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REPORT

WASTED

HOW TO FIX AMERICA'S SEWERS

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About the Author

Aaron M. Renn is a senior fellow at the Manhattan Institute, a contributing editor of *City Journal*, and an economic development columnist for *Governing* magazine. He focuses on ways to help America's cities thrive in an ever more complex, competitive, globalized, and diverse twenty-first century. During Renn's 15-year career in management and technology consulting, he was a partner at Accenture and held several technology strategy roles and directed multimillion-dollar global technology implementations. He has contributed to the *Guardian*, Forbes.com, and numerous other publications. His perspectives on urban issues are regularly cited in the *New York Times*, *Washington Post, Time, The Economist, Daily Telegrap*h, and other international media.

Renn holds a B.S. from Indiana University, where he coauthored an early social-networking platform in 1991. He has created several widely used open-source software packages, including the only program for recovering data from corrupted gzip backups. In 1998, Renn launched one of the nation's first blogs, the Weekly Breakdown, to cover the Chicago Transit Authority.

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Executive Summary

The biggest capital project, by far, in many American cities is one that few of their citizens even know about and that almost none has ever seen: the legally mandated retrofitting of "combined sewers," sewers in which storm-water runoff and sanitary waste from buildings are channeled into the same pipes to reduce or eliminate overflows of untreated wastewater into local waterways.

These combined-sewer projects—whose price tag will run into billions of dollars in some places—represent large unfunded mandates. Although the federal government, via the Clean Water Act, is requiring cities to undertake such projects, the bulk of federal funding for sewers comes in the form of loans that must be repaid: in most cities, local citizens and property owners will pay the vast majority of the costs through higher utility bills, property taxes, and other local funding sources.

These sewer projects will improve local water quality and reduce flooding but will also come with significant negative side effects. Many such projects will be undertaken in postindustrial cities still reeling from population and job losses and struggling to address high poverty levels. Raising sewer rates to pay for expensive combined-sewer overflow remediation will serve as a de facto regressive tax on lower-income households, while rendering such cities even less competitive economically.

To achieve Clean Water Act compliance in a way that minimizes the impact on lower-income residents and on economic competitiveness, these localities require significant assistance, such as support for a more aggressive shift to green infrastructure; modifying sewer rate structures; revisiting EPA affordability guidelines; renewed or enhanced federal and state aid; and redirecting other aid sources to sewer-mandate compliance.

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HOW TO FIX AMERICA'S SEWERS

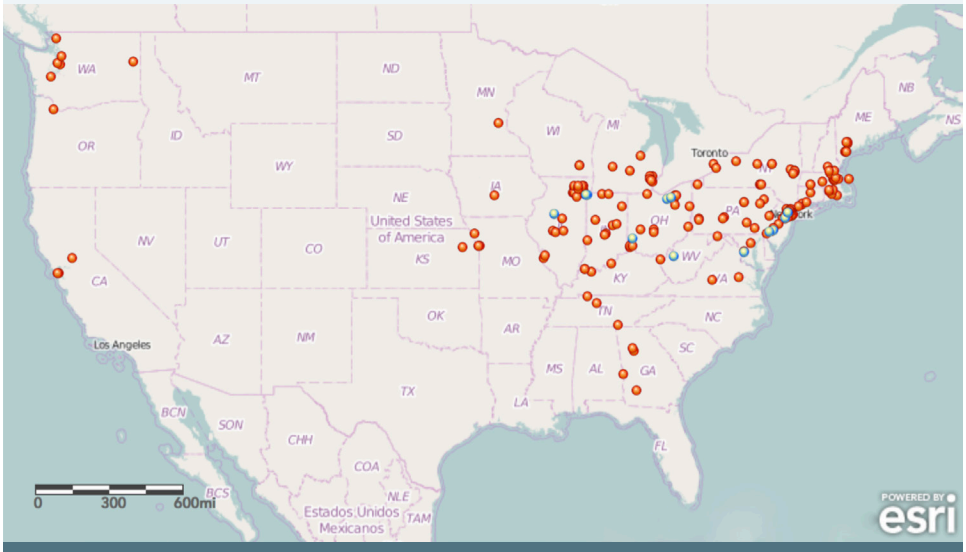
I. Introduction

In the nineteenth century, drainage problems and sanitation and health crises led many cities to develop sewer systems. In 1855, Chicago became the first U.S. city to have a comprehensive sewer system.[1] Boston began building one in 1876.[2]

Most of these early systems were built as so-called combined sewers—sanitary wastewater from buildings was combined with storm-water runoff into the same pipe system. The alternative approach, a "separated" sewer system, which uses different pipes for storm-water runoff and sanitary wastewater, was also implemented in the nineteenth century, especially in Europe. But different rainfall patterns made combined sewers more attractive in America. Today, 772 U.S. cities have combined sewers, mostly in the older industrial regions of the Northeast and Midwest (**Figure 1**).[3]

FIGURE 1.

