



Making the Case for Infrastructure Investments

In 2007, Framingham found itself in the “perfect storm” of failing water and sewer infrastructure. Its first generation of pipes, installed between 1890 and 1920, was at the end of its useful life, and the second generation—built mostly by private developers with little official oversight between 1955 and the early 1970s—was starting to fail. Repairs were needed to the town’s infrastructure, which includes approximately 250 miles of water, sewer and drainage pipes, not to mention roads, bridges and pump stations. A significant portion of these networks had been neglected since installation—in some cases up to 120 years ago—until they broke.

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The crisis, according to master plans developed in 2006, would cost the town more than \$200 million for repairs and replacement—much more than any capital appropriation the town of 68,000 residents had ever approved. Fortunately, Framingham’s Department of Public Works had identified the issue in 2003, studied the situation, and charted a course of action. Equipped with master plans for water and sewer repairs, the DPW and town officials started an aggressive outreach program involving various organizations, key civic leaders and Town Meeting subcommittees. When the Department of Environmental Protection issued an administrative consent order mandating sewer improvements in 2006, the community understood the seriousness of the problem. Local industry also helped, committing to expansion if the town could increase its water and sewer capacity.

Framingham has now completed most of the work mandated by the consent order. [See www.buildingframingham.com.] While the extensive repairs meant an increase in water and sewer rates, the impact has been tempered by capitalizing on various grants and low- or no-interest loans. The town’s capital program is now shifting from water and sewer issues to roadway and transportation needs, and the community’s residents and businesses continue to be engaged and supportive.

Most Massachusetts municipalities face similar issues with their underground infrastructure. In its 2012 report, the Water Infrastructure Finance Commission documented a \$40 billion gap between available funding and the need for water, sewer and stormwater system infrastructure repairs. Once-abundant federal funds have shrunk significantly, while mandates have increased and pipes and pumps have been mostly untouched.



Reliable and resilient water, wastewater and stormwater systems are essential to health, economic vitality and environmental protection. It took generations to create our critical water and sewer assets. To protect this massive investment, municipalities must think about how to engage the rate-paying public for support. It's tempting to defer maintenance during difficult economic times, but voters and ratepayers need to know that procrastination will almost always cost more in the long run.

"Planned infrastructure replacement is critical to maintaining properly functioning water, wastewater and stormwater systems," says Eric Johnson, director of project management for the Framingham DPW's Capital Improvement Division. "As stewards of these assets, municipalities must recognize that they need to continually reinvest in the public infrastructure to avoid a future surge of necessary capital improvements as well as unnecessary operational costs and emergency repairs."

The challenge for municipal managers and policy makers is to make an effective case to voters and ratepayers. Many residents don't realize that these essential services are often only partly funded

through current rates. And few have thought about how well they are served by the water and sewer utilities—and for much less than they pay monthly for cable, the Internet or their cell phones.

Do It With Data

Before mounting public outreach efforts, utilities need a clear inventory of their water and sewer assets and the long-range costs for their repair and replacement. Typical capital improvement plans for water and sewer systems estimate needs for the next twenty years and include an inventory of assets and when they will need to be replaced. Getting a handle on this data, and setting priorities based on asset age and condition, will give managers a roadmap to guide future rate increases.

