



## **An Assessment of Ohio Cities’ Water and Sewer Infrastructure and Brownfield Sites Redevelopment: Needs and Gaps**

With generous support from the Ohio Water  
Development Authority

Greater Ohio Policy Center

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## Executive Summary

Like many other places in the country, Ohio's cities have fallen behind in making needed investments in water and sewer infrastructure. Many districts have made nominal investments while some, for various reasons, have opted to delay addressing these challenges altogether. However, further postponing this infrastructure repair will only compound current problems. The ongoing and growing risk of further decay of this infrastructure underscores the need to find ways to make investments in water and sewer infrastructure for the future. Furthermore, along with neglecting water and sewer infrastructure challenges, since the dismantlement of the Clean Ohio Fund, cities have experienced significant decline in their ability to pursue cleanup of brownfield sites that could be either part of new sewer and water infrastructure systems and/or could be redeveloped, contributing to revitalization.

With poor grades from the Ohio Chapter of the American Society of Civil Engineers for the state's water and sewer systems, these systems are in need of an estimated \$25 billion over the next 20 years for system upgrades and modernization improvements. In addition to regular maintenance, which many communities have deprioritized due to cost concerns, reducing the number of combined sewer overflows (CSO) is critical to protecting public health. These needs can be addressed in a number of ways, and new, creative solutions are desperately needed.

Based on interviews with expert consultants and stakeholders from a range of water and sewer districts and state agencies as well as on research and analysis of current practices and recent trends, this Report details the salient needs and gaps facing these sewer and water districts and the brownfields redevelopment options. The findings are summarized and highlighted below.

### **Sewer and Water Infrastructure Issues**

- 1) **Affordability**: Because water and sewer systems are funded almost solely by ratepayers, increasing utility costs is the only viable way to generate additional revenue. However, the anticipated costs associated with upgrades to current water/sewer systems will put a significant strain on ratepayers.
- 2) **Credit Access and Capacity**: The need to finance these large-scale projects calls into question the capacity of cities to take on debt. Even when financing options are available, there is a major concern regarding who is footing the bill: taxpayers (through credit) or ratepayers.
- 3) **Economic and Environmental Health**: Water and sewer infrastructure quality and upkeep can have a far-reaching impact on the health of Ohio's residents and the attractiveness of its communities to the business sector.

**Brownfields As Untapped Assets**: Many brownfield sites in Ohio's communities could be redeveloped and thus contribute to both infrastructure upgrades and economic development prospects. The wind-down of the Clean Ohio Fund eliminated a large portion of available redevelopment funding and has left communities struggling to find ways to finance brownfield redevelopment. These sites, for the most part, do not qualify for the major existing state level brownfield remediation program due to the eligibility requirements that focus on the nexus between site redevelopment and job creation. Grant opportunities for brownfield remediation and reuse are extremely limited, but are critical to attracting private sector interest in making initial investments in these valuable sites. Furthermore, the loan programs are also limited and somewhat difficult to access.

**Leveraging Scarce Funds:** Because funding for infrastructure and brownfields remediation is scarce or difficult to obtain, communities are challenged to make necessary but expensive infrastructure upgrades. They are also prevented from addressing brownfield site remediation and redevelopment that can spur revitalization and attract businesses and economic activity. Some public and private (or public-private hybrid) funding resources and financing vehicles exist that state and local actors can pursue to address these challenges.<sup>1</sup> However, insufficient and inaccessible funding weakens the opportunity for Ohio communities to make these essential investments.

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<sup>1</sup> These terms are used in the following way: Funding solutions address the need to generate money to pay for these projects; and financing solutions use debt to pay for large scale projects. There are other strategic financing solutions offer bigger picture approaches (e.g. public-private partnerships) that leverage funds further by making large-scale structural changes. All three are important parts of the solution.

# I. Introduction: Ohio's Water, Sewer, and Brownfields Infrastructure

Over the last forty years, many of Ohio's older cities have experienced declining population as they have lost residents to suburbs and to other states. At the same time, Ohio's communities increasingly have faced rising legacy costs resulting from aging infrastructure and other similar challenges related to sustainable growth. While Ohio's economy has recently entered a period of recovery, as evidenced by indicators such as recovering housing prices, business growth, and job creation in some parts of the state, many local economies are still fragile. Localities remain burdened by the costs of addressing aging infrastructure, particularly water and sewer. There are also environmental contamination concerns related to agricultural runoff causing algae blooms in freshwater sources in key locations. These can raise health concerns and adversely impact the long-term attractiveness of Ohio's cities.

To sustain an economic turnaround in Ohio and support sustainable regrowth, state and city leaders will need to turn to new, innovative financial solutions to address the state's infrastructure. Additionally, the recent dismantlement of the Clean Ohio Revitalization Fund (CORF) program that funded brownfield remediation and redevelopment presents an opportunity to examine ways to tie site reuse to other essential infrastructure repairs and to consider new approaches to financing brownfields reuse that complement existing federal, state and local programs.<sup>2</sup> More funding is needed to promote these brownfield reuse efforts.

New programs that result in modern and effective infrastructure will be an essential asset Ohio can use to attract new businesses and employees. With new tools to deploy, local leaders can target areas for reinvestment in our cities and towns that accommodate new residents and businesses, and private developers will be incentivized to invest in properties that generate new businesses in conjunction with the state-level focus on job creation and business attraction. Ideally, new financial tools will allow cities to make critical upgrades and achieve the level of sewer and water services needed by growing critical local assets, such as universities and medical institutions.

Local governments face a number of challenges, including the prospect of expensive financial outlays to address brownfields redevelopment, water quality issues, and water and sewer infrastructure upgrades. These outlays will likely result in significant cost increases to local government budgets that are ultimately passed along to taxpayers. To remain competitive in the 21st century, Ohio's cities and metropolitan areas must address existing environmental and health issues, while managing the increased costs spread over a smaller population. Reinvesting in critical infrastructure is also part of long-term planning to accommodate the stabilization and regrowth of our cities fed by a pipeline of the millennials, a growing demographic that demands the types of walkable neighborhoods found in our legacy cities.

With innovative financing tools and effective asset management, planning efforts can enhance our communities and ensure that Ohio's infrastructure is sustainable and does not fall into further disrepair, costing local governments millions in missed opportunities. This cost of missed opportunities is particularly high with respect to brownfield reuse efforts as communities forgo tax revenue and the

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<sup>2</sup> Ohio Development Services Agency. Clean Ohio Fund. "Brownfield Revitalization." <http://development.ohio.gov/cleanohio/brownfieldrevitalization/>

benefits of economic activity from revitalizing a brownfield site. This is a critical time to identify new tools for investing in Ohio's future.

## Project Scope

In order for localities to undertake infrastructure improvements and brownfields redevelopment that reap long-term cost savings, economic returns, and environmental benefits, Ohio must invest in new tools such as innovative finance programs and investments. To address this need, GOPC is undertaking a two-phase project to evaluate existing programs and identify new tools.

In Phase I, GOPC conducted a needs analysis to assess existing programs as well as gaps and opportunities for new programs and financing arrangements in both the brownfields and water and sewer infrastructure areas in a range of different sized cities.<sup>3</sup> This Report covers the details of those Phase I findings. Phase II of the study will investigate and elaborate on the types and availability of innovative tools for funding and financing brownfields and water and sewer infrastructure projects and discuss how to address the identified funding gaps. Phase II will also build on the Phase I research to better understand the challenges facing cities of different sizes and locations throughout the state, including additional investigation into the condition of smaller and medium-sized cities.

This two-part study is intended to culminate in identification of new financing tools and products with recommendations on how to implement them in jurisdictions around the state. The ultimate outcome of this study will be a better understanding of several areas, including: Ohio cities' infrastructure challenges; the best strategies and financial programs available nationwide to address aging infrastructure; the extent these can be implemented in Ohio; and recommendations for unique, customized financing and funding approaches that can be employed by a range of actors throughout the state.

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<sup>3</sup> During Phase I, GOPC collaborated with the Mid-Ohio Regional Planning Commission (MORPC), which conducted research in smaller jurisdictions ranging in size from Warren, Ohio (population 40,000) to Toledo, Ohio (population 280,000).



## II. Current Conditions of Ohio's Water and Sewer Infrastructure Systems

National experts have estimated that Ohio's aging infrastructure will require significant investments over the next 20 years—more than \$25 billion to maintain and upgrade wastewater and drinking water systems alone.<sup>4</sup> The overwhelming majority of all water-related infrastructure systems in Ohio are paid for at the local level. While there are some financial resources, such as loans from the Ohio Water Development Authority (OWDA) and the Ohio Environmental Protection Agency (OEPA), to assist governments with these responsibilities, municipalities continue to struggle to keep up with the skyrocketing costs of maintaining infrastructure and comply with consent orders mandating infrastructure upgrades. A consent order -- a voluntary agreement worked out between two or more parties and governed by federal and/or state laws -- has the same effect as a court order that can be enforced by the court in the event of non-compliance.<sup>5</sup> Eighty-eight cities in Ohio are under consent orders, most requiring communities to rectify past design decisions to reduce or eliminate the combination of sewer and wastewater and the overflow of this contaminated water during rainstorms and other incidents.<sup>6</sup> Despite the urgency that consent orders have recently brought to fixing this problem, upgrading aging infrastructure in communities throughout Ohio and the extraordinary associated costs have been a major concern for several decades.

### Extraordinary Costs Anticipated

The American Society of Civil Engineers (ASCE) produces a report card with the country's infrastructure "grade" every four years. The most recent report card, issued in 2013, paints a picture of the US failing to address critical infrastructure needs, giving the country a D+ overall, with dams and drinking water receiving "D"s.<sup>7</sup> Ohio fared slightly better than average, receiving an overall C- for the state of its infrastructure.

ASCE estimates the costs of upgrading and maintaining Ohio's water and sewer systems at \$25 billion over the next 20 years. Rising costs make these projects increasingly expensive and pose a serious challenge to infrastructure financing and funding. From 2008 to 2012, asphalt prices have increased by 25%, concrete prices by 70%, and reinforcing steel costs have increased 214%.<sup>8</sup> These common construction material price hikes impact every type of infrastructure improvement effort, including water infrastructure. Given the rising costs and extensive nature of the problem, traditional financing mechanisms may be insufficient to help Ohio and its local jurisdictions meet infrastructure needs. The financing approaches suggested in this Report will require further research and development before

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<sup>4</sup> American Water Works Association. "Buried No Longer: Confronting America's Water Infrastructure Challenge." 2012.