U.S. Combined-Sewer Systems Serving Populations of 50,000 or More



Source: Environmental Protection Agency[4]

In the nineteenth century, sewage was not treated, so the choice of piping system did not affect treatment levels, as it would today. Recall, too, that this was the era of horse-drawn transportation: urban streets were full of horse manure and, often, dead animals;[5] industrial and stockyard runoff left waterways heavily polluted. For cities with occasional heavy rainfalls that made storm sewers a necessity, it did not make sense to build two sewer systems. For these cities, "dilution was the solution."

II. Combined-Sewer Overflows and Their Remediation

Ultimately, sewage treatment was added for both combined sewers and the sanitary portion of separated systems. But for cities with combined sewers, there is an additional challenge. Normally, wastewater is treated—and thus is clean—before being discharged into local streams, rivers, and lakes. Heavy rainfall, however, can overwhelm the capacity of combined sewers and treatment systems. In these cases, the sewer systems will overflow, dumping untreated (if diluted) wastewater into local waterways at overflow points—"combined-sewer overflow" (CSO).

The Clean Water Act of 1972 targeted the cleanup of America's waterways from the legacy of the industrial age, including CSOs. In 1994, the Environmental Protection Agency (EPA) issued its CSO control policy, which requires cities to substantially eliminate CSOs in order to comply with the Clean Water Act. Though today the human-health impact of CSOs is limited, the federal mandate seeks to make local waterways clean enough for swimming and fishing.

The EPA has since undertaken enforcement actions and sued cities and independent sewer districts across the U.S. for non-compliance: under the "polluter pays" principle of environmental law, such entities are responsible for what were, at the time, legal and appropriate decisions. EPA-enforcement actions have frequently resulted in consent decrees specifying mandated investments to achieve compliance. But even without a consent decree, every city with combined sewers has had to take action to achieve compliance.

Remediation actions vary from place to place, depending on the specifics of the sewer system. Some cities are increasing their treatment capacity; others must upgrade the capacity of sewer lines to transport wastewater to the treatment facility. Some cities are constructing "deep tunnel" projects—large-diameter tunnels bored far underground to store excess wastewater that temporarily exceeds the system's treatment capacity; others are undertaking separation projects to separate sanitary and storm sewer pipes.

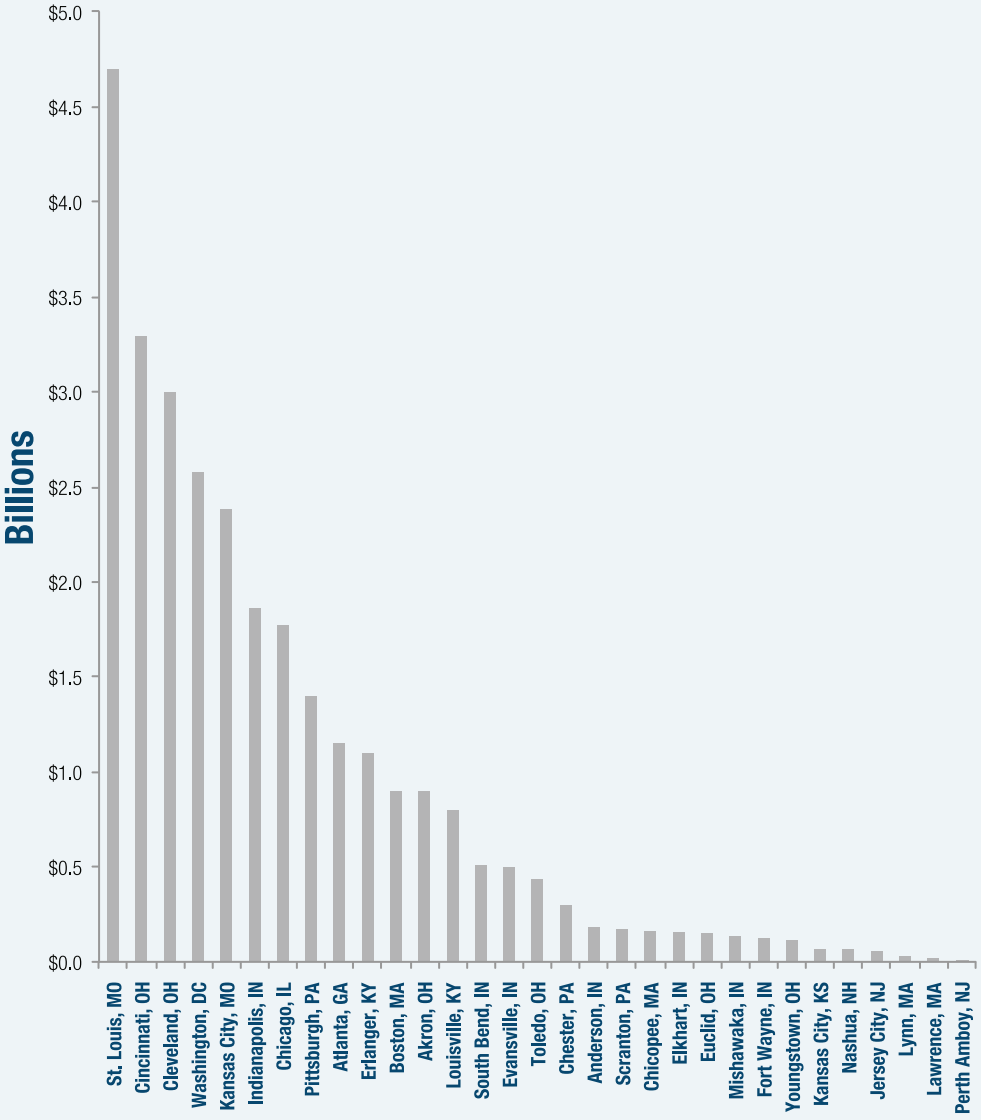
More recently, cities such as Philadelphia have turned to "green infrastructure" solutions, such as bioswales (gently sloping detention trenches with plants that filter and slowly discharge storm water into the ground), in an attempt to reduce storm-water runoff. Green infrastructure can be less expensive to install, can deliver benefits sooner, and can have more ancillary community benefits than traditional solutions. These various approaches to CSO remediation are typically implemented in combination, though the specific mix is unique to each city.

