

**DETROIT WATER AND SEWERAGE DEPARTMENT:  
BRINGING CREDIBILITY TO A BELEAGUERED SYSTEM  
THROUGH REGIONAL COOPERATION AND TECHNOLOGY**

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I. INTRODUCTION

As the Detroit Water and Sewerage Department (DWSD) continues to grapple with its technical and administrative challenges, it is easy to think that these challenges are unique. In fact, they are not. Like many other water and wastewater utilities, the DWSD began as a local city department serving city residents and grew into a multi-million dollar regional department that currently provides service to most of the surrounding suburbs. When federal grant money was plentiful, the low cost of water and sewer services caused few to question the decisions made in this insular department. The same can be said of most other major cities throughout the country. However, the end of federal grant funds coupled with the exodus of residents from our urban cores stressed the financial resources of these city departments. The resulting under funded maintenance and reliance on inadequate treatment technology left this life-supporting infrastructure vulnerable to failure.

While the challenge in most other urban centers is similar, the path forward has differed greatly. In the end, all of these regions have headed toward more diverse governance and more transparent financial decision-making. These regions have also developed a rate structure that is sufficient to keep pace with the cost of repair, replacement and environmental requirements. The DWSD has much to gain from the lessons learned in other regions. A summary of some of these lessons is useful to understanding programs unique to Michigan that could provide

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1. John P. McCulloch served as the Oakland County Water Resources Commissioner, a countywide elected position he held from 2001-2013. John P. McCulloch is currently the Director for the Huron-Clinton Metropolitan Authority (HCMA).

for the introduction of new technologies likely to improve environmental performance, reduce costs and increase reliability.

## II. BACKGROUND

The DWSD remains one of the largest water and wastewater systems in the nation, covering an area of approximately 1,079 square miles.<sup>2</sup> It serves the City of Detroit, as well as neighboring municipalities in Wayne, Oakland, Macomb, St. Clair, Lapeer, Genesee, Washtenaw and Monroe counties.<sup>3</sup> While Detroit and its nearby suburbs' populations have substantially declined, other suburbs have experienced growth. Thus, the service area remains home to about 40 percent of the population of the state of Michigan.<sup>4</sup> The DWSD's wastewater coverage area totals about 946 square miles and treats about 727 million gallons of wastewater per day.<sup>5</sup> It provides service with a staff of about 2,000 employees.<sup>6</sup>

The relationship between Detroit and the suburban communities it serves has been contentious for decades, with suburban representatives questioning how water and sewer rates are developed and how the funds generated are subsequently spent. At the same time, numerous water quality issues gave rise to a federal lawsuit.<sup>7</sup> The case was assigned to Judge John Feikens, who was given judicial oversight of the DWSD for more than 30 years before he retired in early 2011. The case was subsequently transferred to his judicial colleague, Judge Sean Cox.

It is important to emphasize that judicial oversight began not as a monetary dispute between the DWSD and its customers, but because of violations of the Clean Water Act.<sup>8</sup> The Clean Water Act regulates the quality of discharges into the waters of the United States. Under the Clean Water Act, the U.S. Environmental Protection Agency (EPA) implemented pollution control programs and established water quality standards.<sup>9</sup>

The DWSD violations provided the impetus for the federal court to intervene. When Judge Cox assumed jurisdiction, his first order of business was to prevent repeated violations of the Clean Water Act just as Judge Feikens had done earlier.

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2. *The Detroit Water and Sewerage Department Fact Sheet* (August 20, 2012), available at [dsws.org](http://dsws.org).

3. *Id.*

4. *Id.*

5. *Id.*

6. *Id.*

7. *United States v. City of Detroit*, No. 77-71100 (E.D. Mich. 1977).

8. 33 U.S.C. §§ 1251 *et seq.* (1972).

9. *Id.*

Even if the DWSD had been a well-oiled machine, competently providing high-quality water and services to its customers at a fair price, there would still be questions as to the effectiveness of its operation. Unfortunately, that was not the case. Repeated indictments and public court battles actually quantified the costs of certain financial misdeeds to the rate-paying public. Additionally, many rate-payers contended that more savings could be realized if the department had greater transparency and more tightly controlled financial operations. As a practical result, the DWSD saddled its customers in the suburbs and in the City of Detroit with the burden of financing its penchant for mismanagement, bungling, cronyism, and criminal behavior.