<sup>5</sup> The consent orders mandated to require changes in sewer and water systems are generally issued pursuant to federal environmental laws, and they are monitored by United States Environmental Protection Agency and Ohio Environmental Protection Agency.

<sup>6</sup> Ohio Environmental Protection Agency. "Combined Sewer Overflow Community Inventory." September 2014 Update.

<sup>7</sup> Ohio Chapter of the American Society of Civil Engineers. "Ohio Infrastructure Report Card." 2013.

<sup>8</sup> Ohio County Engineers Association of Ohio. Bridge the Gap Ohio.  
[http://bridgethegapohio.com/aws/CEAO/pt/sp/bridge\\_crisis](http://bridgethegapohio.com/aws/CEAO/pt/sp/bridge_crisis).



they are actionable within the state, but are presented here as preliminary glimpses of unique approaches.

Municipalities benefited from large-scale federal support of infrastructure following World War II and into the 1970s. Government investment helped cities expand rapidly to accommodate population growth.<sup>9</sup> However, United States Environmental Protection Agency's (USEPA) modifications to its funding formula in the late 1980s have limited federal infrastructure grant awards to only small, low-income communities.<sup>10</sup> Thus, municipalities struggle to pay for large water and sewer infrastructure expenses. The American Water Works Association (AWWA) explains that nationwide, communities are transitioning from an age of building water and sewer infrastructure to an era of replacement.<sup>11</sup> This is a particular problem in Ohio because the shrinkage in size of urban populations undermines many cities' ability to adequately pay for repairs to systems that had been built for larger numbers of users. Movement into suburban areas in larger Ohio cities and similar relocation out of urban areas in smaller cities due to economic decline in manufacturing industries have contributed to this reduction in city spending power.

### **Consent Orders: Challenges of Protecting Public Health**

Many of Ohio's water infrastructure systems have combined stormwater and sanitary sewer systems. This approach was conceived of decades ago and implemented as a way of saving money. Instead of building dedicated storm sewers that could handle periodic heavy rainfalls, storm sewers were merely connected to sanitary sewers so that water from one would overflow into the other during strong storm events, which resulted in untreated water flowing directly into waterbodies and water supplies.<sup>12</sup> Accordingly, many districts, which are defined as areas covering one or more contiguous counties to supply, collect, treat, and dispose of water, face mounting difficulties. Along with combined sewer systems, districts are under court-issued consent orders to reduce the number of overflows that occur each year and to achieve the long-term goal of decoupling the stormwater and sanitary sewer systems.<sup>13</sup>

Combined sewer systems are sewers designed to collect rainwater runoff, domestic sewage, and industrial wastewater in the same pipe. Most of the time, combined sewer systems transport all of their wastewater to a sewage treatment plant, where it is treated and then discharged to a water body. During periods of heavy rainfall or snowmelt, however, the wastewater volume in a combined sewer system can exceed the capacity of the sewer system or treatment plant. For this reason, combined sewer systems are designed to overflow occasionally and discharge excess wastewater directly into the nearest ditch, stream, river, or lake. This prevents the rupturing of pipes, backing up of sewage into basements, and/or flooding of streets. These discharges contain not only stormwater but also untreated human and industrial waste, toxic materials, and debris. The location of the discharge along with the actual discharge event is called Combined Sewer Overflows (CSOs). CSOs are found at various places

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<sup>9</sup> United States Department of the Treasury. "Expanding our Nation's Infrastructure through Innovative Financing." September 2014.

<sup>10</sup> Congressional Research Service. "Water Infrastructure Financing: History of EPA Appropriations." April 5, 2012. <https://www.fas.org/sgp/crs/misc/96-647.pdf>.

<sup>11</sup> American Water Works Association. "Buried No Longer: Confronting America's Water Infrastructure Challenge." 2012.

<sup>12</sup> U.S. Environmental Protection Agency. "Clean Watersheds Needs Survey."

<sup>13</sup> LAWriter Ohio Codes and Rules. "Regional water and sewer district organization." <http://codes.ohio.gov/orc/6119.01>.

along combined sewers and function uniquely according to its particular sewer system.<sup>14</sup> They are a major water pollution concern for the approximately 772 cities in the U.S. that have combined sewer systems.<sup>15</sup>

CSO control is a vital part of the statewide effort to reduce and control stormwater discharges. Contaminants in CSOs can include pathogens, oxygen-consuming pollutants, solids, harmful nutrients, toxics, and floatable matter – all of which can harm the health of people, fish, and wildlife. CSOs can contribute to shellfish harvesting restrictions, impairment of the aquatic habitat, and aesthetic degradation due to unsightly floating materials associated with raw sewage.<sup>16</sup>

While intended to address public health problems, consent orders associated with CSOs require districts to spend a great deal of money addressing past design flaws. Fixing these problems does not necessarily improve the current or future condition of the system. In other words, even if a district spends millions to reduce the impact of combined sewer overflows, the organization still has to spend money on regular maintenance, staffing, and other costs that come with operating a utility. As a result, some cities in Ohio are using a significant portion of their available financing on complying with consent orders or addressing CSOs and are not allocating enough to regular maintenance and improvement.

### **Inadequate Affordable Financing for Infrastructure and Brownfields**

Assessing the costs of capital improvements involves understanding and utilizing both funding and financing methods. Funding is the actual revenue a city has to pay for operations, maintenance, and improvements or to pay back a loan or bond, while financing is the vehicle that allows a city to take on debt in the form of a loan or bond that can be repaid. In order to invest in water and sewer infrastructure, communities must have the capacity to take on debt for that investment. Moreover, limited financing and funding options available to Ohio cities significantly diminishes infrastructure and brownfield investment.

OWDA and OEPA's revolving loan fund demonstrates the currently flush loan availability by providing jurisdictions approximately \$600 million annually for water and sewer projects.<sup>17</sup> This will provide up to half of the financing needed to upgrade the state's water and sewer systems over the next 20 years. Many smaller municipalities in Ohio lack the resources needed to receive credit approval for loans offered by the private bond market, so they must rely in large part on public financing sources. While OWDA is fully capable of matching loan demand since ample loan resources are available, many jurisdictions are hesitant to take on debt and instead pursue exclusively grant funds. Moreover, USEPA provides grants to Ohio (and other states) to capitalize the State Revolving Loan Fund that makes only low interest loans to communities, and the federal Hardship Grants Program is available only to rural communities of less than 3,000 residents. Because the available grant funds supply is limited, many jurisdictions are reluctant to take action even in the face of growing water and sewer problems. (See Appendix I for a full list and description of a range of available infrastructure financing and funding programs.) For smaller jurisdictions, few funding programs exist that are accessible.

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<sup>14</sup> <http://www.epa.ohio.gov/dsw/cso/csoindex.aspx#116135670-what-is-a-cso>

<sup>15</sup> <http://water.epa.gov/polwaste/npdes/cso/index.cfm>

<sup>16</sup> <http://www.ecy.wa.gov/programs/wq/permits/cso.html>

<sup>17</sup> Ohio Water Development Authority. "2014 Annual Report."

Other funding opportunities can be used for particular projects or circumstances, but they are not widely available. For example, FEMA offers grants for flood abatement efforts. These efforts can include programs that abate storm water in specific circumstances. Metropolitan Sewer District (MSD) in Cincinnati has been able to leverage grants from FEMA for its work in green infrastructure on the Lick Run project.<sup>18</sup> The Community Development Block Grant (CDBG) offers an opportunity for small, low-income communities to access additional funds for infrastructure. The communities that have accessed CDBG funds include several interviewed as part of the project -- Caldwell, Plain City, and Carroll Township. However, these grants are only for specific projects and are awarded in a competitive process, so this funding is not guaranteed. Also, many challenged communities, such as Canfield, have too high a median household income to qualify for these grants.

Brownfield redevelopment faces a similar predicament. In 2013 the state eliminated the Clean Ohio Revitalization Fund (CORF), which had provided generous grants for brownfield remediation for more than a decade and had helped redevelop over 150 brownfield sites.<sup>19</sup> However, some Ohio cities and counties, including the city of Columbus and Cuyahoga County, have developed their own brownfield cleanup programs using municipal funds. For example, the Green Columbus Fund incentivizes businesses and nonprofits with reimbursement grants for environmental assessments and land acquisition of brownfield sites.<sup>20</sup> The remaining funding source for brownfield remediation is the Ohio Development Services Agency (ODSA)-administered Ohio Brownfield Fund, a small fund providing a range of types of funding, including for technical assistance, low interest loans and small grants for planning, assessment and cleanup of properties.<sup>21</sup> Even with 0% interest rates on some loan products, few applications have been submitted. Since there is no guarantee that these sites will be able to move beyond site assessment to the next stages of remediation and redevelopment, communities are simply less willing to risk spending money on site assessments.

As discussed later in the Report, eligibility under the state's JobsOhio program for its brownfield remediation loans is primarily limited to loans for brownfields sites having a clear nexus with business development and job growth. However, given the large number of brownfield sites in Ohio's communities and their untapped redevelopment potential, a need for additional complementary funding exists for brownfield sites. According to OEPA's Ohio Brownfield Inventory Database, as of October 2015, nearly 300 brownfields covering over 6,000 acres have been officially reported.<sup>22</sup> However, since this inventory contains only voluntarily reported sites, the true figures are certainly much higher. Now that state support for brownfield remediation is primarily in the form of loans, instead of grants, the number of brownfields remediated and redeveloped in Ohio has slowed considerably.<sup>23</sup> (See Appendix I for other brownfields funding programs.)

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<sup>18</sup> Metropolitan Sewer District of Greater Cincinnati. "Lick Run Watershed Master Plan." May 2012.

<sup>19</sup> Some other states are also moving away from brownfield grant programs. For instance, trend data in Wisconsin show that brownfield grants reached totals of around \$9 million in 2004, while 2015 figures have dropped to below \$2 million. Wisconsin Planners. <http://bit.ly/1PAoKkP>.

<sup>20</sup> City of Columbus. "Green Columbus Fund." <http://columbus.gov/Templates/Detail.aspx?id=40383>.

<sup>21</sup> [http://development.ohio.gov/summary\\_10brownfield.htm](http://development.ohio.gov/summary_10brownfield.htm).