III. Remediation Costs

In a 2012 report to Congress, the EPA estimated a need for $48 billion in CSO-remediation capital projects.[6] Given the difficulty of estimating long-term costs, this may actually understate the total. The EPA's 31 current consent decrees list $29 billion in projected costs for those 31 cities alone (**Figure 2**).[7]

FIGURE 2.

Estimated CSO-Remediation Cost at Time of Consent Decree



Source: Environmental Protection Agency[8]

While CSO-remediation costs are highly variable from city to city, they can sometimes be astronomical. The following examples demonstrate the situations—and solutions—that five cities or independent sewer districts are pursuing.

Cleveland. Served by a regional utility, the Northeast Ohio Regional Sewer District (NEORSD), whose service territory includes 1.1 million people, Cleveland is a prime example. NEORSD's EPA consent decree anticipated $3 billion in capital investment. Savings identified during project development have reduced this amount by about $300 million, for a new cost of $2.7 billion. NEORSD's compliance plan, Project Clean Lake,[9] includes construction of seven major new tunnels, as wide as 24 feet in diameter.[10]

At the time the NEORSD consent decree was signed, the projected completion date was 2035, for an average of $135 million in annual outlays. Cleveland's 2015 general fund operating budget is $542 million:[11] the sewer project's average annual cost thus is equivalent to 25 percent of the city's entire general fund operating budget. Or consider Cleveland's unfunded pension liability of $719 million[12]—making the sewer project nearly four times the size of Cleveland's unfunded pension liability. While the sewer district is independent of and larger than Cleveland itself, the cost of the city's CSO-remediation initiative dwarfs every other major civic undertaking in the region.

St. Louis. The Metropolitan St. Louis Sewer District (MSD) is the fourth-largest wastewater agency in America, serving 1.3 million people over 525 square miles and covering most of St. Louis County and the independent city of St. Louis. MSD's project to remediate CSOs and other system issues is—in addition to the $2.7 billion in investments already made

during 1992–2012—the $4.7 billion "Project Clear."[13] MSD describes the work as "equivalent to constructing 11 Busch Stadiums, rebuilding I-64 nine times, or erecting seven new Mississippi River bridges."[14] However, unlike those other regional capital projects, the sewer project is not easily visible to the public eye because so much of it is underground ("The $4.7 Billion Construction Project You Will Never See," was a headline in the *St. Louis Business Journal*).[15]

Over the 23-year implementation period, average annual expenditure will equal $203 million. In contrast, the 2015 general fund budget of St. Louis is $484 million;[16] the 2015 general fund budget of St. Louis County is $261 million.[17] Average annual sewer project spending will thus equate to 27 percent of the combined $745 million city-county annual general fund budgets. (As with Cleveland, MSD is an independent agency.)