It is the duty of all county-wide elected officials to control the cost of water and sewer services for their constituents, as well as to ensure that a sufficient investment is being made to assure that the infrastructure remains safe and reliable for years to come. Few were convinced that the people both within and outside of the city limits were receiving water and wastewater services from Detroit at a fair price. These suspicions were confirmed in 2003 when an independent financial study indicated that Oakland County customers, among others, had been overcharged by the DWSD by millions of dollars.<sup>10</sup>

Other insular water and sewer departments had transformed into transparent regional authorities. At the same time, other communities around the country had been quietly making the transition to regional authorities. It became apparent that sharing the successful tools used by other regions could expedite the transition that Detroit's constituents demanded. The key was to make that transition in a way that would be tolerable to the residents of Detroit, state officials, and, perhaps most importantly, the presiding judge.

Against that background, four principles emerged at the heart of the debate between the City of Detroit and its suburban customers. First, Detroit wanted to retain ownership of its water system. Second, Detroit wanted to retain majority control of the governing body that oversaw the system. Third, the suburban communities wanted a greater voice in the decision-making process. Finally, the suburban communities wanted more transparency in DWSD's operations.

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10. RAFTELIS FINANCIAL CONSULTING, EXECUTIVE SUMMARY, REVIEW AND ANALYSIS DETROIT WATER & SEWERAGE DEPARTMENT FISCAL YEAR 2003-04, *available at* [http://www.oakgov.com/water/assets/docs/pr\\_2003\\_09-19-DWSD\\_rate\\_report.pdf](http://www.oakgov.com/water/assets/docs/pr_2003_09-19-DWSD_rate_report.pdf).

## III. ANALYSIS

Although it might seem obvious that Detroit should own the system, calls were made at the state level for legislative action demanding a takeover of the DWSD and placing ownership in an independent entity separate from the city of Detroit. In short, there was a considerable push by some state legislators to take ownership of the system away from Detroit, although doing so is clearly prohibited by the Michigan Constitution. Detroit has a right to own the system. Unless Detroit officials decide that they want to divest their ownership interest, neither the courts nor the legislature can force them to relinquish ownership.

Both Judge Feikens and Judge Cox recognized that the region served by the DWSD faced a multi-billion dollar challenge to maintain and rehabilitate aging infrastructure. As part of their judicial oversight, they understood that establishing and maintaining public trust was crucial to ensuring public support of sufficient funding for infrastructure maintenance and restoration. For his part, in 2003 Judge Feikens established a 40-member panel called the Southeast Michigan Consortium for Water Quality to find ways to give the suburban communities a greater voice in the city-owned system. Although Judge Cox disbanded the consortium in 2011, he signed an order giving the suburbs more representation on the Detroit Water Board by requiring five votes from the seven-member panel to adopt rate changes and other financial matters. Detroit currently has four members on the board, while the suburbs have three. These judges understood that both the DWSD and its suburban customers must work together to resolve both long-standing issues and new ones that will inevitably occur in the future.<sup>11</sup>

In an effort to contrast the institutional arrangements guiding water and wastewater delivery in Southeast Michigan with other regional utilities, the variety of approaches to governance practiced by other regional water and wastewater entities were investigated. Six diverse regional water and/or wastewater utilities were visited, including Cleveland, Cincinnati, San Antonio, Miami-Dade, the District of Columbia, and Boston. The governance, ownership and financial oversight were unique at each utility. At the same time, the challenges of financing and maintaining critical infrastructure were remarkably similar because the cost of maintaining and repairing infrastructure increased in the face of diminishing federal funds. It's important to recognize that Detroit's issues serving and satisfying its customers while keeping rates

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11. David Ashenfelter, *Timeline in Detroit Water and Sewer Saga*, DET. FREE PRESS, Nov. 5, 2011, at 5A.

proportional to the services rendered are not unique. Most municipal water and/or sewerage utilities began as city departments. Those regional authorities with the broadest powers typically were created by legislation many years ago and the powers expanded as the need arose.