<sup>22</sup> Ohio Environmental Protection Agency. "Ohio Brownfield Inventory Database." [http://epa.ohio.gov/derr/SABR/brown\\_dtb/brownfieldinventory.aspx](http://epa.ohio.gov/derr/SABR/brown_dtb/brownfieldinventory.aspx).

<sup>23</sup> Ohio Development Services Agency. Clean Ohio Fund. "Brownfield Revitalization."

### III. Key Infrastructure Challenges

As discussed previously, given the limited amount of available and applicable funding and financing programs and the large documented need, a mismatch exists between the cost of upgrading sewer and water infrastructure and the available, affordable financing for Ohio communities. The bulk of this Report focuses on three primary and imminent challenges for Ohio cities: affordability; credit access and capacity; and economic development and environmental health.

- 1) **Affordability:** Upgrades to current water and sewer systems will put a significant strain on ratepayers. Because these systems are funded almost solely by ratepayers, increasing utility costs is currently the only way to generate additional revenue directly. However, such a strategy is untenable given the enormous cost of upgrading any system and the reduction in the number of ratepayers in most Ohio cities.
- 2) **Credit Access and Capacity:** The need to finance large-scale projects brings into question the capacity of cities to take on debt. Cities with better credit ratings will be able to access loans at a cheaper rate than those with a lower rating, but taking on large amounts of debt can drive a city's rating down and limit the ability of the city to borrow for other important projects. Even when financing options are available, determining who foots the bill remains a challenge. The burden will fall either on local ratepayers or on taxpayers statewide, or more likely, a combination of the two.
- 3) **Economic and Environmental Health:** While water and sewer infrastructure is often taken for granted as an asset that every community will have, quality and upkeep vary by location and can have a far reaching impact on the health of residents and the business community. Many industries base their location decisions in part on the availability and reliability of a water system. Furthermore, a range of problems from combined sewer overflows to algae blooms pose challenges to cities, which adds to the urgency for financing alternatives and innovations to address infrastructure needs.

#### A. Affordability: Increasing Burdens on the Ratepayers

Because water and sewer systems are funded almost solely on a local basis, mostly by ratepayers, increasing utility costs is the most straightforward way to raise additional revenue. As a result, the excessive costs associated with the needed upgrades to current water and sewer systems will put a significant strain on ratepayers. One could argue that the ratepayers should bear all of the cost because they receive the benefits of the water and sewer systems. Funding through ratepayers, however, will put an increasing burden on Ohio's vulnerable citizens and costs could reach a crisis point where water and sewer prices make it difficult to pay for this necessity.

#### Challenges of Affordability: Rising Utility Rates and Constrained Household Incomes

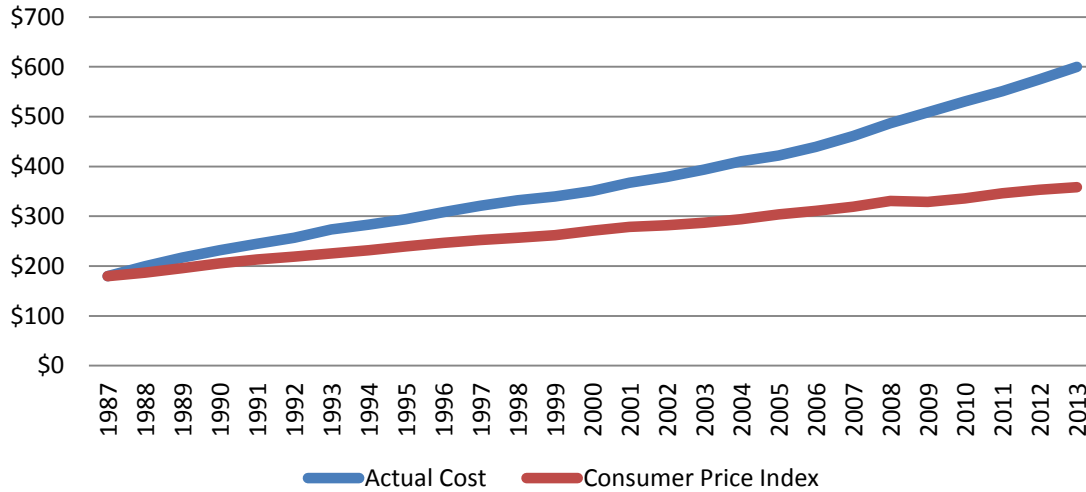
Since the late 1980s, water and sewer rates have been rising across Ohio. According to reports from OEPA, water and sewer rates have more than tripled on average since 1987, well exceeding the rate of inflation.<sup>24</sup> Tables 1 and 2 demonstrate this dramatic rise in costs that exceed the growth in the Consumer Price Index, as a proxy for inflation.

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<sup>24</sup> Ohio Environmental Protection Agency. "2013 Sewer and Water Rate Survey." September 2014.

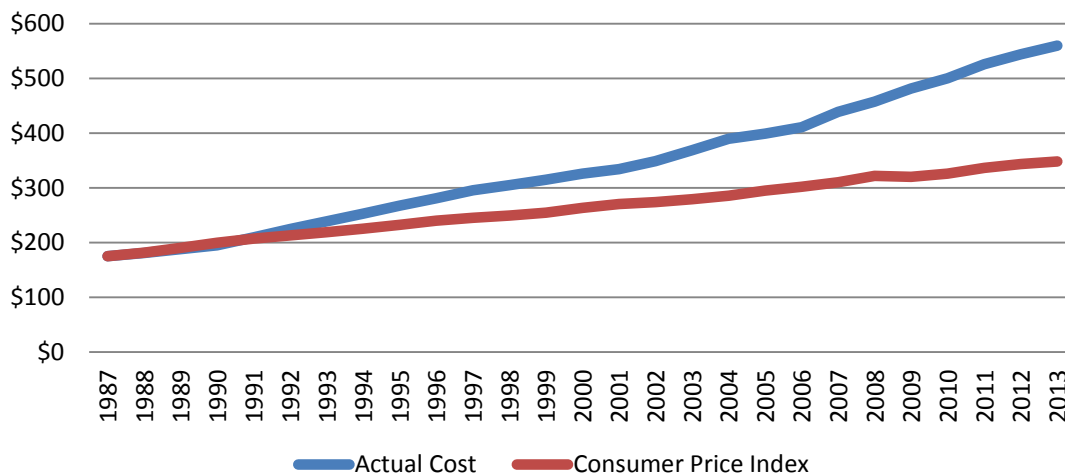
*Table 1: Average Ohio Sewer Rates Compared to Consumer Price Index*

### Average Ohio Sewer Rates Compared to Consumer Price Index



*Table 2: Average Ohio Water Rates Compared to Consumer Price Index*

### Average Ohio Water Rates Compared to Consumer Price Index



This problem is not unique to Ohio. An AWWA study found the potential for sewer rates to triple over the next 25 years.<sup>25</sup> The amount consumers can expect their utility bills to increase is in part dependent on the current condition of their system as well as the financing available to the community. Table 3

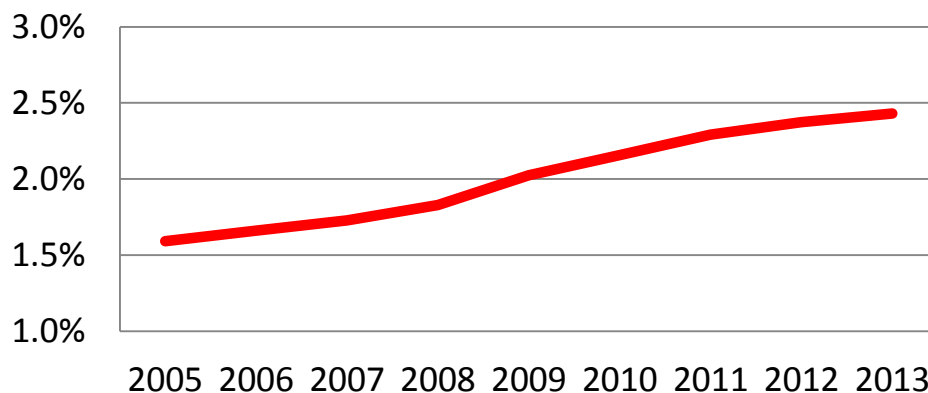
<sup>25</sup> American Water Works Association. "Buried No Longer: Confronting America's Water Infrastructure Challenge." 2012.

shows that Ohio households are beginning to spend a larger share of their household income on water and sewer costs. In 2005, residents were spending a little above 1.5% of household income for water and sewer costs; this figure rose to nearly 2.5% in 2013. While these figures still may seem small, it represents roughly a 60% increase in cost in less than a decade.

*Table 3: Percent of Median Household Income Spent on Water and Sewer in Ohio*

## Percent of Median Household Income Spent on Water and Sewer in Ohio

(ACS 1-Year Inflation Adjusted Income Estimate, Ohio EPA 2013 Rate Survey)



Water costs as a percentage of household income in the United States are the lowest among developed countries.<sup>26</sup> Thus, a rise in water and utility prices would align them more closely to the real cost of providing these services. However, educating the public as to why rates must increase will likely be difficult.<sup>27</sup> Beyond the challenge of shifting consumer expectations, there is a true ceiling for how high rates can go. Given the sheer costs and volume of improvement needed to regenerate water and sewer infrastructure in Ohio, raising rates proportional to a funding threshold that would successfully maintain and upgrade important infrastructure is simply not feasible. The standard affordability threshold used to assess how much a household should comfortably be able to spend on water and sewer utilities combined ranges from 2.0% to 2.6% of median household income.<sup>28</sup> So, while Ohio households still spend below the upper limit threshold on average, the upward spending trend appears to continue. The City of Columbus currently examines the impact rate increases would have on the lowest quintile of the population before proposing a rate increase.<sup>29</sup> The Northeast Ohio Regional Sewer District (NEORS) has a sewer utility assistance program that offers lower rates to those who are over the age of 65,

<sup>26</sup> U.S. Environmental Protection Agency. "Water & Wastewater Pricing – Introduction." <http://water.epa.gov/infrastructure/sustain/Water-and-Wastewater-Pricing-Introduction.cfm>.

<sup>27</sup> Sewer rates for 2014 in Akron rose more than 70% from 2013 and voters turned down rate increases in Cincinnati by voting down a bond issue, preventing the city from reaching its goal of replacing 1% of the water and sewer lines annually.