Philadelphia. Philadelphia has received significant press for being the first major city to attempt to meet CSO regulatory requirements using a primarily green infrastructure approach—the "Green City, Clean Waters" project.[18]

Combined sewers overflow because heavy rains overload pipes and treatment facilities. Green infrastructure attempts to address this problem by reducing the flow of storm water into the sewer system. Much of the storm water flowing into sewers is runoff from impermeable surfaces, such as roofs, asphalt streets, and parking lots. Green infrastructure seeks ways to allow this rainwater to be absorbed into soils naturally or to be otherwise captured on the surface without flowing into sewers. Philadelphia's green-infrastructure solutions include developing green streets with features such as bioswale-type landscaping and tree pits (similar in appearance to traditional tree lawns but designed to capture and manage storm water) and permeable pavements. Various green-drainage features in parking lots, green roofs, and elsewhere are also being pursued, as well as traditional, non-green ("gray") infrastructure solutions.

Philadelphia's program is innovative but not cheap: $2.4 billion in capital over 25 years,[19] nearly half as much as the city's $5.5 billion unfunded pension liability. However, using a green approach confers other advantages. First, unlike a deep tunnel, it can be deployed incrementally and deliver benefits sooner. Second, unlike underground storage tunnels, it can be used to provide landscaping and other urban greenery with ancillary value to the community. Most cities today are including at least some green elements in their CSO-remediation plan, but Philadelphia was the first large-scale plan to emphasize green infrastructure.

Buffalo. The Buffalo Sewer Authority (BSA) serves 450,000 people across 110 square miles in Buffalo and surrounding communities. Buffalo is fortunate: at an estimated $380 million over 19 years, its costs will be less than those of some other cities.[20] About 30 percent of Buffalo's program is dedicated to green infrastructure. The BSA believes that the rate impact on customers, in terms of future increases, will be minimal and that much of the program can be financed over time by borrowing more, as older bonds are paid off. Nevertheless, the majority of this money will come from ratepayers—Buffalo's unfunded pension liability is $141 million, or half the CSO-remediation bill. Though the BSA serves more than the city of Buffalo, this example again illustrates the scale of the CSO-remediation challenge.

Milwaukee. Milwaukee is a relatively unique case: it is in compliance with the Clean Water Act and so has zero CSO-remediation liability. In 1970, Chicago sued its neighbor to the north over sewer overflows into Lake Michigan, the source of drinking water to both communities.[21] In response, Milwaukee built a deep tunnel and other improvements to hold excess sewage to prevent overflows. Milwaukee's remediation program cost $3 billion; today, the city is able to treat 98.3 percent of all water during storms.[22] Indeed, the Chicago lawsuit turned out to be a partial blessing in disguise, spurring Milwaukee to get ahead of the CSO-compliance curve—and, as discussed below, to obtain federal grants to pay for more than half the project.

IV. The Combined-Sewer Rust-Belt Connection

As Figure 1 shows, CSO-remediation costs—as with infrastructure repair challenges generally—are heavily associated with older industrial cities, which have seen large-scale job losses in manufacturing. Many Rust Belt cities have also lost population. Even in regions where the overall metropolitan population has grown, population loss in the core city (the older, central part of the region is where combined sewers are generally located) has been substantial—in some cases, half or more of the peak population. A high percentage of residents who remain are poor.

The federal government previously made construction grants available for wastewater projects, peaking at $7.3 billion in 1977.[23] From 1970 to 1995, these grants totaled $60.9 billion,[24] helping some cities to get ahead of the curve on CSO remediation. Milwaukee, as noted, was one such city: the federal government paid 55 percent of the cost of its deep tunnel. While Milwaukee still had to pay a lot locally,

the burden was significantly reduced, thanks to federal assistance. Starting in 1987, however, federal grants were substantially eliminated. Instead, such grants were used to capitalize State Revolving Fund loan programs (though some funds continued to be granted to local wastewater projects via earmarks). Henceforth, local wastewater utilities would primarily receive loans, not grants.

The net effect was to shift the cost burden of CSO remediation increasingly to local utilities, which would recover costs predominantly through sewer bills (though property taxes and non-ratepayer sources would be used, in some cases). As a result, the citizens and property owners of many of America's cities hit hardest by deindustrialization would also pay for the bulk of CSO-remediation costs.