Over time, the governance of these regional utilities has tended to change through legislation and/or judicial orders.<sup>12</sup> As systems expand, mature and grow, pressure from customers who feel under-represented has increased in each of these utilities.<sup>13</sup> Additionally, the Clean Water Act of 1972 added significantly to the expanse of these wastewater collection and treatment systems. The Clean Water Act's purpose is to stop pollutants from being discharged into waterways and to maintain water quality to provide a safe environment for fishing and swimming, a goal that caused many existing wastewater treatment plants to expand or improve at great expense.<sup>14</sup> Coupled with the increased cost, demand for more input in rate setting was nearly universal.<sup>15</sup> The utilities with the largest rate increases have experienced the most scrutiny and therefore have the most innovative means of assuring that ratepayers see financial transparency.<sup>16</sup>

These various facilities welcome visitors because, as one might expect, these kinds of facilities don't usually get a lot of visitors – certainly not visitors seeking advice. The operators at each facility are always willing to provide a great deal of detail about various issues in their departments. These visits provide a clear understanding of how some of their solutions could be utilized in Detroit. Of particular interest was the fact that Judge George McMonagle, the judge in Cleveland responsible for establishing the Cleveland Regional Sewer District in July 1972, was vilified initially when he held judicial oversight of Cleveland's water system.<sup>17</sup> Many residents in Cleveland's suburbs, who had local sewage collection systems of their own, did not like the idea of financing a portion of the improvement costs to Cleveland's system unless the city relinquished its exclusive authority of rate-setting and

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12. JOHN P. McCULLOCH, OAKLAND COUNTY DRAIN COMM'R., *THE ART OF GOVERNANCE* (Nov. 18, 2005) available at [http://www.oakgov.com/water/assets/docs/Press\\_releases/pr\\_2005\\_11\\_18%20art%20of%20governance%20.pdf](http://www.oakgov.com/water/assets/docs/Press_releases/pr_2005_11_18%20art%20of%20governance%20.pdf).

13. *Id.*

14. 33 U.S.C.A. §§ 1251-1255 (1972).

15. John P. McCulloch, *A Proposal to Improve the Governance of the Detroit Water and Sewerage Department*, available at OAKGOV.COM (Feb. 2007), available at [http://www.oakgov.com/water/Documents/mcculloch\\_publications/articles/20070212\\_d\\_wsd\\_boston\\_proposal.pdf](http://www.oakgov.com/water/Documents/mcculloch_publications/articles/20070212_d_wsd_boston_proposal.pdf).

16. *Id.*

17. Northwest Ohio Regional Sewer District: Our History and Heritage 1972-2007, at 10-11 (Kim C. Jones, 2008).

sewage disposal issues.<sup>18</sup> Unlike Detroit, there is a right under Ohio law to regionalize the water and wastewater treatment facility.

When Cleveland officials refused the suburbs' demands, the matter wound up on Judge McMonagel's docket.<sup>19</sup> He then created the Cleveland Regional Sewer District:

“[The District comprised of a] 7-member District Board of Trustees representing the interests of Cleveland, Cuyahoga County, and the suburbs, [and] was empowered to set sewage rates. The facilities owned by the City of Cleveland were transferred to the new district, which had the authority to control, plan, finance, establish, maintain, and operate the primary sewage disposal system in Cuyahoga County. The district also assumed a regulatory role over all sanitary and industrial sewage discharges in the county to meet Environmental Protection Agency requirements.”<sup>20</sup>

Today Judge McMonagle is revered as a visionary. In fact, there is a portrait of him at the entrance of the facility and the building is named for him.

The Massachusetts Water Resources Authority (MWRA) approached their water and sewage system differently than Cleveland. The Massachusetts department confronted similar challenges as those faced by Detroit. In resolving its dilemma, the MWRA detailed how the communities served could be assured a voice in the operation of the system. A critical feature in this interaction is its advisory board. A full-time staff of five was hired and compensated by the MWRA which interacted directly with member communities. Additionally, these staff members were knowledgeable with the inner workings of the authority. During the rate-setting process, experts reviewed the components that make up water and sewer rates. As a result of their participation, communities served by the system were more willing to accept recommended rate increases. The success of the board is based upon the fact that the advisory staff worked for, and on behalf of, the customers, keeping the interests of the customers in mind. Due to the fact that they were embedded in the operation, they were able to get a first-hand look

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18. *Id.*

19. *Id.*

20. *Northeast Ohio Regional Sewer District*, THE ENCYCLOPEDIA OF CLEVELAND HISTORY (last visited September 7, 2012), available at <http://ech.case.edu/ech-cgi/article.pl?id=NORSD>.

at the operations and quickly learn all aspects of the system, promoting greater transparency.