<sup>28</sup> The 2.0% threshold is noted by AWWA as having a "large economic impact," while the OWDA uses a 2.6% threshold consisting of 1.5% for sewer and 1.1% for water. Stratus Consulting. "Affordability Assessment Tool for Federal Water Mandates." 2013.

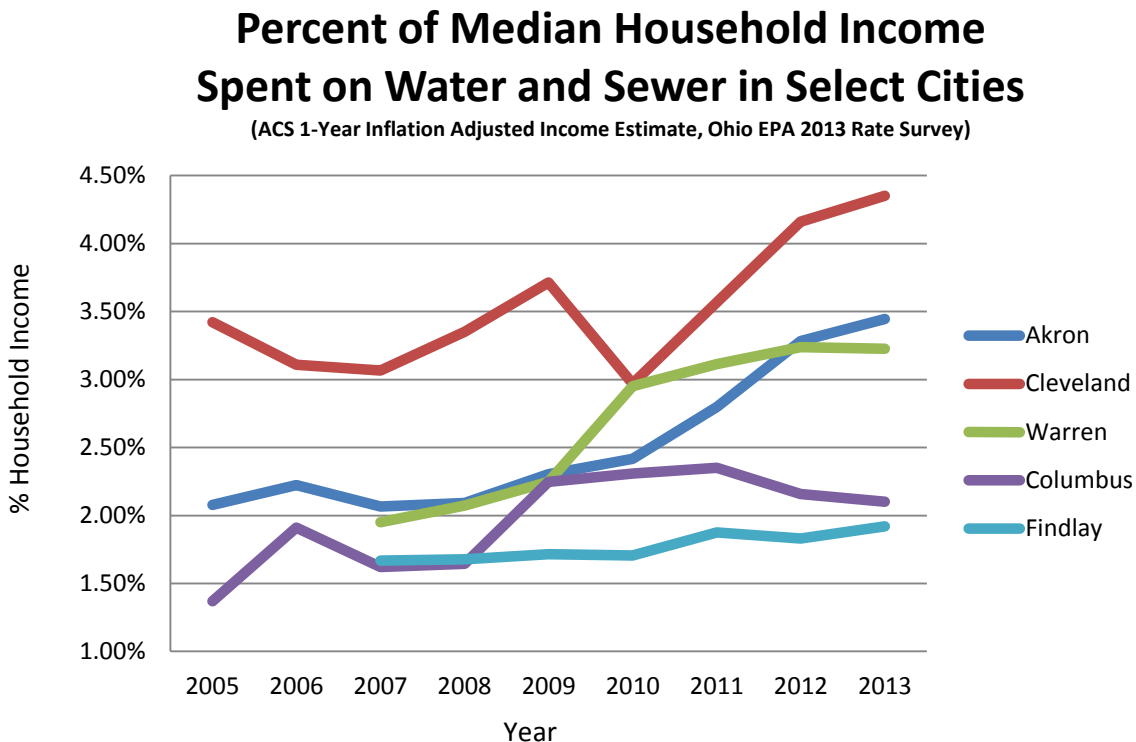
<sup>29</sup> Interview with Rick Westerfield and Dax Blake. City of Columbus.

permanently disabled, or below a calculated poverty standard.<sup>30</sup> While it is encouraging that districts are taking ratepayer affordability into consideration, programs like NEORS D’s do not have the resources to compensate for the large rate increases predicted for the future.

### Addressing Affordability Issues for the Future

Although steadily increasing, rates in Ohio will still likely remain below the national average for water and sewer costs. Given that water costs throughout the Midwest are comparatively low, Ohioans must prepare for more expensive service. Using a representative set of Ohio cities, Table 4 demonstrates Ohio communities are contending with a steadily rising share of water and sewer costs relative to household income. While projected continued increases will be frustrating and burdensome to many, a portion of Ohio’s most vulnerable citizens will find the challenge insurmountable. Programs are needed to protect vulnerable groups from rapid price increases. Part of the solution may include innovative strategies that can spread financing costs over a longer period of time or over a larger geographic area, such as through the establishment of a regional sewer district.

*Table 4: Percent of Area Median Household Income Spent on Water and Sewer Costs*



More research is needed to assess how other states manage the affordability issue through low-income assistance programs. This research would incorporate work done at the state level as well as innovative programs operated by water and sewer districts. GOPC will delve further into this issue during the second phase of its research. One possible solution to this problem may be to create a statewide assistance program to help pay water and sewer bills. Such a program already exists for electric and gas utilities, in the form of the Percentage of Income Payment Plan (PIPP) Plus. A similar design could be

<sup>30</sup> Northeast Ohio Regional Sewer District. “Cost Saving Programs.” <http://www.neorsd.org/save.php>.



employed to help pay for water utilities, taking a program similar to what NEORS D's has to a larger scale.

## **B. Credit Access and Capacity: Obtaining Needed Capital**

The need to finance large-scale water and sewer projects raises questions about the capacity of cities to take on debt. Cities with better credit ratings are able to access loans at a cheaper rate than those with lower ratings, but taking on large amounts of debt can drive a city's rating down, which reduces the ability of the city to borrow for other important projects.

### **Challenge: Worsening Credit Trend**

While the larger cities in Ohio have the ability to access the private market for funds, many smaller cities, especially those operating under consent orders, such as Ironton, Ashland and others, are unable to do so.<sup>31</sup> For these cities, the only viable option is programs offered through OWDA or OEPA. Even with this lending option, Ohio cities need to bolster their credit so that they can acquire additional, needed funding because state-funded programs simply do not provide enough. For communities with a population of less than 10,000, USDA Rural Development assistance is available. While the state's overall credit outlook improved in 2011,<sup>32</sup> some Ohio cities, such as Cleveland,<sup>33</sup> have not been as fortunate.

This slow rebound in municipal credit ratings has two key implications for water and sewer infrastructure. First, the lower a city's credit rating, the more challenging it is to access credit at an affordable rate. Second, lower credit ratings indicate that a city is less likely to be able to make debt payments, signaling that taking out additional loans for water infrastructure could be problematic. This is not to say that an AAA rating is required to be able to finance water and sewer infrastructure improvements; rather, the current financial position of Ohio's cities may limit the possible options available to access needed financing.

In addition to the backlog of routine upgrades needed, serious creditworthiness concerns are exacerbated by the high costs of compliance with the consent orders' requirements to separate the CSO systems. A total of 88 communities in Ohio, large and small, are under a consent order.<sup>34</sup> Columbus and Cincinnati are obligated to spend over \$3 billion each to meet the abatement requirements of the decrees.<sup>35</sup> Although smaller communities face smaller spending requirements based on the size of their systems, larger communities are typically in a stronger position to raise capital because they can leverage a larger base of ratepayers to pay for the debt. However, none of this spending necessarily

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<sup>31</sup> See <http://www.epa.state.oh.us/dsw/enforcement/enf.aspx#126267106-federal-and-state-consent-agreements-judicial-orders-and-judgments-2001---2015---alphabetical-order> for a full list of Ohio cities and counties under consent orders.

<sup>32</sup> Cogliano, Joe. "S&P upgrades Ohio rating, warns on U.S. debt." Dayton Business Journal. 16 July, 2011. <http://www.bizjournals.com/dayton/news/2011/07/16/sp-upgrades-ohio-rating-warns-us-debt.html?page=all>.

<sup>33</sup> Moody's Investor Service. [https://www.moody.com/research/MOODYS-DOWNGRADES-TO-Aa3-FROM-Aa1-THE-LONG-TERM-LETTER-Rating-Update--RU\\_1274256](https://www.moody.com/research/MOODYS-DOWNGRADES-TO-Aa3-FROM-Aa1-THE-LONG-TERM-LETTER-Rating-Update--RU_1274256).

<sup>34</sup> Ohio Environmental Protection Agency. "Combined Sewer Overflow Community Inventory." September 2014 Update.

<sup>35</sup> Interview with Rick Westerfield and Dax Blake. City of Columbus; Interview with MaryLynn Lodor. Metropolitan Sewer District of Greater Cincinnati.

addresses the aging components of the water system; some communities use much of their credit capacity getting the loans needed to address CSOs, leaving little for maintenance and necessary upgrades.

### **Challenge: Deferred Maintenance**

This concern over creditworthiness and access is amplified as many communities forgo maintenance of their systems due to lack of available funding. GOPC's interviews revealed that many water and sewer lines in Ohio cities typically date to the late nineteenth century and have never undergone upgrades, thus demonstrating the extent to which cities have put off replacements and repairs, and increasing the likelihood of serious public health consequences. Like many cities in Ohio, Cincinnati is tasked with addressing an aging sewer system. As of 2014, it is estimated that more than 50% of the city's water works infrastructure is over 100 years old.<sup>36</sup> During the 1980s, Hamilton County established the goal of replacing 1% of the city's water works annually, and is meeting this goal or nearly meeting it every year. However, there is a significant risk of the city falling short in the future as resources go to operating costs or treatment plant upgrades.

In several cases, the water or sewer authorities have attempted to "save for the future," knowing that their aging infrastructure will require massive upgrades. For example, the City of Canton's Water Reclamation Facility endeavored to annually set aside 2% of the total improvement cost in order to replace their sewer and water system, allowing full replacement over 50 years. However, many of these cities have encountered resistance from local government officials who question the need to set aside such a large amount of money to be earmarked for a future need.

### **Challenge: Leveraging the Private Market**

Some of Ohio's cities are able to access the private market in order to get needed financing.<sup>37</sup> Typical characteristics of cities able to access the bond market for financing include those with: populations between 50,000 and 250,000, wealth levels above the national average, relatively low unemployment, and a growing tax base.<sup>38</sup> Currently, rates in the private market are favorable and can be even lower than the rate on OWDA loans, depending on the credit rating of the borrower. Columbus, for example, has opted in recent years to go to the bond market for infrastructure financing.<sup>39</sup> While a lagging recovery in interest rates has made debt more affordable, this will likely change in the coming years, resulting in more pressure on OWDA's loan fund. As interest rates rise, loans from OWDA will become more attractive to larger cities.

Unfortunately, for a number of Ohio communities the private market is not an option. Even for smaller communities with strong credit ratings, the cost of taking a bond to market may not be practical due to the cost of hiring bond counsel. As a result, these communities must rely on state and federal sources, such as OWDA's revolving loan fund, OEPA's Division of Environmental and Financial Assistance (DEFA) funds, and federal grant programs for poor and rural communities. Another option is for cities to avoid

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<sup>36</sup> Interview with MaryLynn Lodor. Metropolitan Sewer District of Greater Cincinnati.