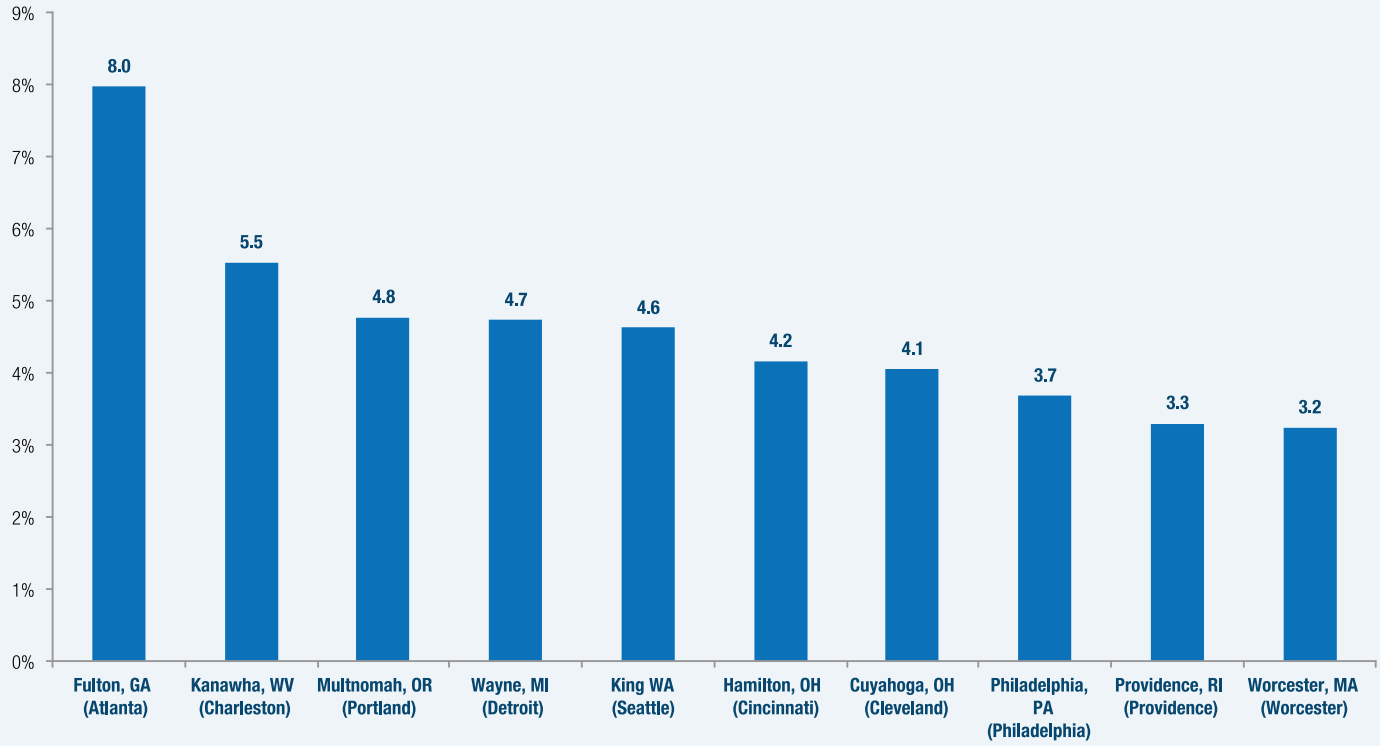
Consider Cleveland, again. The city's residents and investors, as well as those in the surrounding suburbs that are part of its regional-sewer utility, are going to pay the majority of the costs of Cleveland's CSO-remediation project. The city's population, which peaked at 914,808 in 1950, had plunged to 389,521 by 2014—a decline of 57 percent. Cleveland's poverty rate is about 37 percent;[25] it has suffered large-scale deindustrialization; and it was one of the cities hit hardest by foreclosures during the subprime housing crisis.

Yet Cleveland is seeing nascent revitalization, especially in its urban core, of a type not seen in a long time. It added 4,000 residents to its downtown during the 2000s—a sea change in a city that has seen massive population loss. World-class institutions, such as the Cleveland Clinic, are growing. These positives would be brighter still if the city and its inner suburbs were not on the hook for a $2.7 billion sewer liability.

These huge sewer costs are, as noted, legally mandated by the federal government; localities have no choice but to spend the money. As Springfield, Ohio, mayor Warren Copeland complained: "This is the biggest, hugest unfunded mandate that I've ever seen in the time I've been in public life. Basically, the EPA at the federal level is prepared to tell us that we have to keep spending money and there's no help from the feds to deal with it. It's just a disaster from my point of view. There doesn't seem to be any way out of it."[26] This means major rate increases. For its part, Springfield has sufficiently satisfied the EPA that it is not under a consent decree; but it is still spending big, proposing to raise sewer rates by 7 percent (well above the rate of inflation) each of the next three years to help fund the program.[27]

FIGURE 3.

Average Sewer Bill as Percentage of the 20th Percentile of Household Income



Source: University of Cincinnati Economics Center[30]

The cumulative impact of these rate increases can be substantial. For example, in Providence, Rhode Island, the average sewer bill has gone from $130 annually in 1996 to $470 today, in part to pay for that city's remediation program. If its Phase 3 plans are approved, household bills will rise to $670 by 2020—a 43 percent increase in just five years—with more to come.[28]

The EPA does take affordability of sewer bills for residential customers into account when considering local remediation plans. Though it views affordability as a continuum, average residential sewer bills must, as a rule, exceed 2 percent of median household income to be classified as a "high" financial burden. The EPA should be given credit for including affordability in its enforcement actions. Yet its current measures of affordability, from both a resident and civic perspective, have significant limitations.[29]

One key limit of the EPA's approach is that the use of median income does not fully capture the impact of sewer bills on lower-income households. Jeff Rexhausen of the University of Cincinnati calculated the sewer-bill burden for many large U.S. counties for those at the 20th percentile of household income. Select cities are shown in **Figure 3**.