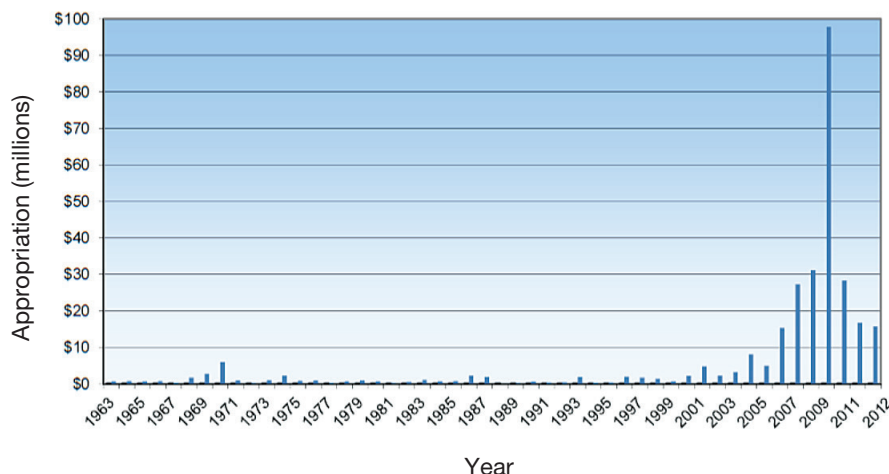
Communities can use an enterprise fund to ensure that ratepayer fees will go directly to the utilities, which is key to building voter confidence that funds are well-managed. Utilities can then make a clearer case for infrastructure investment, since these projects wouldn't be competing with other community priorities for funding. Enterprise funds also encourage full-cost pricing, as a utility has to be able to fully support all of its expenses through rates.

To avoid rate shock, prudent managers use small, regular rate increases. The Water Infrastructure Finance Commission report estimates that the funding gap could be reduced significantly statewide if rates are raised over time to 1.25 percent of each community's median household income for each utility. The statewide average for rates at the time of the report was 0.52 percent of median household income for water and 0.75 percent for sewer, which suggests that there is room for growth.

It's important not to forget stormwater systems in planning for water and sewer repairs. Before long, the U.S. Environmental Protection Agency will be reissuing permits for discharges from municipal separate storm sewer systems (MS4). New regulatory mandates are likely to be expensive, and communities may need new funding mechanisms to comply. The commission's report conservatively estimated the stormwater repair and improvement gap at \$18 billion

By JENNIFER A. PEDERSON

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1963–2012**



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in the next twenty years. One option for Massachusetts municipalities is to create a stormwater utility and enterprise fund, and assess fees on businesses and residents. Help for setting one up will soon be available from the Metropolitan Area Planning Council in the form of a Stormwater Utility Toolkit.

Water Wednesdays and Other Ideas

Once the planning and other fundamentals are in place, it's time to start educating the public about system needs and the value they deliver. Worcester's Department of Public Works and Parks has increasingly been using social media for outreach. The department uses Twitter (nearly 750 followers) and Facebook (2,500 "likes") to inform residents about everything from water main breaks to Christmas tree collections—with positive feedback from residents.



Last fall, Worcester expanded its isolated incident notifications about water with a twelve-week "Water Wednesdays" campaign on Facebook. Lisa Denoncourt, a senior customer service representative, along with Water Supply Supervisor Bruce Blanchard and Kimberly Abraham, the senior sanitary inspector and water and sewer division educator, created a series of colorful stand-alone informational graphics that explain various aspects of Worcester's water story.

"We have an hour-long PowerPoint presentation that we present to college classes and other audiences that explains from beginning to end how we supply water, but it has a lot of technical information in it," Abraham said. "This presentation was retained as a framework, but updated using language that would be understandable to the average person, who may take water services for granted. We added a lot of images to present the information in a creative and compelling way."

Phil Guerin, Worcester's environmental systems director, saw the value of



social media after a large water main break in 2012. "We were sending out updates every hour [on the day of the break]," he said. "A growing portion of our society doesn't read the newspaper or watch TV news—they get news through social media. So it's important to use today's tools to get messages out to our community."

Not only do such campaigns bridge the divide between municipal "insiders" and the rate-paying public, they highlight and explain the utility's work, giving residents a better understanding of why rate increases are needed as part of a community's funding strategy.

Other critical communication tools include an up-to-date website and regular newsletters, open houses and presenta-



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tions to schoolchildren or community groups—all opportunities to highlight a capital improvement plan and recent work completed as part of it.

