

# Water main breaks expose public to waterborne disease risk

## *Distribution systems contaminated after treatment*

### Key Message

Water main breaks are a key factor in the transmission of pathogens that cause acute diarrhea. The low pressure associated with water main breaks allows contaminated water to enter drinking water systems. This increases the risk of waterborne disease, especially for children.

Thousands of miles of water and sewer pipe lie hidden beneath Wisconsin's surface like blood vessels, carrying water to us and wastewater away from us.

The American Society of Civil Engineers estimates there are 21 feet of sewer pipe per capita nationwide. Double that figure to include water mains and we can reasonably assume 42 feet of pipe per American. That is 13 billion feet of pipe—10 times the distance between Earth and the Moon.

Those networks, while remarkably trustworthy, are deteriorating with age and neglect.

### Negative Consequences for Public Health

Distribution systems are usually under enough pressure so that any cracks let clean water out (at a cost to taxpayers), but prevent dirty water from getting in.

When water mains break, however, system pressure drops—and those cracks allow contaminants like viruses to seep in.

Water main breaks are thus a key vulnerability that promote waterborne disease.

An estimated 745 to 850 water mains rupture across North America each day. An extensive 2011 survey suggests there is more than one water main break per every 10 miles of pipe per year.

Pipes laid during three major construction eras are all approaching their life expectancy.

### *Our Aging Water & Sewer Pipes*

<u>Laid</u>	<u>Lifespan</u>	<u>Replacement</u>
1880s	90-150 yrs	1970s-2030s
1920s	100 yrs	2020s
1950s+	75 yrs	2025+

### Policy Recommendation

Investing \$3.5 billion through 2027 would bring Wisconsin's aging underground infrastructure up to date.

It costs the city of Milwaukee about \$1 million per mile to replace its old water mains.

We are not investing sufficient capital to prevent water distribution systems from costly failure.

In 2007, the EPA reported that \$335 billion in capital costs was needed over 20 years to restore adequate drinking water infrastructure to the nation. Wisconsin's needs were over \$6 billion—\$2.5 billion for treatment, but \$3.5 billion for distribution systems.

Our response to these costs represents a choice.

The next state budget recommends \$94 million in low-interest loans for drinking water projects, a funding level that falls far short of the 20-year need.

In comparison, the budget for state highways is \$3.7 billion. Over two years, Wisconsin will invest in its highways the amount of money that could revitalize the entire state's drinking water distribution infrastructure over 20 years.

### Costs of Waterborne Disease

The 1993 *Cryptosporidium* outbreak, responsible for 403,000 illnesses and at least 69 deaths, resulted in \$96 million in health-care and lost productivity costs.

Following the outbreak, civic leaders made drinking water a priority, investing \$406 million to upgrade treatment facilities. Milwaukee's drinking water is now globally recognized for its quality.

But even with the best treatment systems, failing distribution systems place public health at risk.

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**Quick Stats:** American Water Works Association 2012; Folkman et al. 2012.