<sup>37</sup> Interview with Ed Haller and Robert Stahl. City of Warren.

<sup>38</sup> Lincoln Institute of Land Policy. "Bonds and Borrowing." <https://www.lincolnst.edu/subcenters/teaching-fiscal-dimensions-of-planning/materials/elmer-bonds.pdf>.

<sup>39</sup> Interview with Rick Westerfield and Dax Blake. City of Columbus.

tapping into the general fund and instead raise rates, in order to generate a revenue stream. Various funds may be insufficient to meet their financing challenges, particularly for towns that fall through the cracks of program eligibility. For example, Napoleon, a small city of population 8,698 located in the northwest corner of the state, may soon exhaust its financial capacity to address water and sewer infrastructure capacity through all of its OWDA loans.<sup>40</sup> Canfield, a town with a population of less than 8,000 located southwest of Youngstown, is not eligible for federal grants because its median household income (MHI) of \$70,000 exceeds Ohio's MHI of \$48,000, yet the town is too small to be able to use the private market.<sup>41</sup>

With financing options somewhat limited, cities and districts simply cannot borrow their way to a solution that addresses water and sewer infrastructure challenges. Under the current options, one way or the other, ratepayers are likely to bear the burden through increased rates to support debt. Additionally, as interest rates rise, many of the larger cities may begin to prefer loans through OWDA rather than issuing their own debt or going to the bond market.

Therefore, credit enhancement and other options<sup>42</sup> are needed to fund infrastructure improvements, regardless of whether a city is under a consent order. Further research of best practices and other states' efforts will reveal the true challenges and strategies involved in implementing credit enhancement, bond bank structures and other innovative approaches.

### **C. Economic Development and Environmental Health**

The quality and upkeep of water and sewer systems can have far-reaching effects on the health of residents and the business community. Furthermore, a range of challenges, including combined sewer overflows and algae blooms, threaten cities' economic development efforts and residents' health and add to financing needs. In evaluating solutions to these challenges, green infrastructure has emerged as an alternative to economic development and environmental problems despite some uncertainty about costs, benefits, and long-term effectiveness.

#### **Challenge: Keeping the Public Healthy**

Common threats to Ohio's water and sewer infrastructure include: CSOs (as discussed earlier), line breaks, and algae blooms related to agricultural runoff. While consent orders to address CSOs may create financial burdens on cities and districts, consent orders are imperative for protecting the health and welfare of city residents now and in the future. Cincinnati averages 11 billion gallons of combined sewer overflow annually, making it one of the largest offenders in the country.<sup>43</sup> The potential contamination can negatively affect the health of millions both in and outside of Ohio, justifying the

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<sup>40</sup> Interview with Chad Lulfs. City of Napoleon.

<sup>41</sup> Ohio Water Development Authority. "Agency Rules and Guidelines." <http://www.owda.org/owda-doc/program%20info/notesall.pdf>.

<sup>42</sup> One possibility is to develop a consortium among small- and medium-sized Ohio cities to facilitate access to the bond market or get improved rates on a loan. A bond bank structure would allow small communities to access the private market by coming together for a single bond that would then be split among the cities. This strategy requires involvement of a third party that would ultimately be responsible for the bond, but with cost recovery options available to it. In some cases, OWDA has filled this third-party bond responsibility requirement.

<sup>43</sup> Interview with MaryLynn Lodor. Metropolitan Sewer District of Greater Cincinnati.

need to make large investments in upgrades to mitigate the overflows. Several communities have made progress to solve these overflow problems. For example, Columbus has cut its combined sewer overflow from 1.8 billion gallons to just 200 million gallons per year over the last decade.<sup>44</sup> In addition to CSOs, line breaks and system deficiencies may result in contaminated water and sewage flowing into public spaces, posing a serious health risk and bringing expensive and often unanticipated costs.

Algae blooms in Ohio's waterbodies have recently emerged as a prevalent contamination hazard throughout the state.<sup>45</sup> Although algae blooms are not a direct result of aging sewer and water infrastructure, the algae incident in Lake Erie near Toledo in summer 2014 gained national attention. While experts disagree on the extent to which agricultural runoff caused the algae bloom in Toledo, the size of the agricultural industry in Ohio certainly contributes to algae challenges. A small sampling of communities across the state found that many struggle with agricultural runoff. The water supply for Celina, a small city of just over 10,000 people located in the northwest Ohio near Toledo, comes from a lake with a blue-green algae problem caused by agricultural runoff that requires extensive monitoring, placing additional expense on the city.<sup>46</sup> Executing and paying for the remediating the algae blooms is often difficult, because contaminants drift from one community to another and thus the source of the problem is sometimes unclear. For instance, the city of Napoleon's primary water supply, the Maumee River, is prone to contamination. As a result, Napoleon is forced to rely on a secondary water source at the Wauseon Reservoir when the Maumee is polluted. Moreover, the small northwest Ohio township of Carroll receives its supply of water from Lake Erie, which is plagued by agricultural runoff.<sup>47</sup>

### **Ensuring Ohio's Water Supply and Infrastructure Are Competitive Economic Development Assets**

Businesses commonly consider nearby water and sewer system conditions when planning a move to a community. Columbus officials indicated that they regularly receive inquiries from businesses about water and sewer conditions, although such considerations rarely impact the city's priorities in selecting which sections of the system to prioritize for upgrades.<sup>48</sup> Even if Ohio cities still need to address their CSO issues, which can also influence economic development efforts, officials interviewed in virtually every Ohio city indicated that their cities would be able to handle infill development and new businesses without pushing their systems beyond capacity. This is encouraging because it suggests that communities will not have to plan for expansion along with routine or deferred maintenance. Depopulation in nearly all of the state's urban centers has given many communities excess capacity, which has the potential to be used as part of a regionalization effort or to attract industry. However, this has also left communities with a smaller ratepayer base and water systems that are more spread out.

As far as expanding water and sewer systems, AWWA indicates that it is a best practice to require developers to pay for system expansions with appropriate oversight.<sup>49</sup> Once built, the city is able to

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<sup>44</sup> Interview with Rick Westerfield and Dax Blake. City of Columbus.

<sup>45</sup> Ohio Environmental Protection Agency. "Harmful Algal Blooms: Information for Public Water Systems."

<sup>46</sup> Interview with T. Michael Sudman. City of Celina.

<sup>47</sup> Interview with Henry Biggert. Carroll Township of Ottawa County.

<sup>48</sup> Interview with Rick Westerfield and Dax Blake. City of Columbus.

<sup>49</sup> American Water Works Association. "Buried No Longer: Confronting America's Water Infrastructure Challenge." 2012.

hook the new development into the existing system and becomes responsible for maintenance and upkeep.

## Green Infrastructure as a Fix: Pros and Cons

Green infrastructure is a catch-all term for natural systems utilized to manage water flows. At the scale of a city or county, green infrastructure refers to the patchwork of natural areas that provide habitat, flood protection, cleaner air, and cleaner water. At the scale of a neighborhood or site, green infrastructure refers to stormwater management systems that mimic nature by soaking up and storing water. When rain falls in undeveloped areas, the water is absorbed and filtered by soil and plants. However, when rain falls on impermeable surfaces, such as roofs, streets, and parking lots, the water cannot soak into the ground. In most urban areas, stormwater is drained through engineered collection systems and discharged into nearby waterbodies. The water carries trash, bacteria, heavy metals, and other pollutants from the urban landscape, degrading the quality of the receiving waters. Higher flows can also cause erosion and flooding in urban streams, damaging habitat, property, and infrastructure.<sup>50</sup> Green infrastructure has been used in some places to reduce combined sewer overflows, thereby improving public health, and has in some cases allowed cities to leverage economic development opportunities.

While there appear to be advantages over engineered systems to installing green infrastructure, there are complicated questions about whether current green infrastructure strategies are cost-effective in comparison with other approaches. Officials from Columbus found that green infrastructure will not be cheaper than traditional “grey” infrastructure in their city.<sup>51</sup> Additionally, NEORSD indicated that their experience has shown that green infrastructure is not as reliable or predictable as traditional grey infrastructure, and has not led to cost savings.<sup>52</sup> Current green infrastructure projects in many cities cannot guarantee that even a cost-neutral (when compared to a grey approach) green approach will achieve the same amount of rainwater abatement.

Additionally, the terms of useful life and long-term maintenance costs for green infrastructure are not yet fully known.<sup>53</sup> Promisingly, green infrastructure can be implemented at a fraction of the cost of traditional grey infrastructure, although green infrastructure usually deteriorates sooner. For example, a typical sanitary sewer line can last for upwards of 50 to 60 years, whereas permeable concrete may function for only 15 years.<sup>54</sup> Because the technology used in green infrastructure is new, it is unclear how long-term maintenance costs will compare to those of traditional infrastructure.

In an area where half a billion gallons of sewage and stormwater overflow every year, the Lick Run project in Cincinnati has been hailed as a national model for green infrastructure. This innovative effort combines a number of features including aboveground waterways, an underground storm mechanism

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<sup>50</sup> [http://water.epa.gov/infrastructure/greeninfrastructure/gi\\_what.cfm](http://water.epa.gov/infrastructure/greeninfrastructure/gi_what.cfm). Green infrastructure is also park systems and urban forests. Some communities are using green infrastructure for transportation systems (green streets), and green roofs, which can bring the benefits of nature to the built environment.

<sup>51</sup> Interview with Rick Westerfield and Dax Blake. City of Columbus.

<sup>52</sup> Interview with Julius Ciaccia, Frank Greenland, and Kyle Dreyfuss-Wells. Northeast Ohio Regional Sewer District.

<sup>53</sup> Interview with Bonnie Buthker et. al. Ohio EPA Southwest District Field Office.

<sup>54</sup> Interview with Bonnie Buthker et. al. Ohio EPA Southwest District Field Office.

to handle excessive rain, and an urban waterway flowing through an urban area.<sup>55</sup> Composed of 12 collaboratively run stormwater systems, the project will eliminate 379 million gallons of CSOs and ensure stormwater does not enter the combined sewer system.<sup>56</sup> Future research should study other states and cities that have completed green infrastructure projects on both large and small scales. Particularly, research should assess whether these programs are cost neutral or cost-effective when compared to grey infrastructure. Also, it will be important to consider the incentives states offer for green infrastructure projects and the possible level of replication that could be done in Ohio. For the Lick Run project, Cincinnati leveraged multiple sources of funding, including federal sources such as the Federal Emergency Management Agency (FEMA) for the project's flood mitigation benefits and USEPA.<sup>57</sup> While not all of these sources will be available for every green infrastructure project in the state, this project underscores the importance and increasing reality of layering many sources of funding.