Using the MWRA model as a starting point, the Detroit Water and Sewerage Department and its customers could emulate their success. The Detroit Water Board would benefit by recognizing and committing to work with a community advisory board. The DWSD could provide funding for the advisory board's staff. Staffing costs would be charged back to the suburban customers through water and sewer rates. Further, the advisory board employees would report directly to the member communities on such things as rate-setting, capital improvement plans, and policies affecting the system.

This initial proposal was attractive because it did not require any legislative changes and did not alter Detroit's ownership of the system. It did, however, change the institutional culture from one of mistrust and paranoia to one embracing a better working relationship based on fair dealing, enforced by a just and equitable contract. By taking a page from Massachusetts' playbook, Southeast Michigan could eliminate some of the expensive and time-consuming litigation between the DWSD and the suburban communities that has been going on for more than 30 years, improving relations in the region. As a result, all citizens in the region would benefit.

In the end, Detroit and its suburban customers reached an agreement that was outlined in a stipulated court order signed in February 2011.<sup>21</sup> The stipulated order marked the end of one of the longest running lawsuits in Michigan history. As with the MWRA model, the order provided for a staff with expertise in technical, financial and legal areas to assist a more experienced board.<sup>22</sup> Detroit Mayor Dave Bing, along with other suburban leaders in the Detroit metropolitan area, signed the agreement that changed the oversight of the Detroit Water and Sewerage Department.<sup>23</sup>

As part of the agreement, Oakland County withdrew its motion calling for the creation of a regional oversight panel.<sup>24</sup> Instead, the stipulated order mandated, that the DWSD would be governed by a seven-member board, as it was previously, with four members from Detroit and the remaining three members representing Oakland, Macomb

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21. *United States v. City of Detroit*, No. 77-71100 (E.D. Mich. Feb. 11, 2011) (stipulated order).

22. *Id.*

23. *Id.*

24. Water Resources Commission, Overview of Stipulated Order Understanding Water Rates H2Oopportunities (Mar. 1, 2001), available at [https://www.oakgov.com/water/documents/Press\\_releases/2011/20110301\\_stipulated\\_order\\_rates\\_h2oppo.pdf](https://www.oakgov.com/water/documents/Press_releases/2011/20110301_stipulated_order_rates_h2oppo.pdf).

and Wayne counties.<sup>25</sup> The major differences were that the suburban counties would be permitted to select their own representative and important decisions, such as rate-setting, would require a super-majority for passage.<sup>26</sup> Previously, the mayor of Detroit selected all of the members, even those representing suburban communities.

The super-majority provision became one of the most critical components of the change because it meant that at least one county representative must agree with Detroit, or conversely, at least two Detroit members would support an action proposed by the county representative before an important provision could be instituted.<sup>27</sup> The order elevated the caliber of board members by requiring at least seven years' experience and the assistance of a full-time staff with expertise in finance, law, and engineering.<sup>28</sup> Those provisions did not exist in the previous composition of the board.

With the signing of the stipulated order, to which all parties agreed, board members had to be credentialed or otherwise qualified in technical, legal or financial fields. They were going to be paid for running the three-quarters of a billion dollar operation so they would be required to devote the time to the operation. The order specifically set the compensation rate for board members at \$10,000 per year and \$250 per meeting, not to exceed \$20,000 per year.<sup>29</sup> The order provided that the compensation could be adjusted by the board in the future with the consent of the Detroit mayor, the Wayne County executive and The Oakland County Water Resources Commissioner.<sup>30</sup>

The reality is that, while this new design certainly restructures the governance of the DWSD, it does not eliminate all of the challenges. It does, however, give the suburban communities a seat at the table to try to help address the critical issues facing the region. The next step that Judge Cox pursued was the revamping of how the DWSD operates. The City of Detroit had instituted ordinances and charter provisions that applied to all aspects of the city, but the DWSD is unique and most of the ordinances have little to do with operating a major utility. In some cases, the ordinances actually hampered the efficient operation of the utility. In order to meet that challenge, Judge Cox provided the new director and the new board with a blank sheet to ensure that the DWSD was operating in an efficient and appropriate manner.

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25. *City of Detroit*, *supra* note 20.

