

The Importance of Drinking Water

Of all infrastructure types, drinking water is the most fundamental to life and is vital to households, industry, government, and commercial business. Drinking water systems provide a critical health function and are essential to life, economic development, and growth. Water system failures can result in service disruptions, impediments to emergency response, and damage to other types of essential infrastructure.



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Drinking Water Infrastructure Needs

The latest report from the *American Society of Civil Engineers* (www.infrastructurereportcard.org/fact-sheet/drinking-water) gave America's drinking water infrastructure an overall grade of D⁻ and shows that investment is not keeping up with needs. The report estimated that \$195 billion needs to be spent over the next 30 years (2010 to 2040) on drinking water systems and that funding at current levels is expected to be \$51 billion. These figures suggest that a shortfall of \$144 billion is expected unless steps are taken to reverse current spending.

Even though Kentucky's B grade is fairing better than the national average, there is still much work to be done to replace aging infrastructure. Across the State, water systems identified a total of \$3.6 billion in water main replacement and rehabilitation projects that need completed in the next 20 years. Projects to address aging water mains in Kentucky accounts for nearly 75% of the total drinking water funding needs identified in the survey.

NKWD Water Mains

The NKWD maintains 1,282 miles of water main with an estimated replacement value of \$1.0 billion. The rate at which water mains require replacement or rehabilitation varies greatly by pipe material, age of pipe, soil and weather conditions, and construction methods. The NKWD carefully considers these factors when installing new pipes in an effort to extend the life of the water main as long as practical.

Pipes in the NKWD's system were installed using materials and construction methods common at the time of installation. The expected life of water mains is between 60 and 95 years. Approximately 275 miles of pipes in the system are 60 years or older. The estimated replacement cost of these older mains is \$208 million. Around 240 miles of these mains are unlined cast iron that do not have a protective lining inside the pipe and are experiencing internal corrosion. The NKWD experiences about 500 leaks or breaks on its pipes each year, mostly on the older cast iron pipes.



Unlined Cast Iron Pipe

The NKWD started a program to replace and rehabilitate water mains 15 years ago. The NKWD has successfully secured several grants from Kentucky to assist with projects. The NKWD budgets about \$5 million each year for water main rehabilitation and replacement projects. This level of funding is below what is recommended to address the system's aging water mains.