In a number of cities, even current sewer rates represent a material portion of lower-income households' budgets. And not all these cities are in the Rust Belt, evidence that low-income affordability problems can affect any city. As Figure 3 shows, many of these significant sewer rate increases will be most keenly felt in low-income households: directly, as sewer bills for those who pay their own utilities; or as rent, for those who do not. The EPA's CSO-remediation mandates thus act as a highly regressive tax.

These household remediation bills may not seem much; but consider them in the context of surveys that find that a majority of Americans do not have enough money to pay an unexpected $500 expense.[31] In Detroit, plans by the water and sewer department to start disconnecting customers for nonpayment provoked a political uproar among the city's low-income residents. For Americans living paycheck to paycheck, any increase in true essentials, like water and sewer service, makes a big difference.

This infrastructure squeeze on postindustrial cities is highlighted by the recent case of Flint, Michigan. Flint previously received drinking water from Detroit's water utility. By building its own pipeline to Lake Huron, the Flint area hoped

to pay less than it would to buy water from Detroit. It would also decouple Flint from bankrupt Detroit, which hoped to use its water utility as a revenue generator.[32]

After Flint decided to build its own pipeline, Flint needed an interim water source and decided to utilize the Flint River. However, it failed to treat the river water properly, leading to contamination from water-pipe corrosion. Flint's lead water-pipe infrastructure could cost up to $1.5 billion to replace.[33] While Flint is a drinking-water, not a wastewater, matter, it has brought significant attention to the fact that shrinking postindustrial cities are unable to afford the staggering infrastructure costs that they face—the scale of which is of the same magnitude that some communities face for CSO remediation.

This challenge also illustrates the fact that these cities have far more infrastructure needs than CSO remediation alone, including items that more directly affect human health and well-being, such as replacing aging and leaky water pipes, repairing streets and sidewalks, and topping off unfunded pension funds. Each of these can run to over a billion dollars, depending on the city, and collectively pose an immense challenge to such cities. Because sewers are typically paid for by utility ratepayers (not from the general fund) or are run by an independent sewer district, CSO remediation will not result in "crowd out" per se. But there is a limit to how much citizens and businesses can cumulatively pay for all these needs.

In addition to the direct burden on localities and their citizens, higher rates contribute to the overall cost climate that makes these cities less competitive for residents and businesses—not only compared with newer cities that have separated sewage systems but also, sometimes, with their own suburbs that have separated systems. Even where the combined-sewer service area is part of a larger regional sewer district, there are often newer suburban communities that are outside the "regional" district. While sewer bills are often not a major expense compared with some other items, increases from CSO-remediation initiatives constitute part of the overall stack of legacy costs.

V. Conclusion

How should localities, as well as state and federal governments, respond to the CSO-remediation financing challenge, particularly in struggling postindustrial cities? Strategies could include embracing green-infrastructure solutions, optimizing local sewer rates and financing, revising federal affordability criteria, restoring direct federal grants for CSO compliance, and redirecting other funding streams to CSO remediation. Beyond policy, one needed change is simply to bring more public attention to the CSO-remediation challenge and the huge scale of the costs that it often imposes.

Embrace green infrastructure. Cities should aggressively evaluate and implement green-infrastructure solutions to CSOs; state and federal environmental agencies should robustly support doing so, even if it means modifying previously agreed-upon remediation plans. Green infrastructure is preferred for two reasons. First, green—in this case—is the color of money: it is often cheaper; and let Philadelphia provide the template, with cost savings utilized as a guide to which green solutions make sense.

The second reason is that many forms of green infrastructure provide additional public benefit beyond simply eliminating CSOs. For example, bioswale-type storm-water detention along streets can be integrated as a form of landscaping and greenery. Indeed, many of these cities need to make investments in streets, anyway; doing so with a green street design can kill two birds with one stone. Conversely, the deep-tunnel concept of (extremely expensive) underground storage tunnels used only for storing excess wastewater—and then only a limited number of times per year in heavy rains—is an inherently dubious use of public funds.

One risk of green infrastructure is that long-term maintenance costs are not yet known. Additional analysis should be put into properly estimating long-run costs so that communities can make financially appropriate decisions on infrastructure in light of the total cost of ownership.

Revisit and optimize local sewer rate structures. Sewers are financed using different mechanisms in different cities. A utility that bills for sewage services, based on water consumption, is the principal model. (Utility charges can be flat rate, tiered, etc.) Some locations also obtain revenue from property taxes and other sources.

