

Bangor Water District Aging Infrastructure Renewal Plan



Broken water pipe floods District facilities in May

Introduction

The Bangor Water is embarking on a water pipe renewal plan to address the issues of aging infrastructure. Since water piping systems are buried, the condition of the infrastructure goes unseen. The problem presents itself in the news showing broken mains with communities without water or unsafe water, property damaged by flooding, and roads destroyed. These are signs of old water lines that have exceeded their useful life and in need of replacement.

Analysis of Bangor Water's Piping Infrastructure

For the past few years, the Bangor Water has been collecting data to assess the age and condition of water pipes.

What are the piping materials?

Water pipe typically lasts 100 years. Our water pipes are made of cast iron or ductile iron ranging in diameter from 4 to 30 inches.

How many miles of pipe?

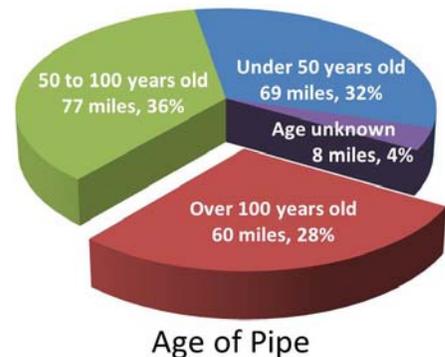
With over 200 miles of pipe, Bangor is one of Maine's largest utilities

How old are the pipes?

The first pipes were installed in 1875, 140 years ago. Some of this original piping is still in use today. 60 miles of pipe is over 100 years old and is past its useful life and needs to be replaced today.

What is the cost to replace?

The cost to replace pipe is over \$1,000,000 per mile. To replace the 60 miles of pipe in our system that is over 100 years old, it would cost over 60 million dollars.



60 miles of pipe are past their useful life with a replacement cost of over \$60,000,000

Plan to Renew Piping System

Based on our analysis, Bangor Water has developed a master plan to prioritize problems and to outline solutions.

With 60 miles of pipe over 100 years old, what pipes are prioritized?

Factors that determine replacement include: age, leak history, problems with water quality or fire flows, impacts of disruption or property damage, and projects where costs can be reduced by sharing expenses (collaboration with the City of Bangor and DOT).

Sustainable Goal	Current Status	Going Forward
To meet the replacement goal of 100 years, we need to renew 1% of the piping system per year.	Our current rate structure affords pipe renewals far below the sustainable goal of 2 miles per year.	With the additional rate support dedicated to pipe renewals, our pipe renewal plan can better address system needs.
Needed miles to be renewed? 2 miles of pipe per year	How many miles are renewed? 0.5 miles of pipe per year	How many miles renewed? 1 mile of pipe per year
Cost of replacement? Annual investment of \$2,000,000	Cost of replacement? Annual investment of \$500,000	Cost of replacement? Annual investment of \$1,000,000
Years to renew the system? 100 years	Years to renew the system? 400 years	Years to renew the system? 200 years

The Pipe Renewal Plan with rate support is a first step toward the goal of renewing the system in 100 years. This pipe replacement plan will start to close the gap by shortening the renewal cycle from 400 to 200 years.

Consequences in Delay of Renewal Program

Delay of the renewal program will result with increased catastrophic consequences and costs due to main break failures.

Current rate of main breaks: 30 main breaks per year

Annual cost: over \$100,000.

This costs of leak repair will only increase over time as the condition of the mains worsen. As the age of the system gets older, the costs to replace and the amount of pipe past its useful life will increase.



Water main break on York St. Over 100 customers without water for 23 hrs.

Funding Strategy for Pipe Renewal Program

Bangor Water is regulated by the Maine Public Utilities Commission (MPUC). Rates are filed in accordance to their rules.

Current sources of revenue:

Bangor Water does not receive any State or Federal funds and does not qualify for grants on pipe renewal projects. Our source of revenue comes from metered sales and fire protection, and low interest loans.

New Funding Resource! Infrastructure Renewal Account:

Recently, the MPUC set regulation to allow water utilities to set up an infrastructure renewal account to address the formidable issue of aging infrastructure. Utilities can now fund **planned** infrastructure projects utilizing this account based on a pipe renewal plan.

How much money can be dedicated to fund the Infrastructure Renewal Account annually?

10% of the District's revenues or \$553,000 annually.

Rate Support Needed to Fund Infrastructure

What is the purpose of the rate adjustment?

To annually fund an Infrastructure Renewal Account for \$553,000 for planned pipe renewal projects

A rate increase has not been needed for the past 4 years even though the District's consumption has dropped 3.4% since the last rate increase.

What is the amount of the rate adjustment?

Current revenue of \$5,534,000 will increase an additional \$543,000.

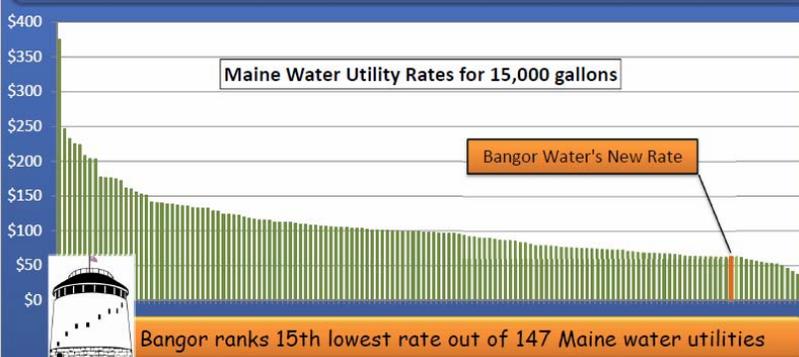
When will the new rate become effective? July 1, 2015.

Public fire protection: MPUC allows utilities to charge up to 30% of annual revenues to public fire protection. Bangor Water only charges 13%. The District will continue to have the lowest public fire protection charges in the State.

	Monthly Impact to Residential Customers	
	Increase amount	Monthly cost
Minimum Bill Customers	\$1.08	\$12.15
Average Bill Customers	\$1.74	\$19.46

The new water rates do not impact sewer or storm water rates

Bangor has one of the **LOWEST** rates in Maine



Summary:

The condition of the water system is aging with 60 miles of pipe over 100 years old. A rate increase is needed to dedicate funding to renewing the system. This rate adjustment will allow Bangor Water to utilize \$553,000 annually to replace aging mains.

Rate support is needed for this investment in our system. The rate adjustment will impact our average residential customer by an additional \$1.74 per month and our minimum use customer by an additional \$1.08 per month.