Water

Section 1.

Section 502, Part 5, NREPA, 1994 PA 451, MCL 324.502 is amended as follows:

The Department of Natural Resources [“department”] and Natural Resources Commission [“commission”] are authorized to issue a license to withdraw, take, remove, and transfer from the sovereign waters of the state for the sale of bottled water only if the sale of waters of the State is in full compliance with Parts 1, 2, and 3 of this Act.

Section 2.

Part 5, NREPA, 1994 PA 451, MCL 324.503, is amended by adding a new Section 3 as follows:

The department and commission shall not issue or enter into any license or other agreement pursuant to Section 6 for withdrawal, taking, or transfer of the waters of the state to a person who proposes to engage in the sale of bottled water unless all of the following are met:

- (1) the applicant has submitted a finally approved permit or, in the event no permit is required because of a preexisting bottled water facility and operation, a certificate of compliance from the Department of Environmental Quality that the applicant has complied with all of the requirements and

standards of Section 17 of the Safe Drinking Water Act, 1976 PA 339, MCL 325.1017 and Parts 1 and 2 of this Act.

(2) for the licensing for the sale of bottled water from a water source or non-community water supply from the waters of the state, the applicant has submitted a certified copy of the final permit or certificate of compliance with requirements and standards for the withdrawal pursuant to Part 327, NREPA, 1994 PA 451, including Section 32723, Part 327, MCL 324.32723, and the Safe Drinking Water Act, MCL 325.1001 et seq., as amended.

(3) for the licensing for the sale of bottled water from a municipal or community public waterworks or public water utility supply, the applicant has submitted a certified permit or approval of the water source and proof that it is in compliance with all other legal requirements from the local department, board or local government that owns and operates the community public waterworks or public water system, including the Safe Drinking Water Act, MCL 325.1001.

(4) Before approval of the license, the department and commission shall provide written notice of the draft license with conditions and proposed royalty fee as provided in Section 8 of this Act, and in addition such notice shall be provided at least 60 days to any local unit of government, any community or public waterworks or water supply district, authority or department, any tribe within Michigan recognized by the United States, and the applicant; published in a prominent newspaper with general circulation in the locale of the water source or supply; and the notice, application and supporting documents shall also be posted on the department website in a conspicuous manner. The commission may on its own or upon request of an interested person provide for a public hearing, which shall be given the same public notice as provided in this section; the public notice shall provide at least a 45-day comment period before approval of the license. On request of a local unit of government or recognized tribal sovereign government in which the water source or supply is located, the department and a representative of the commission shall meet and consult with the local unit of government or tribe not less than 15 days before approval of the license.

(4) Before approval and issuance of the license, the commission and department shall evaluate, assure and duly establish that all of the following are met:

(a) applicant has complied with Section 17 of the Safe Drinking Water Act, MCL 325.1017, as amended by Part 2 of this Act;

(b) applicant has shown, based on subsection (a) above and all other available information, including public notice, hearing, participation and comments or consultation with local government, sovereign tribes recognized by treaty with the federal government or other interested persons, that the withdrawal and transfer of the waters of the state for the sale of bottled water is substantially in the public interest and will not impair the public trust and public health, safety and welfare;

- (c) applicant has complied with the application and royalty fees required by Section 3 of this Part;
- (d) the department and commission may impose conditions in the license or other agreement as required for the protection and promotion of the waters of the state, public trust in those waters and the public health, safety and welfare of citizens and local community.

Section 3.

Section 503, Part 5, NREPA, is amended by adding Section 503.B, as follows:

- (1) Before processing the application for a license, the applicant shall pay an application fee of \$500 and a fee of \$5,000 or more as determined by the department for reimbursement of the department's expenses for processing and evaluating the application.
- (2) The applicant shall pay a royalty fee for the right to withdraw, remove and transfer the sovereign waters of the state or community public water supply for purposes of the sale of bottled water as follows:
 - (a) The licensee shall pay a sovereign water royalty fee of not less than 25 cents per gallon for the right to withdraw, take and transfer the waters of the state for the sale of bottled water. Subject to public notice, hearing and comment as provided for in Part 5, NREPA or the rules promulgated pursuant to Section 11 Part 5, NREPA, the commission may hereafter promulgate a higher fee per gallon based on a reasonable evaluation and determination of fair and adequate economic value for the right of sale of bottled water from the waters of the state.
 - (b) The licensee or the community or municipal public water supply department or local government, as the case may be, shall file on the first day of each month, beginning 30 days after the date of the license, a written summary and report, with supporting data and information, the total volume of water withdrawn. The licensee shall pay the royalty fee on a quarterly basis, beginning with the first day of the quarter of the year after the date of the license. The department and commission may impose a late fee according to a schedule of fees, payment, or interest established by the commission pursuant to notice and hearing as provided in Part 5, NREPA or rules promulgated by the commission.⁷