26. *Id.*

27. *Id.*

28. *Id.*

29. *Id.*

30. *Id.*



There were four key areas that were removed from the sole jurisdiction of Detroit: procurement, legal, financial, and human resources. Under this arrangement, those services provided to the DWSD became more effectively tailored to suit the needs of a unique department, i.e. the Detroit Water and Sewerage Department.

The region must remain vigilant to ensure that the facilities operated by the DWSD are not permitted to fall into disrepair. While that may seem obvious, it is a problem that plagues water and wastewater treatment facilities across the country. Since the passage of the Clean Water Act in 1972, the federal government “has directly invested more than \$77 billion in the construction of publicly owned treatment works.”<sup>31</sup> As a requirement to receive these grants, municipalities must establish rates sufficient to repair and replace the grant-funded equipment. Unfortunately, programs for repair and replacement were never fully funded, leaving many of the nation’s 16,000 wastewater treatment systems in poor condition “due to a lack of investment in plants, equipment, and other capital improvements.”<sup>32</sup> In fact, the EPA estimates that the nation must invest \$390 billion over the next 20 years to replace existing systems and build new ones to meet increasing demands.<sup>33</sup>

Funding remains a challenge. The generous grant program, which was established in 1972 as part of the Clean Water Act, was eventually converted to a loan program.<sup>34</sup> These programs have not encouraged ongoing repair and maintenance.<sup>35</sup> It is not because the money isn’t available from the state, but that cash-strapped municipalities are reluctant to accept loans from the state because they foresee difficulties in repaying them.<sup>36</sup> There are about \$40 million dollars in grants available through Michigan’s new Strategic Water Quality Initiatives Program, which have not been utilized fully.<sup>37</sup> The funds are designed to

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31. Am. Soc’y of Civil Eng’rs, Report Card for Am. Infrastructure (last visited Sept. 5, 2012), available at <http://www.infrastructurereportcard.org/fact-sheet/wastewater>.

32. *Id.*

33. *Id.*

34. See 33 U.S.C. §§ 1381-1387; see also CLEAN WATER STATE REVOLVING FUND PROGRAMS, U.S. ENVTL. PROT. AGENCY, YESTERDAY, TODAY, & TOMORROW: 20 YEARS OF PROGRESS 2 (2007) (last viewed Sept. 5, 2012), available at <http://www.epa.gov/owm/cwfinance/cwsrf/2007-annual-report.pdf>.

35. PUBLIC SECTOR CONSULTANTS, INC., EVALUATION OF THE MICHIGAN STATE REVOLVING FUND 4 (June 2005), available at <http://www.mi-ita.com/Portals/0/pdf%20files/Legislative/June%20Final%20Report.pdf>.

36. *Id.*

37. Mich. Dept. of Env’tl. Quality, *S2 (SRF/SWQIF) Grants Program: Updated 08/24/2012*, STATE OF MICHIGAN (Aug. 24, 2012), available at [http://www.michigan.gov/deq/0,4561,7-135-3307\\_3515\\_4143-236401--,00.html](http://www.michigan.gov/deq/0,4561,7-135-3307_3515_4143-236401--,00.html).

assist municipalities with the necessary project planning and design of qualifying wastewater projects.<sup>38</sup> These grants would cover up to 90 percent of the eligible costs to complete a loan application, including project planning, project design and development of a revenue system for wastewater projects.<sup>39</sup> To reach as many communities as possible, each municipality is limited to \$1 million in total grant assistance.<sup>40</sup> The actual construction of the project eventually would need to be funded through existing low-interest revolving loan programs, such as the State Revolving Fund and the Strategic Water Quality Initiatives Fund, but many communities have hesitated to seek these funds.<sup>41</sup>

As a practical matter, the DWSD is a monopoly.<sup>42</sup> However, unlike other monopolistic utilities such as electricity and natural gas, the DWSD is not regulated by the Michigan Public Service Commission; but rather, rates are set by the water board.<sup>43</sup> The DWSD must find ways to reduce costs and improve its efficiency wherever possible.<sup>44</sup> One way to do so involves the privatization of some parts of DWSD's operations, an idea not new to DWSD. In the past, the DWSD has employed private contractors to run the financing, design, construction, operation and maintenance of the oxygen generation plants at the DWSD's wastewater treatment facilities.<sup>45</sup> This is an example of limited privatization that allowed the DWSD to have access to advanced technology that otherwise was beyond the skills of the DWSD staff at that time.<sup>46</sup>

People often interpret privatization differently.<sup>47</sup> Many contend that privatization would involve a private company assuming all of the

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38. *Id.*

39. *Id.*

40. *Id.*

41. *Id.*

42. J. Patrick Pepper, *City Residents Might Pay Nearly 10% More for Water*, PRESS & GUIDE NEWSPAPERS, Feb. 8, 2011, available at <http://www.pressandguide.com/articles/2011/02/08/news/doc4d518c1bed444822658956.txt> ("DWSD is a natural monopoly.").