For example, Cleveland's system is financed through sewer bills, with a small residential base charge, plus a flat usage fee per thousand cubic feet of water consumed. Lower rates are available for those who can demonstrate financial need.[34] In Chicago, sewers are charged as a fixed percentage of the water bill. Some residential customers still have unmetered water and pay a fixed charge for service.[35] Others pay a volumetric rate.[36] Additionally, Chicago's Metropolitan Water Reclamation District, the agency that treats the city's wastewater, obtains financing from property taxes.[37]

A detailed recommendation for rate structures is beyond the scope of this paper. But localities—and states whose laws can determine local sewer financing—should examine their financing structures to optimize the way sewer costs are re-

covered to achieve the right balance: not burdening low-income households and not harming the business climate with excessive industrial-utility charges.

Revise federal affordability guidelines. The EPA should consider further revisions to its affordability guidelines for residents and communities to take a more nuanced account of lower-income residents and communities facing structural economic challenges, such as postindustrial cities.

Changes could include more specifically examining low-income households (not simply using the regional median income); adding criteria—such as the poverty rate, absolute unemployment rate, and totality of costs facing the community, including pensions and debt—to better identify distressed communities; and factoring in housing costs in higher-cost locations. Indeed, sound recommendations, based on detailed evaluations of the EPA's affordability criteria, have already been published.[38]

Renew federal construction grants for wastewater projects designed to comply with federal mandates. The federal government created the mandate for these localities to reduce their CSOs; it should put its money where its mandates are. This need not mean creating an open-ended program of renewed grants, but rather a limited program designed to finance the transition to Clean Water Act compliance for these localities, of which CSO remediation is a part.

The $48 billion CSO remediation-cost estimate from the 2012 Clean Watersheds Needs Survey may be low. But if accurate—and assuming the previous 55 percent federal / 45 percent local cost-sharing ratio—the program would require $26.4 billion over its lifetime to complete.

Provide additional state funding for CSO-remediation initiatives. Like distressed localities, many states have their own budget issues: state aid to localities was actually reduced in many cases during the Great Recession. Nevertheless, in many states, the state government is a financial partner with localities in infrastructure finance.

Some states are already evaluating proposals to increase their water and wastewater infrastructure funding assistance to localities. In New York, Governor Andrew Cuomo is proposing that the state provide $250 million in water and wastewater infrastructure assistance over the next two years—an increase of $100 million over the existing state support program.[39]

In Ohio, State Senator Joe Schiavoni has proposed a $1 billion program to provide state aid to localities for water and sewer infrastructure.[40] He represents the Youngstown area, a classic postindustrial city working hard to renew itself but burdened with legacy liabilities, such as CSO-remediation costs, that it cannot afford to pay. Senator Schiavoni is the minority leader, so prospects for his legislation are uncertain. But the CSO issue is on the legislative agenda in Ohio.

Provide the flexibility to redirect existing funding streams to sewers. How should states and the federal government fundamentally respond to the challenge of postindustrial cities? In many cases, these cities are poor, shrinking, and with limited economic prospects. Some show nascent signs of revival but are far from a general turnaround.

A realistic assessment of their situation requires acknowledging that these types of locations are not presently in demand in the current economy. This does not mean giving up hope: cities like New York, once given up for dead, have revived.

But it does require understanding that government cannot conjure up economic growth in these places. Rather than attempt to restart growth, a better approach is to focus on restructuring government and eliminating the legacy-liability stack. As long as there is a huge bill for things like unfunded pensions and CSO remediation, this will create a cost and risk disincentive to invest. Such cities' liability stacks pose a key challenge but one that can be addressed.

The focus of state and federal aid to struggling postindustrial cities should be liability elimination, including CSO remediation. One additional benefit of channeling aid to such an end is that it is virtually certain to succeed in accomplishing its objective. Many types of government-aid programs are speculative as to their outcomes; yet as a civil-engineering matter, CSO-remediation construction projects have a high likelihood of success.

Redirecting funds presently used for questionable transportation, economic development, or housing schemes to CSO remediation can reduce that liability with less recourse to the ratepayer. This approach would put cash in residents' pockets, especially the poor, and create a better cost profile for the city—if, and when, the market begins to favor it.

One way to do this is to provide additional flexibility in existing aid programs to allow localities to use the funding for CSO remediation. Today, the primary source of flexible funds that can be applied to sewers is the Community Development Block Grant (CDBG) program. Some places have used these funds for sewer projects. But most other funding streams are much more restricted.