⁷ The following optional provision could be added to coordinate the licensure and royalty requirements of this Part with the need to address the ubiquitous waste from plastic bottles and other containers and packages: [*This provision is optional*] If the state legislature subsequent to the effective date of this act enacts a container deposit return program for bottled water containers or packages, the licensee may request from the commission and department a 5 cents per gallon credit toward the royalty fees due under its license; and the commission and department shall cooperate with the licensee to implement the royalty credit effective within one year of the effective date of the enactment of such a deposit return program.

- (3) The department shall deposit the royalty fee collected from each licensee into the "Michigan Public Water, Health and Justice Trust Fund" ("trust fund") established pursuant to Section 4 of this Act in accordance with all applicable laws and regulations.
- (4) The department's expenses, including all reasonable expenses related to collecting and managing the fees, shall be paid and net royalty fee payment made to the trust fund on a quarterly basis, beginning with the third quarter after the effective date of this Act or the issuance of the first license under this Act, whichever occurs first.
- (5) Where the water is from a water source or non-community supply that is from the waters of the state, the net royalty proceeds, less costs and expenses ("net proceeds"), from each licensee shall be deposited in the Michigan Public Water, Health and Justice Trust Fund ("trust fund") as provided in Section 4. The net proceeds derived from the licensing of the sovereign waters of the state for the sale of bottled water shall be held in trust for the express purposes and dedicated uses of this Act, and none other.
- (6) Where the water is from a community public water supply or waterworks, which withdraws and distributes the waters of the state as a public service within its lawful territory, the net proceeds from each license or other agreement shall be deposited in the trust fund as provided in Section 4. The net proceeds derived from the licensing of the sovereign waters of the state for the sale of bottled water shall be held in trust for the purposes and dedicated uses of this Act. Further, the trust fund board shall allocate an amount up to 25 percent of the net proceeds in any calendar year to the community public water supply department, district or authority from which the water is withdrawn, taken, diverted or transferred.

Section 4. Amend Part 19, NREPA, to add Part 19a, to establish the Michigan Public Water, Health and Justice Trust Fund.

- (1) There is established a Michigan Public Water, Health and Justice Trust Fund ("trust fund") by amendment of Part 19 of the NREPA, through the addition of Part 19a to the NREPA, 1994 PA 451, which shall consist of all bonuses, rentals, delayed rentals, royalties, penalties or fines for non-compliance collected by, or reserved by, the state under the licenses for sale of bottled water established by this Part 19a.
- (2) The trust fund, including but not limited to, all net proceeds from license royalties, earnings, principal and interest, are subject to a public trust for the dedicated purposes set forth in subsection 5 of this Part.
- (3) The trust fund may receive appropriations, money or other things of value.

- (4) The trust fund may not be appropriated or allocated for any purpose other than the dedicated purposes set forth in subsection 5 of this Part. The fund shall establish a reserve fund from 10 percent of the revenues of each year for future contingencies based on successive 10-year plans to cover unexpected events or emergencies for one or more of those dedicated purposes.
- (5) The State Treasurer shall direct the investment of the trust fund. The State Treasurer shall have the same authority to invest the assets of the trust fund as is granted to an investment fiduciary under the public employee retirement system investment act, 1965 PA 314.
- (6) The department shall annually prepare a report containing an accounting of revenues and expenditures from the trust fund in the same manner as provided in Section 1902(4), Part 19, MCL 324.1902(4).

Section 5. Dedicated Purposes and Allocations of Trust Fund.