43. Detroit Water and Sewage Dep't, *DWSD Board of Water Commissioners* (last visited Nov. 2, 2012), available at [http://www.dwsd.org/pages\\_n/bowc.html](http://www.dwsd.org/pages_n/bowc.html).

44. See COMMUNITY LEGAL RESOURCES, MICHIGAN COMMUNITY RESOURCES, PLANNING DETROIT-KEY COMMUNITY CONCERNS, available at <http://www.clronline.org/resources/FINAL%20PDLT%20-%20Key%20Community%20Concerns%204.4.pdf/view>.

45. Diane Bukowski, *Water Department Spends 12 Times Over Budget*, THE MICH. CITIZEN, Sept. 7, 2012, available at <http://www.afscme207.com/doc/2006/update060611.htm>.

46. *Id.*

47. Paul Starr, *The Meaning of Privatization*, 6 YALE L. & POL'Y REV. 6 (1988), available at <http://www.princeton.edu/~starr/articles/articles80-89/Starr-MeaningPrivatization-88.htm> ("Privatization is a fuzzy concept.").

operational duties currently performed by the DWSD.<sup>48</sup> In effect, the private company would call the shots on how the DWSD would be operated.<sup>49</sup> The company would also likely have a very strong role in setting the rates, which would likely include a profit. This author does not support that approach. However, like the oxygen plants, there is a place for some level of privatization within the operational confines of the DWSD. This is an area where others in the region, including this author, have had the benefit of experience. The Oakland County Water Resources Commissioner's office contracts with private firms for design work and the construction of major projects.

The private sector can serve as an integral part of a public operation. Regardless of the role played by private contractors, the public should remain in control of the public facility and the rates used to maintain those facilities. It is because the facilities were constructed and/or purchased with public funds and serve a broad public constituency that the public should retain control.

Additional considerations in the quest to provide superior service at the lowest possible cost include the role that technology plays. Technology and innovation must become a critical component of the industry if it is to meet the challenges associated with increasing environmental regulations and energy costs while dealing with aging infrastructure and facilities that have long since outlived their useful life. To address these challenges, our nation must undertake a comprehensive approach to water management. This will require improvements in water treatment, water distribution, wastewater collection, wastewater treatment, storm water management, and lake management. These improvements must be made in a manner that minimizes capital costs, operating costs and maintenance costs. In spite of this tremendous need, introducing new technology can still be a challenge. For example, public works officials are frequently approached to evaluate or endorse various water technologies. The challenge that the creators of these technologies face is to demonstrate that their products work in the field as intended.<sup>50</sup> However, the conservative nature of public works professionals often acts as a deterrent to the introduction of new products: without a successful demonstration, most engineers will revert to older, proven

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48. *Id.*

49. *Id.*

50. Rebecca O. Bagley, *Water Technologies Part II: Market Opportunities and Challenges for Water Innovation*, FORBES, Oct. 1, 2012, available at <http://www.forbes.com/sites/rebeccabagley/2012/10/01/water-technologies-part-ii-market-opportunities-and-challenges-for-water-innovation/> (“[I]mplementation, however, remains a high hurdle.”).

technology.<sup>51</sup> It is no surprise that technical staffs are reluctant to try an unproven technology. At the same time, the technology providers wonder how and where they can be given an opportunity to prove the effectiveness of their innovation.<sup>52</sup> This circular problem results in little progress in the development of better and cheaper ways to provide a superior product or service.