At the moment, green infrastructure is far from a perfect solution, and there are no statewide economic incentives for green infrastructure. However, technological advances promise to close the cost gap and improve the effectiveness of green infrastructure in the coming decade, making it one of several important components to adequately and sustainably address Ohio's infrastructure crisis. It will be critical to further explore this cost gap and identify opportunities for cost- and flood abatement-neutral strategies that can replace parts of grey infrastructure projects. Organizations will need to create practical ways of encouraging communities to explore and commit to these types of projects regardless of their consent order status. Many of the communities not under consent orders have shown little interest in green infrastructure; changing this mindset could allow for additional, intrinsic benefits and economic development opportunities. These opportunities will need to be considered in relation to the negative aspects of green infrastructure to fully assess its true value. In a state with an extensive legacy of brownfield sites and other vacant and abandoned properties, there could be cost benefits to converting these sites for use as part of green infrastructure that should be factored into decisions about infrastructure upgrades.

## **Conclusions on the Role of Water and Sewer Infrastructure on Economic and Environmental Health**

Water and sewer infrastructure is critical to the health and welfare of Ohio's communities and represents an attractive asset for economic growth. Strict state and federal environmental regulations reduce the risk of a water contamination health crisis that might occur, as a result of CSO incidents or algae blooms. Revitalization decisions must strike a balance between public health concerns, basic system maintenance, and potential economic opportunities. In other words, while it would be ideal for districts to spend unlimited money in order to fully mitigate public health issues, cities and districts can only use funding that is available. Additionally, cities cannot spend all available funding on addressing public health challenges without addressing system maintenance.

Algae blooms have the potential to remain an ongoing health-threatening challenge for Ohio. While the Toledo Water Crisis brought public attention to the impact of agricultural runoff on the Great Lakes, it is

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<sup>55</sup> "Green Infrastructure in Cincinnati's South Fairmount/ Lick Run Project." Environmental Protection Agency. <http://1.usa.gov/1Roz8Cu>.

<sup>56</sup> Project Groundwork. "Lick Run Project." <http://projectgroundwork.org/projects/lowermillcreek/sustainable/lickrun/>.

<sup>57</sup> Interview with MaryLynn Lodor. Metropolitan Sewer District of Greater Cincinnati.

truly a statewide issue as many communities that draw water from lakes and rivers must contend with algae. Research is needed to assess how other agriculture-rich states deal with this issue and how multi-state efforts can impact the cleanliness of the Great Lakes. Future research should focus on the financing and funding opportunities other cities and states have created to deal with algae blooms. Also, it will be important to explore how other cities make financing and strategic decisions regarding water and sewer infrastructure in the context of business development.



## IV. Brownfields: An Untapped Asset

As discussed in Section II, while the state still offers a range of programs through its Ohio Brownfield Fund, elimination of the Clean Ohio Fund left many communities struggling to find ways to finance brownfields redevelopment or incentivize the private sector to remediate and redevelop brownfields sites. Under the current JobsOhio Site Revitalization Loan and Grant Fund, businesses are able to access favorable loans to complete a cleanup under certain conditions.<sup>58</sup> According to the JobsOhio brownfields financing requirements, a city must demonstrate “job creation or retention is highly likely if environmental risks can be understood,” meaning that cleanups that would provide exclusively health or other community benefits are not financeable through this program.<sup>59</sup> When the Clean Ohio Fund was eliminated and the JobsOhio Site Revitalization Loan and Grant Fund was formed, brownfield sites remediation and redevelopment slowed significantly in Ohio.

However, brownfields remain an untapped asset for Ohio’s cities and towns -- not only as potential parts of green infrastructure as mentioned above -- but also as business sites and economic regrowth anchors. Ohio has over 6,000 acres of brownfields. (See Appendix IV for maps of brownfield locations in certain Ohio cities.) While once viewed as environmental and development liabilities, remediation and reuse of brownfield sites have helped Ohio’s cities, villages, and townships avoid the high cost of developing new roads, sewers, and utility lines by redeveloping sites linked to existing infrastructure. Furthermore, many brownfields are centrally located, so their redevelopment can contribute to making Ohio’s cities’ and towns’ neighborhoods attractive and walkable – key locational attributes desirable to new generations of homeowners, taxpayers, and families. Locating businesses or residences on former brownfields sites located in center-city and close-in neighborhoods, or Main Street areas, also removes blight in places that are attractive for young community and business leaders to live and work.<sup>60</sup>

In 2013, GOPC’s report analyzing 21 representative redevelopment projects funded by the Clean Ohio Revitalization Fund<sup>61</sup> determined that:

- The projects resulted in a net positive value for the state’s investment, producing \$1.16 billion in one-time contributions and contributing \$1.4 billion annually to the state’s Gross Domestic product.
- Goods and services related to predevelopment activities alone produced a return on investment of \$4.67 in new economic activity for every one dollar spent by the program on the 21 projects.
- For every job created or sustained through activities directly tied to a remediated brownfield, more than one additional job was indirectly created or sustained by the 21 projects.

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<sup>58</sup> JobsOhio Site Revitalization Loan and Grant Fund. At the time of the publication of this report, it is reported that discussions are underway about JobsOhio providing some small grants for brownfields remediation and redevelopment.

<sup>59</sup> JobsOhio. “Kristi Tanner. JobsOhio Revitalization Program.”

<http://www.ohioenvironmentallawblog.com/uploads/file/kristi-tanner-presentation.pdf>.

<sup>60</sup> Well-known brownfield reuse examples in Columbus include the Harrison West residential neighborhood located on a former margarine factory site, and the Time Warner Cable and OSU Eye and Ear Institute buildings along Route 315, now sited on a previously unauthorized land fill.

<sup>61</sup> “Investing in Brownfields: The Economic Benefits of the Clean Ohio Revitalization Fund.” Greater Ohio Policy Center. 2013.

- Predevelopment and construction activities in the 21 projects created more than \$360 million in household and business earnings, while ongoing project operations produce almost \$500 million a year in household and business earnings annually.
- The 21 projects annually generate \$55 million in state and local taxes and were responsible for an additional \$42 million in one-time state and local taxes.

The Cleveland Department of Economic Development estimates it costs an average of \$13,000/acre to assess a brownfield site, and approximately \$66,000/acre to remediate contaminated sites. An estimated 35% of the assessment costs are subsidized by public funds, while an average of 32.6% of the costs for cleanup are funded through public dollars. Thus, remediating brownfields is expensive and cannot occur without some public funding. The Port of Greater Cincinnati Development Authority estimates \$25,000 of public subsidy per brownfield acre is required to attract private developers to prime properties along a major interstate. While such investments are resource-intensive, the data above indicates that they pay large dividends over the long term. Despite the high costs of brownfield remediation and the need for government grants to incentivize brownfields redevelopment, analysis of this remediation within Ohio confirms extraordinary returns.

## V. Alternative Programs and Leveraging Scarce Funds: Next Steps

Filling the funding gaps to address water and sewer infrastructure needs as well as brownfields redevelopment is challenging. Federal grants are highly competitive and come with strings attached even for the communities that do qualify. However, other states have implemented programming that Ohio could replicate that would allow communities of all sizes and income ranges to access funding in unique ways. While the challenges may be intensifying in Ohio, there are some solutions to generate additional funding, facilitate new financing options, or foster new strategic approaches. Some are mentioned here that will be part of a deeper investigation in Phase II of this study.

### Funding Solutions

Funding solutions address the ability of communities to find additional dollars for infrastructure and brownfield projects. Typical sources of funding include ratepayer fees, taxes, and grants. Future research will explore less conventional ways to foster additional funding.

More money is needed for water and sewer infrastructure needs statewide, but raising funds can be a challenge. Rate increases offer a straightforward path for districts, but have the potential to make water unaffordable for vulnerable residents and would likely frustrate many others. However, thoughtful approaches exist that can allow money to be raised without negatively impacting residents. Some of these are relatively straightforward, like seeking various federal grants and using a tax increment financing district (TIF) to finance locally. All funding solutions face a pragmatic barrier: someone somewhere is ultimately footing the bill—if not the ratepayers, then taxpayers in some form. Funding, however, is a critical part of solving the infrastructure puzzle facing communities. Some examples of approaches that will be explored in more detail in Phase II are:

- Tax Increment Financing (TIF)
- Establishing a state infrastructure bank (state-run Credit Union)
- Assessing storm water fees to residential customers

### Financing Solutions

To pay for projects, financing solutions allow communities to borrow money with via a loan from a public organization like OWDA or OEPA or through bond sales. However, some additional tools that are not widely used can open up new paths to financing and will be explored in Phase II.

Due to the large size of infrastructure and brownfield projects, communities often must take on debt to achieve economies of scale and ensure input costs are manageable and spread evenly. Additionally, there are some unintended consequences of larger communities' accessing the bond market, where their use of public sector loans reduces the pool of available funding for smaller cities. Other states, meanwhile, allocate cost reductions generated by energy savings to pay for upgrades. This is a largely untapped strategy in Ohio and will need to be reconciled with the large energy usage of water and sewer operations in a district, in order to leverage financing as a first step.

Below are some solutions that merit further attention and research:

- Public sector loans
- Private market bonds
- Bond bank structure
- HB420 energy savings
- Ameresco energy performance contracting

### Strategic Systematic Solutions

Finally, strategic approaches to create new structures that offer long-term benefits and save money may offer promising options for water and sewer districts. However, these solutions are limited in scale. Other states are experimenting with district consolidation and public-private partnerships. While these approaches may not work everywhere, some possible new strategic solutions to be investigated in Phase II include: public-private partnerships (aka “a P3 Strategy”) and encouraging shared services.