- (1) Subject to the limitations of this Part, the interest and earnings of the trust fund in any one state fiscal year may be expended in subsequent state fiscal years only in the order of, and for, the following purposes and limitations:
 - (a) assistance for water affordability plans or other measures, including income affordability, assured low-cost minimum water use and conservation, innovative pricing, rates, tiers of water use and conservation, to assure equitable and affordable access to clean, safe water and sanitation;
 - (b) protection, conservation, efficiency, sustainability and cleanup to assure safe, clean and adequate groundwater and surface water sources for drinking water and water supplies within the state, including but not limited to, new technologies, green infrastructure and enhanced resiliency and adaptability to predict extreme weather events or climatic changes;
 - (c) protection of public health and individual health needs directly related to investigation, medical examination and water quality and medical monitoring;
 - (d) location, protection, repair, maintenance or improvement to the municipal or community public water supply or waterworks system;
 - (e) repair, improvement or replacement of any line that is determined to be a health risk to those who occupy any single or multi-family residential dwelling unit that connects to the public water main or pipeline system;
 - (f) establishment of local or statewide returnable or recycling programs for plastic bottles or packages used for the sale of bottled water;
 - (g) emergency assistance for specific disadvantaged communities or neighborhoods for, and in advance of, any of the above dedicated purposes set forth in this Section 5(1).
- (2) Any interested municipal public water supply department, district, authority, or local government, or any tribe within Michigan recognized by the United States, or any person who lives within the territory or is served by a community public water supply may apply

for a grant for one or more of the dedicated purposes of the trust fund. The application, process, public notice, meetings, and decisions will be processed by the trust fund board. The trust fund board shall apportion and allocate the grants of available funds in any given hearing in a fair and proportionate manner among applicants that in the discretion of the trust fund board best meets the intent and dedicated purposes of this Act and the standards or criteria established by rules promulgated pursuant to Section 7 of this Part and Section 11 of Part 5, NREPA; except (i) that there shall be a preference for up to 30 percent of the fund distributed in any year for assistance for affordability, disadvantaged communities and public health, and (ii) not more than 30 percent in any year shall be distributed for repair, replacement or improvement of community public water supply and public water infrastructure waterworks, including but not limited to copper, lead or other hazardous or pollution health risks of residents, neighborhoods, public schools or other local entities from contaminated public water supply or public waterworks systems and including pipes that link dwellings to the public waterworks, with a preference for disadvantaged public water works systems based on criteria promulgated pursuant to Section 7 of this Part.

Section 6. The Michigan Public Water, Health and Justice Trust Fund Board; establishment; powers and duties; administration; members, terms, removal, vacancies, compensation.

- (1) The Michigan Public Water, Health and Justice Trust Fund board is established within the department. The board shall be administered under the supervision of the department, and the department and commission shall offer their cooperation and aid to the board and shall provide suitable offices and equipment for the board.
- (2) The trust fund board shall consist of nine members appointed by the Michigan Natural Resources Commission. The members shall include the director of the Department of Environmental Quality or a person in the department designated by the director, the director of the Department of Natural Resources or a person in the department designated by the director, the director of the Department of Public Health or a person in the department designated by the director, and six residents, provided that there is at least one resident from a city of not less than 100,000 persons, one resident from a city of not less than 50,000 persons, one resident from a village or town of not less than 1,000 persons, one member representative of any tribe within Michigan recognized by the United States, and one resident who is a representative of a community public waterworks department or district; and in addition, one member representative of the protection of public health, one member representative of the protection of the environment, and one member representative of social justice interests. The terms of members shall be four years, except that of those first appointed, one shall be appointed for one year, two shall be appointed for two years, and one shall be appointed for three years, and one appointed for four years.
- (3) The appointed members may be removed for inefficiency, neglect of duty or malfeasance in office.

- (4) Vacancies shall be filled for the unexpired term in the manner and categories as the original appointments.
- (5) The board may incur expenses necessary to carry out its powers and duties under this Part and shall compensate its members a sum in the discretion of the commission for not more than \$100.00 per day and for actual expenses incurred in carrying out their official duties.
- (6) All general and special meetings shall be pursuant to public notice, comment and meetings as provided by law.

Section 7. Rule Making Authority.

The department and commission may exercise their general powers and authority to promulgate rules and regulations to implement the provisions of this Part.

Section 8. Judicial Review.