That's not to say that there aren't people trying to break the cycle. H<sub>2</sub>Opportunities was founded as an organization intending to leverage its extensive knowledge of water needs and advanced manufacturing prowess.<sup>53</sup> By relying on its leadership and business acumen to launch water technology businesses in rapid fashion, H<sub>2</sub>Opportunities can identify promising technologies, install them in "real world" municipal and industrial settings, and quickly transform them into profitable job-creating businesses located in Michigan.<sup>54</sup> Success comes from of H<sub>2</sub>Opportunities's ability to identify, select, test, and subsequently integrate innovative water technologies and solutions.<sup>55</sup>

H<sub>2</sub>Opportunities originally limited its services to technology validation, regulatory acceptance, and assistance with marketing and business planning.<sup>56</sup> Associated universities, professional service providers, and mentor firms could provide other services.<sup>57</sup> H<sub>2</sub>Opportunities also actively supported the selected firms in their attempts to obtain funding for future growth.<sup>58</sup> Additionally, H<sub>2</sub>Opportunities screens businesses annually to identify promising technologies. Once selected, H<sub>2</sub>Opportunities executes a contract that details the services it will provide in exchange for revenue participation or equity in the business.<sup>59</sup> That means that after its initial funding, H<sub>2</sub>Opportunities can meet its future funding needs through its relationship with participating businesses.

H<sub>2</sub>Opportunities can provide a means of allowing technology developers to share the risks and rewards of introducing new products in Michigan. This support will result in new jobs and businesses in Michigan. H<sub>2</sub>Opportunities can address the largest challenges facing

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51. *Id.*

52. *Id.*

53. H<sub>2</sub>Opportunities (last visited Nov. 3, 2012), *available at* <http://www.h2opps.com/>.

54. *Id.*

55. *Id.*

56. *Id.*

57. H<sub>2</sub>Opportunities, *H<sub>2</sub>Opportunities Partners* (last visited Nov. 3, 2012), *available at* <http://www.h2opps.com/partners/partners.html>.

58. *Id.*

59. *Id.*

water technology entrepreneurs: full-scale, real world testing; documentation of the findings; regulatory assistance; and marketing and business planning assistance.<sup>60</sup> In short, H<sub>2</sub>O opportunities can use water technologies to create jobs, especially green jobs, technology jobs, and manufacturing jobs, while promoting an innovation-based environment. This setup attracts talent, companies, and corporate investment, along with private foundations and venture capital while stimulating entrepreneurship locally. A second, but equally important benefit is to protect Michigan's water resources and ecosystem.

Staffing is another critical issue that poses unique problems for water and wastewater facilities. The DWSD is no different. The DWSD struggles to attract and retain qualified personnel. It is imperative that water and waste facilities participate in the educational process and work with local high schools, community colleges, and universities to show that water and wastewater issues are, in fact, environmental issues. Many college students are far more likely to get excited about the environment than about water and sewage. DWSD needs to advocate and promote intern programs and demonstrate how the water and wastewater industry is a growing field. Careers in the water and sewer business should be the hot jobs for the future, along with computer application developers. In fact, water and sewage system services are projected to be the only growing segment in the utilities arena.

The DWSD needs to participate at the high school level by providing career fairs and by participating in high school programs to educate students on the importance of the water and wastewater industry. At the same time, it should talk to elementary school children as well. The Oakland County Water Resources Commissioner's office is already doing so with fifth graders in environmental programs and classes.<sup>61</sup> Finally, this is a faceted issue that must be addressed from a variety of fronts. In the end, education is the key to doing so. We must not only educate ourselves, we must educate both our elected officials and the people we serve – the ratepayers who pick up the tab for the decisions we make and the approach we take.

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60. *Id.*

61. See Oakland County, Mich., *Educational School Programs* (last visited Nov. 3, 2012), available at [http://www.oakgov.com/water/Pages/services/environmental/ws\\_educ\\_school-programs.aspx](http://www.oakgov.com/water/Pages/services/environmental/ws_educ_school-programs.aspx) (listing educational programs already undertaken with 5<sup>th</sup> graders).

## IV. CONCLUSION

The DWSD and the water resources of southeast Michigan are intimately linked. If citizens expect clean water and a high standard of living, we must continue to invest in local water infrastructure. The citizens of Michigan are willing to make this investment, but they demand transparency and a voice in the governance of this multi-million dollar business. As transparency and public participation become better established, we can expect the ratepayers to continue to invest in improving the aging infrastructure, new technologies, and the staffing to make it all work. There is no other way to protect and preserve this valuable investment by the federal and state government, and the ratepayers across the region.