Take highway spending. Federal and state highway aid is important to roadway maintenance. Yet in many communities, part of this aid is directed to highway expansion, a dubious use of funds in cities and regions that are not growing. There is, for instance, a plan to build a brand-new $300 million highway, the "Opportunity Corridor," inside Cleveland,[41] a shrinking city and region. But because federal highway money is available, Cleveland is chasing it. If the federal government allowed that money to be flexibly applied instead to the sewer project, it would chip away at Cleveland's massive liability.

Crumbling streets are, of course, also part of the liability stack of postindustrial cities. Yet if localities were allowed the flexibility to redirect some transportation funding to other capital needs, such as sewers, local leaders could decide which of their needs was highest priority. In addition to federal changes, granting such flexibility to localities would also require that state departments of transportation and regional metropolitan planning organizations, which allocate federal transportation aid, be on board.

In addition to new and expanded highways in shrinking regions, states have various business-subsidy programs that operate under the umbrella of economic development that are often dubious. New York State is investing $750 million—nearly double Buffalo's entire CSO-remediation liability—in a Buffalo-based solar-panel factory for the benefit of Solar City, a firm run by billionaire Elon Musk.[42] States could include wastewater infrastructure as an eligible funding category under state economic-development assistance programs. Doing so might be far more beneficial to struggling postindustrial cities, which have few major employers seeking to locate there, than business-subsidy programs, from which they may never benefit in any material way.

Transportation funding and economic-development funding are two potential types of funding sources where creative flexibility could allow local governments to better address pressing problems, like CSO remediation, that they are legally obliged to resolve. Again, one key benefit of directing intergovernmental aid to CSO remediation—rather than to economic-development or real-estate incentives—is that money spent on the former is almost certain to achieve its objectives. Water quality will improve, localities will be in compliance with the Clean Water Act, and local citizens and businesses will have more money in their pockets. This makes CSO remediation a low-risk investment.

Regardless of the package of policies implemented, some change to the CSO-remediation status quo is needed, especially for America's struggling postindustrial cities: it is unjust to make the disproportionately poor residents of these especially troubled places bear the burden of reversing rational decisions made in their communities in the nineteenth century.

Endnotes

1 See http://www.encyclopedia.chicagohistory.org/pages/300017.html.

2 See http://www.mwra.com/03sewer/html/sewhist.htm.

3 See http://www3.epa.gov/caddis/ssr_urb_ww2.html.

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9 See http://www.neorsd.org/projectcleanlake.php.

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12 All pension data taken from http://crr.bc.edu/briefs/gasb-68-how-will-state-unfunded-pension-liabilities-affect-big-cities-2.

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16 See https://www.stlouis-mo.gov/government/departments/budget/documents/upload/FY15-AOP-Summary-Overview-and-charts-S-1-to-S-82.pdf.

17 See http://www.stlouisco.com/portals/8/docs/document%20library/budget/2015/adopted/2015AdoptedSummaryBook.pdf.

18 See http://www.phila.gov/water/sustainability/greencitycleanwaters/Pages/default.aspx.

19 The city claims that this program represents a savings of $5.6 billion. See http://www.phillywatersheds.org/what_were_doing/documents_and_data/cso_long_term_control_plan.

20 Information provided by Buffalo Sewer Authority.

21 See http://chicago.suntimes.com/opinion/7/71/931147/editorial-milwaukee-can-teach-chicago-clean-water.

22 Information on Milwaukee via the Metropolitan Milwaukee Sewer District. Milwaukee is continuing investments to bring water capture to 100 percent. While not legally required, this is a reasonable investment, given the EPA's history of ratcheting environmental requirements ever higher.

23 See http://www.epa.gov/sites/production/files/2015-10/documents/csossortc2004_appendixm.pdf.

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REPORT 2

Abstract

The biggest capital project, by far, in many American cities is one that few of their citizens even know about and that almost none has ever seen: the legally mandated retrofitting of "combined sewers," sewers in which storm-water runoff and sanitary waste from buildings are channeled into the same pipes to reduce or eliminate overflows of untreated wastewater into local waterways. These combined-sewer projects—whose price tag will run into billions of dollars in some places—represent large unfunded mandates.

Key Findings

1. Although the federal government, via the Clean Water Act, is requiring cities to undertake such projects, the bulk of federal funding for sewers comes in the form of loans that must be repaid: in most cities, local citizens and property owners will pay the vast majority of the costs through higher utility bills, property taxes, and other local funding sources.

2. Raising sewer rates to pay for expensive combined-sewer overflow remediation will serve as a de facto regressive tax on lower-income households, while rendering such cities less competitive economically.

3. To achieve Clean Water Act compliance in a way that minimizes the impact on lower-income residents and on economic competitiveness, these localities require significant assistance, such as support for a more aggressive shift to green infrastructure; modifying sewer rate structures; revisiting EPA affordability guidelines; renewed or enhanced federal and state aid; and redirecting other aid sources to sewer-mandate compliance.

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