A person who is aggrieved or whose interest is adversely affected by a final decision by a department or commission under this Act shall have a right to petition or appeal as provided in the Michigan administrative procedures act or as otherwise provided by law.

Section 9. Enforcement, Fines, Penalties, Civil Action, Costs, and Fees.

- (1) [Insert language for enforcement by attorney general, prosecuting attorney, with criminal penalties and fines, and civil fines, temporary and permanent injunction and other equitable relief.]
- (2) [Insert definition of fines for violation of this Act, a license, permit, or any condition of license or permit, with rights of enforcement.]
- (3) A citizen whose person or property interest is affected by an impairment or interference with a right protected by this Act or a violation of this Act or a term or condition of a permit or license authorized and approved by this Act, shall have the right to maintain a civil action in the circuit court where the person resides, the withdrawal and transfer of water occurs, or where the defendant is doing business, or in Ingham County, Michigan. The circuit court is authorized to award or apportion attorney fees and costs if the interests of justice so require.

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Michigan Constitution, Art. 4, Sec. 52, and Art. 4, Sec. 51 and Selected Laws

Sec. 52. The conservation and development of the natural resources of the state are *hereby declared to be of paramount public concern in the interest of the health, safety and general welfare* of the people. The legislature shall provide for the protection of the air, water and other natural resources of the state from pollution, impairment and destruction.

While no Michigan court has interpreted “paramount public concern” of natural resources of the state to mean “public trust,” the record of the Constitutional Convention of Michigan’s 1963 Constitution intended it to mean “paramount public interest,” recognizing those natural resources like water to be protected by a legally recognized superior interest like the public trust doctrine.¹⁹ Moreover, Art. 4, Sec. 52 commands the legislature (“shall”) “provide for protection of the air, water and other natural resources.” The Michigan Environmental Protection Act (“MEPA”) has been characterized by the courts as the legislature’s response to this constitutional mandate.²⁰ The MEPA provides for the protection of the air, water and natural resources and *public trust in those resources* from impairment.²¹ Further, the legislature has in several statutes declared the waters of the state, including groundwater, to be held in trust or subject to public trust protections,²² as has the Great Lakes Compact.²³

Section 51. The public health and general welfare of the people of the state are hereby declared to be matters of *primary public concern*. The legislature shall pass suitable laws for the protection and promotion of the public health.

Section 51 precedes Section 52 and, notably, contains a similar constitutional mandate that the legislature “shall pass suitable laws for the protection and promotion of the public health.” Thus, self-executing nature of Section 52 under the court’s decision in the *Vanderkloot* case would also appear to apply to paramount public concern for public health. Because of the similarity in structure and constitutional language of Section 51 with Section 52, the duty to consider and protect public health is analogous to the duty to prevent degradation of water or the environment under the MEPA.²⁴

Michigan Constitution, Art. 1, Sec. 17 (Due Process)

Sec. 17. No person shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty or property, without due process of law.

In *Mays v Governor*, the Michigan Court of Appeals ruled that plaintiffs who claimed injury from lead exposure from the Flint water crisis had a right to bring an action for damages to their person and body based on the constitutional tort of denial of due process.²⁵ Their right to clean safe water and health is protected against deliberate indifference or other serious conduct by state

¹⁹ Olson, James, *Michigan Environmental Law*, Sec. 1.2, Mich Const. Art. 4, Sec. 52, pp. 10-11 (Neahtawanta Press, 2001).

²⁰ *Vanderkloot v State Highway Dept*, 392 Mich 159 (1974).

²¹ Part 17, NREPA, MCL 324.1702, 1703(1).

²² E.g. Part 327, MCL 32702(1)(c); Part 30101, MCL 324.30101 et seq.

²³ “The waters of the state are valuable public natural resources held in trust by the state, and the state has a duty as trustee to manage its waters effectively for the use and enjoyment of present and future residents and for the protection of the environment.” Great Lakes-St. Lawrence River Basin Compact, Sec. 1.3(1)(a). The Compact also recognizes that the waters of the basin “are a single hydrologic system.” Sec. 1.3(1)(b).

²⁴ *Ray v Mason County Drain Comm’r*, 393 Mich 294, 306 (1975).

²⁵ *Mays v Governor Snyder*, 231 Mich App 1 (2018).