

HOW SOME CITIES CREATE THEIR OWN DRINKING WATER PROBLEMS

President-elect Donald Trump has vowed to fix America's crumbling infrastructure. This includes roads, bridges, tunnels, and – most alarming of all – decaying underground water pipes.

As municipal water systems scramble to avoid the kind of lead-contamination crisis that continues to bedevil Flint, Mich., many of them will be forced to come to an unpleasant realization: Protecting people from the threat of water-borne diseases will require a substantial number of cities to change their ways.

A case in point is Chicago, a city that has a lot more to worry about than just a soaring murder rate. Chicago not only has severely corroded underground iron water pipes. These leaking relics of a bygone era have become a millstone around the necks of the city's long-suffering ratepayers and taxpayers. In 2011, Mayor Rahm Emanuel launched a 10-year effort to replace 900 miles of the city's crumbling water mains. To keep the project going, he recently borrowed \$632.6 million from a federal-state loan program (State Revolving Fund).

What the city neglects to acknowledge, however, is its own role in misallocating its financial resources. Chicago's drinking water is at risk because the city has failed to innovate. Its antiquated procurement specifications for pipe replacement, for example, effectively eliminate a range of products and technologies from the competitive bidding process. By limiting competition, the city drives up the cost of rehabilitating its decaying water system. As a result of replacing aging cast-iron pipe with costly thin-walled ductile iron pipe, Chicago's water rates rose 25% in 2012 and another 15% from 2013-2015. And Mayor Emanuel recently announced that residents will be hit with another 7% hike in their water rates.

The Windy City is not alone. The Pittsburgh Water and Sewer Authority (PWSA) is a mess. Lead levels in Pittsburgh's water already exceed the federal safety level of 15 parts per billion. Pittsburgh's residents are also coping with rust-colored water coming out of their taps. Adding insult to injury, water rates in the city will have risen 20% above 2013 levels by 2017, making them more than triple the average cost in the Midwest, according to figures from the American Water Works Association. Pittsburgh's water authority continues to throw money at its dilapidated network of underground iron pipes, and steadfastly refuses to adopt reforms that would allow for a cost-effective modernization of its water system.

Alarm bells also went off in Buffalo, NY and surrounding Erie County in October after it was reported that 11 area school districts had found elevated levels of lead in their school water. "We know what happened in Flint, Mich.," Dr. Myron Glick, a local physician, told the Buffalo News. "It's a public health issue that's linked to an aging infrastructure."

Lead has also been detected in the water systems serving Boston, Milwaukee, Philadelphia, New York, Providence, St. Paul, and Portland, Ore., just to name a few. Like Chicago, Pittsburgh and Buffalo, these municipalities are struggling with a problem of their own making. Their deteriorating underground water networks are the result of their failure to recognize the threat posed by corroding iron pipes and their refusal to undertake procurement reform that would allow non-corroding materials, such as polyvinyl chloride (PVC) pipes, into the bidding process.



Cities saddled with deteriorating iron pipes spend a fortune on chemicals that fight what is ultimately a losing battle against corrosion. Gregory Baird, former chief financial officer for Aurora Water, Colorado's third-largest water utility, estimates that 17% – or nearly one-fifth – of all the drinking water pumped in the United States is lost through leaking, corroded iron pipes. This is water that never reaches homes, hospitals, schools, and businesses but which is paid for by local ratepayers and taxpayers.

Not only is water lost, but leaking pipes caused by corrosion provide openings for pathogens to enter the water system. A recent study led by Prof. Jeffery Griffiths of Tufts University School of Medicine finds that drug-resistant bacteria can live in corroding pipes. As reported by HealthDay (Sept. 23), "these harmful bacteria include legionella, which causes Legionnaires' disease; pseudomonas, which can trigger pneumonia; and mycobacteria, which can cause tuberculosis and other illnesses, the researchers said."

In the wake of the Flint disaster, Michigan Gov. Rick Snyder ordered a comprehensive review of state and local water infrastructure policies. His "21st Century Infrastructure Report" shows that painful lessons have been learned. "Many government procurement specifications and policies do not include mechanisms to evaluate and utilize new technologies or alternative materials that provide cost savings and enhance environmental outcomes," the report says. Michigan's Department of Environmental Quality, municipalities, and utilities "should put in place a process to periodically review and update new technologies, procurement manuals or standard operating practices to allow for open competition for technology and materials meeting relevant standards..."

Those who benefit from the status quo will resist change. The Ductile Iron Pipe Research Association (DIPRA) ferociously defends its quasi-monopolistic hold on water utilities that block competitive bidding. DIPRA recently lauded cities that are members of its "Century Club." Among the municipalities cited for using iron water pipes for at least 100 years are Philadelphia, New York, Boston, Buffalo, Milwaukee, Philadelphia, St. Paul, Providence, and Portland. These are the same cities now plagued by elevated levels of lead in their water and soaring costs associated with treating water to combat lead and an assortment of pathogens as well as skyrocketing infrastructure replacement costs caused by exclusive use of corrosion-prone iron piping materials.

Providing the public with safe drinking water requires an infrastructure containing the finest materials available. Cities that pretend otherwise are headed down the road to Flint.