In the case of shared services, there are opportunities to create regional districts to leverage funds further. However, shared services have faced problems in the past, and there are negative perceptions in many communities about regionalization of services. Community leaders often view sharing services as giving up some control over their local system.<sup>62</sup> Historically, in most cases, shared service arrangements have involved a large community sharing with smaller ones nearby or a collective of small and/or rural communities coming together. The largest example of a shared service district in Ohio is NEORS, which serves 61 cities across two counties.<sup>63</sup>

Despite this history of negative perceptions, there is some new interest in shared services. The state’s Local Government Innovation Fund (LGIF) program administered by ODSA has demonstrated that shared services are much easier to design than before, and regionalization of services and/or local governments is being encouraged, in some instances. Putnam County is currently exploring the possibility of establishing a county-wide sewer system; the proposed new district is currently referred to as the Black Swamp Regional Water and Sewer District.<sup>64</sup> However, these types of agreements bring fresh challenges. For example, Plain City wants to enter into a shared services arrangement but cannot find another community that is close enough to tap into.<sup>65</sup> Caldwell is exploring the possibility of entering into a shared service agreement at the request of OEPA, but varying pipe sizes across communities pose a serious challenge.<sup>66</sup>

Regional sewer districts, such as NEORS, offer cost-saving advantages, but only a few communities have taken advantage of the statutory authority to establish regional sewer districts in Ohio. Regionalizing necessarily results in less control of the district for each city that joins, and many cities are reluctant to lose control. Phase II research will explore how other states create regional districts and

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<sup>62</sup> Interview with Cindy Hafner and Bill Fishbein. Ohio EPA.

<sup>63</sup> Northeast Ohio Regional Sewer District. “Your Community Map.” [http://www.neorsd.org/in\\_your\\_community.php](http://www.neorsd.org/in_your_community.php).

<sup>64</sup> Black Swamp Regional Water and Sewer District. “Home.” <http://www.blackswamprwsd.com/>.

<sup>65</sup> Interview with Wad Leimeister. Village of Plain City.

<sup>66</sup> Interview with Jason Weber. Village of Caldwell.

whether some of the strategies are replicable in Ohio. GOPC will also explore other funding sources, such as user fees, which can be assessed to provide funding for water and sewer infrastructure.

## VI. Conclusion

This Report documents the challenges and gaps in funding infrastructure in Ohio. Ohio has reached an important crossroads where our cities face either infrastructure failures and looming public health consequences or potentially skyrocketing water and sewer costs to residents.

Understanding the needs and gaps facing the state is only the first step toward identifying practical, affordable, and strategic solutions. In recent years, local governments have had to learn to do more with less, which is a trend that will continue. More work is needed to better understand the innovative solutions that could be developed and implemented in Ohio to address these challenges. The second phase of the project will investigate these solutions more deeply, analyzing the role they may play in Ohio and how they can be implemented or augmented throughout the state.

# Appendix I: Infrastructure and Brownfields Funding Programs

## **Infrastructure Funding and Financing Programs**

### **Alternative Stormwater Infrastructure Loan Program**

This program allows OWDA to provide loan financing of \$5 million to local government agencies that engage in alternative strategies for stormwater management, funding demolition, design, and construction. Loans are administered at below-market rates in order to construct green infrastructure projects. The program encourages relevant developers to partner with the recipient government agency; nonprofits and for-profits may receive a loan if they have entered into an agreement with a government entity. In order to receive the loan, recipients must prove that a plan for redevelopment of the property has been established and that the community will benefit economically as a result of the loan.<sup>67</sup>

### **Clean Water State Revolving Fund (CWSRF)**

CWSRF combines federal and state funds to provide loans to create wastewater treatment systems, green infrastructure projects, and other water quality projects. The EPA provides grants to each of the state CWSRF administrations; the states, in turn, add another 20 percent to match the federal grants. States then offer loans to recipients at an interest rate determined by the state but below market rate. Money is repaid using the state's revolving loan fund, whereby loans that are repaid are then cycled back into new projects elsewhere. Repayment periods can be up to 30 years and loan recipients can exercise considerable latitude in determining the projects that are in most need of upgrade.<sup>68</sup>

**Hardship Grant Program for Rural Communities** is meant to supplement CWSRF.

### **Community Development Block Grant**

CDBG offers an opportunity for small, low-income communities to access additional funds for infrastructure. The grant is a flexible fund that allows governments in urban, suburban, and rural communities to partner with the private and nonprofit sectors to bolster community development programs. These funds are automatically awarded to cities with at least 50,000 people and counties with 200,000 people. Generally, CDBG is used for upgrades to decayed housing and water infrastructure improvements.<sup>69</sup>

### **Flood Mitigation Assistance Grant Program**

FEMA's Flood Mitigation Assistance Grant Program (FMA) provides funding to states, local governments, and private nonprofits in order to reduce risk of long-term flood damage. The maximum awards for this program are \$50,000 to states and \$25,000 to local entities. In general, local communities will complete and submit to their state government an application filed by individual homeowners. Along with local

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<sup>67</sup> Ibid.

<sup>68</sup> US Environmental Protection Agency. "Learn about the Clean Water State Revolving Fund"

<http://www2.epa.gov/cwsrf/learn-about-clean-water-state-revolving-fund-cwsrf>.

<sup>69</sup> National Association of Counties. "2015 Policy Brief." <http://www.naco.org/resources/support-local-development-and-infrastructure-projects-community-development-block-grant-0>.



communities, states, territories, and nationally-recognized tribes may sponsor an application. In 2013, federal funding was increased for repetitive loss properties and severe repetitive loss properties.<sup>70</sup>

### **Local Government Innovation Fund (LGIF)**

Administered by ODSA, the LGIF incentivizes communities to more efficiently delivery services and facilitate business growth, community involvement, resource sharing, and collaboration. Recently, LGIF has demonstrated that shared services are much easier to craft than before, and there is a push by ODSA to encourage regionalization of local governments. Through grants, loans, and scholarships, LGIF offers financial assistance to projects and studies that share resources and demonstrate efficiencies through shared service delivery. For projects, loans are capped at \$100,000 in loan assistance per entity and at \$500,000 in grant funds per project.<sup>71</sup>

### **Tax Increment Financing**

Tax Increment Financing (TIF) promotes project investment by exempting developers from paying any increase in property tax as a result of new projects. Instead, developers must make payments in lieu of taxes (PILOTs) in order for local governments to retire debt incurred for infrastructure upgrades. Thus, TIFs allow local governments to pay for necessary infrastructure improvements to supplement new developments without raising property taxes that otherwise would naturally occur following substantial property development. TIFs can be used for a number of public infrastructure projects, including water and sewer lines and storm water and flood remediation.<sup>72</sup>

### **Water and Waste Disposal Loan and Grant Programs**

These are administered by the USDA and provide loans or grants to rural areas facing health risks. Eligible recipients include local governments, federally-recognized Indian tribes, and nonprofits. Areas receiving grants must have populations of less than 10,000. Median household income cannot exceed 70 percent of the national average while the unemployment rate of that area must be above 125 percent of national average. Loans can be used for improving old or installing new systems used for sewer or storm water collection or drinking water functions. Flexible repayment terms and a fixed interest rate ensure that the loan is paid back within a maximum of 40 years. The maximum amount awarded in grant funds during FY2014 was \$6.3 million, while the average was \$2.6 million.<sup>73</sup>

### **Water Infrastructure Finance and Investment Act (WIFIA)**

This federal program provides low-interest loans to large state wastewater and water reuse projects that are in need of funds. Only recently established, WIFIA has not yet financed a project and is modeled after its sister program in the transportation sector, TIFIA. Approved loans may cover up to half of the project cost, in order to ensure that ownership of the project does not become private. Interest rates for WIFIA are determined by the Treasury rates, which lowers the capital cost for borrowers. Because an established repayment mechanism exists with water rates, there is reduced repayment risk than that

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<sup>70</sup> FEMA Fact Sheet. "FY 2015 Flood Mitigation Assistance Grant Program." <http://www.fema.gov/media-library-data/1432847398289-878c470e718239eedcaadc8d52ea1823/FMAFactSheetFY2015.pdf>.

<sup>71</sup> Ohio Development Services Agency. "Local Government Innovation Fund" [http://development.ohio.gov/summary\\_16lgif.htm](http://development.ohio.gov/summary_16lgif.htm).

<sup>72</sup> Ohio State University Extension Fact Sheet. "Ohio's Tax Increment Financing Program." <http://ohioline.osu.edu/cd-fact/1559.html>.

<sup>73</sup> Catalog of Federal Domestic Assistance. "Water and Waste Disposal Loans and Grants (Section 306C)." <https://www.cfda.gov/index?s=program&mode=form&tab=core&id=ea9ab3ed9c2d8cb42f818ba8472379be>.

involved with the transportation loans. Many activities are eligible for assistance including project development, planning, and construction.

#### **Un-Sewered Area Planning Loan Program (OWDA)**

This program incentivizes local governments to build sewers in unsanitary areas. Having established a functioning sewer system, local governments increase their chances of receiving funds from the American Recovery and Investment Act. The maximum loan amount for this program is \$500,000.<sup>74</sup>

### **Brownfields Funding Programs**

#### **Brownfield Loan Program (OWDA)**

The Ohio Brownfield Fund provides cleanup technical assistance to local municipalities and port authorities through loans of up to \$5 million to businesses, communities, and nonprofits, and small loans to local governments and nonprofits. The assessment loan is \$500,000 and lasts up to five years while the remediation loan is \$5 million and lasts up to ten years. The goal of these loans is to re-purpose and encourage future use of land that is abandoned or underutilized. This program may be used for purposes such as planning, Phase II Environmental Assessment, and Environmental Cleanup. The loans may be repaid up to ten years in the future under the condition that the borrower demonstrates an ability to repay.<sup>75</sup> During Phase II Environmental Assessment of brownfields, loans are capped at \$500,000 and can also be repaid up to ten years later under flexible terms with a below market rate interest rate. Funding is provided by the US EPA and OEPA.<sup>76</sup>

#### **Cuyahoga County Brownfield Community Assessment Initiative**

This initiative provides Phase I and Phase II site assessments to locations in Cuyahoga County. The County contracts the assessment services out to environmental consulting firms. The assessment is available to public agencies, nonprofits, businesses, and developers in the County; however, the funds cannot be accessed by entities that caused any part of contamination.

#### **Cuyahoga County Northcoast Brownfield Coalition Assessment**

This grant program is administered by the Cuyahoga County Department of Development. The fund offers environmental assessments in order to understand the challenges facing the property and to enable further development of the property. Funding through this program may be for Phase I and Phase II Environmental Site Assessments, investigating Underground Storage Tanks, and for remedial action plans.<sup>77</sup>

#### **JobsOhio Site Revitalization Loan and Grant Fund**

This program replaced the Clean Ohio Fund and supports demolitions, site preparations, infrastructure, and building renovation. Available Funding includes Site Improvement Loans, Site Improvement Gap

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<sup>74</sup> Ibid.

<sup>75</sup> Ohio Development Services Agency. "Community Grants, Loans, Bonds, and Tax Credits."

[http://development.ohio.gov/cs/cs\\_brownfield.htm](http://development.ohio.gov/cs/cs_brownfield.htm).

<sup>76</sup> Ibid.

<sup>77</sup> City of Cleveland Economic Development. "Cuyahoga County Brownfield Redevelopment Resources."

<http://rethinkcleveland.org/For-Site-Selectors/Brownfields-Redevelopment/Cuyahoga-County-Brownfield-Redevelopment-Resources.aspx>.

Grants, and Asbestos and Lead Paint Abatement Grants. Site Improvement Loans can cover up to 75 percent of total project cost while Site Improvement Gap Grants provide up to \$1 million in assistance.<sup>78</sup>

#### **Ohio Brownfield Revolving Loan Fund**

Maximum loans for the Revolving Loan Fund are \$1 million for asbestos contamination and \$300,000 for petroleum. Loans are offered under 9 year repayment terms with a maximum fixed interest rate of 2 percent. Local governments and nonprofits are eligible for 50 percent principle forgiveness for projects involving petroleum.<sup>79</sup>

#### **Ohio Water Pollution Control Loan Fund (WPCLF)**

This state program offers assistance in the form of loans for wastewater treatment, new sewers including storm sewers, facilities for un-sewered areas, and combined sewer overflow correction. Loans for this program are administered at interest rates below the market rate. Eligible borrowers include most large public and private institutions, while small borrowers can obtain indirect loans through deposit programs. Loans are available to local governments in order for them to establish local revolving loan funds or connected deposit programs. The WPCLF fund may be combined with some specific state or national funding programs.

#### **State Capital Improvement Program (SCIP)**

This program is administered by the Public Works Commission and run concurrently with the Local Transportation Improvement Program. Cities, villages, townships, counties, villages, and water and sanitary districts may apply for grants, loans, and loan assistance. Wastewater systems, water supply systems, and storm water collection are among the project types eligible to receive funds. Awarded loans may cover the entire project cost if needed, while a mixture of grants and loans is also available. The timeline for repayment may not go beyond the lesser of either the life of the project or 30 years. SCIP contains two notable associated sub-programs: villages and townships may apply for the Small Government Program if their population is less than 5,000. An emergency program can be accessed when immediate health and safety threats emerge.<sup>80</sup>

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<sup>78</sup> "JobsOhio Revitalization Fund – Phase II Environmental Site Assessments Program Summary." [http://jobs-ohio.com/images/JobsOhio\\_Revitalization\\_Summary\\_Phase\\_Two.pdf](http://jobs-ohio.com/images/JobsOhio_Revitalization_Summary_Phase_Two.pdf).

<sup>79</sup> Ohio Environmental Protection Agency. "Creative Tools for Brownfield Redevelopment." [http://epa.ohio.gov/portals/30/sabr/docs/a\\_training/ODSA.pdf](http://epa.ohio.gov/portals/30/sabr/docs/a_training/ODSA.pdf).

<sup>80</sup> Public Works Commission. "The OPWC and its Programs." <http://www.pwc.state.oh.us/OPWCOverview.html>.

## Appendix II: List of Project Interviewees

Cindy Hafner and Bill Fishbein  
Ohio Environmental Protection Agency  
October 17, 2014

Scott Campbell and Ken Heigel  
Ohio Water Development Authority  
October 20, 2014

Bonnie Buthker, Glen Vonderembse, Marianne Mansfield, Rick Wilson, and Pejmaan Fallah  
Ohio Environmental Protection Agency, Southwest District Field Office  
November 21, 2014

MaryLynn Lodor  
Metropolitan Sewer District of Greater Cincinnati  
January 7, 2015

Katie Courtright  
Ohio Development Services Agency (now at Ohio Environmental Protection Agency)  
February 11, 2015

Ed Haller and Robert Stahl  
City of Warren  
February 23, 2015

Warren Henry  
City of Toledo  
February 24, 2015

Gennie Hannah, Mike Bitchesk, Nicholas Meier  
Akron Water District  
February 26, 2015

Tracy Mills  
City of Canton  
February 27, 2015

Paul Schmelzer  
City of Findlay  
March 11, 2015

Julius Ciaccia, Frank Greenland, and Kyle Dreyfuss-Wells  
Northeast Ohio Regional Sewer District  
March 11, 2015

\*Mark Keyser  
City of Dover  
March 12, 2015

\*T. Michael Sudman  
City of Celina  
March 12, 2015

\*Henry Biggert  
Carroll Township, Ottawa County  
March 17, 2015

Rick Westerfield and Dax Blake  
City of Columbus  
March 17, 2015

\*Joe Warino  
City of Canfield  
March 18, 2015

\*Wade Leimeister  
Village of Plain City  
March 18, 2015

\*Chad Lulfs  
City of Napoleon  
March 18, 2015

\*Aaron Buckner  
Village of Waverly  
March 18, 2015

\*Tom Bleidorn  
Clark County  
March 18, 2015

\*Bob Stewart  
Jefferson Township, Franklin County  
March 19, 2015

Evans Paull  
Redevelopment Economics  
March 20, 2015

\*Jason Weber  
Village of Caldwell  
March 20, 2015

Jason Rittenburg  
CDFA  
March 25, 2015

Cindy Hafner, Alauddin Alauddin, and Laurie Stevenson  
Ohio Environmental Protection Agency  
April 22, 2015

Sadicka White  
Ohio Development Services Agency  
April 22, 2015

\* Interviews conducted by MORPC

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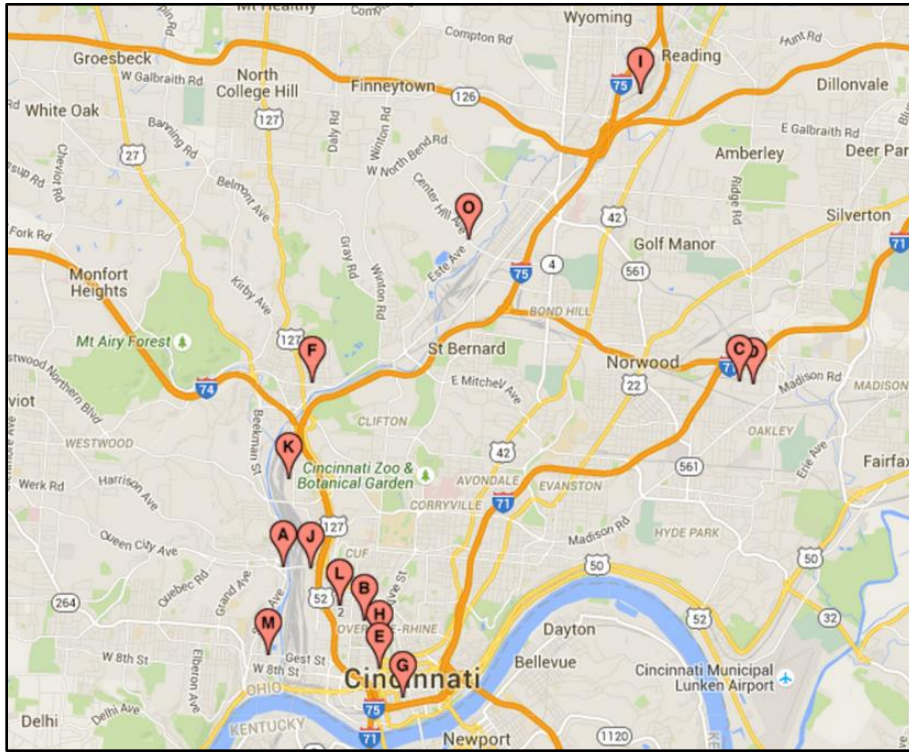
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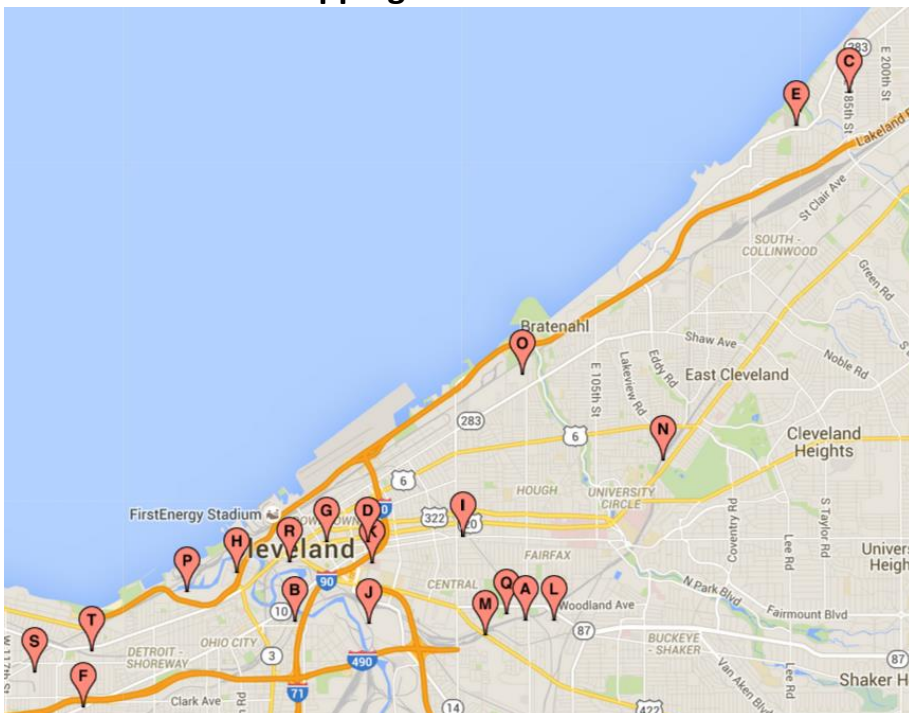
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# Appendix IV: Brownfield Site Maps

## EPA Brownfields Mapping - Cincinnati



## EPA Brownfields Mapping - Cleveland



# EPA Brownfields Mapping – Youngstown