Because infrastructure funding is a national problem, several organizations have developed tools to help municipalities communicate with their customers. Campaigns such as WATER'S WORTH

IT (www.waters-worth-it.org), Liquid Assets (www.liquidassets.psu.edu) and Only Tap Water Delivers (www.awwa.org) have created a wealth of ready-made talking points, fact sheets, PowerPoint presentations, newspaper columns, public service announcements, brochures, print ads and bill stuffers. They can be easily adapted for use by any municipality, saving time and effort. WATER'S WORTH IT, developed by the Water Environment Federation, has simple messages that resonate with a wide range of audiences on the importance of water: how clean water is essential to quality of life, economic vitality and environmental protection.

Stretching Local Dollars

State and federal funds—grants as well as loans—are available for municipal utility capital projects, particularly if multiple projects can be completed together. One way to prevent digging up a road twice is to include needed water, storm drain and sewer repairs to already-scheduled road improvements, or take advantage of private development to incorporate a needed pipe repair or extension.

The following are two recent examples of creative approaches to promoting water infrastructure improvements in Massachusetts communities.

North Easton Village

The historic Ames Shovel Works complex, which once produced shovels and tools used worldwide, remained a symbol of North Easton's heritage even after the complex closed in the 1950s. In the late 2000s, a plan for the

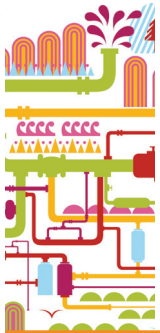
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redevelopment of the Shovel Works kick-started a multi-phased effort to rejuvenate the entire village. The redevelopment incorporated elements of housing, economic development, transportation, infrastructure improvement, and historic preservation that became the five pillars of a public-private partnership.

The proposed redevelopment included affordable housing units, allowing the developer to secure federal Housing and Urban Development grants. Because affordable housing and historic preservation were involved, the town voted to use Community Preservation Act funds, and \$3 million was granted from the CPA fund to the developer and \$4.5 million was loaned. To help pay for a new wastewater treatment plant and collection system, the town secured low-interest loans from the Clean Water State Revolving Fund. In addition, the town won two MassWorks grants totaling \$2.5 million to pay for improvements to streets and other infrastructure associated with the project. Finally, the town combined the sewer collection



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system construction with water main upgrades and streetscape beautification in the village for additional efficiencies and benefits.

As part of the funding, the town created a tax increment financing district for the commercial area of the village, allowing potential developers to defer costs. Today, sewer betterments are \$20,900 per single-family parcel. The town passed a home rule petition for a thirty-year payback period at 2.4 percent interest.

Not only has Easton saved the Ames Shovel Works complex and created a blueprint for a public-private partnership, but the town has opened its first public sewer system, addressed housing and infrastructure needs, and inspired redevelopment of the North Easton Village.

Town of Ayer

Ayer Public Works Superintendent Mark Wetzel is using Facebook, Twitter, email, face-to-face chats, and lots of data to make the case for accelerated

repairs to the town’s forty-seven miles of water pipes, especially the unlined cast iron ones dating back to 1898. “I think enough residents understand this needs to be done,” he says. So do big industrial water users, including Pepsi, Vitasoy and Cains Foods.

When Wetzel started his job in Ayer two years ago, he quickly realized the town didn’t have updated maps and inventory. He has completed a water plan, and is now working on an inventory of thirty-five miles of 1940–1960-era sewer

mains—plus ten miles of force mains (sewer mains that take pumped wastewater, as opposed to gravity sewers). “I tied all water and sewer to the capital plan, which had never been done before,” he says. “The town used to look at fire flows only; no one looked at the 120-year-old six- and eight-inch pipes.”

Wetzel’s argument for pipe repairs is helped by enterprise funds—and rates that account for the full cost of operations—for water and sewer. But with average incomes in Ayer below the state average and a population of just 7,500, financial efficiency is critical. So Wetzel is linking pipe repairs with roadwork. This year, when the town reconstructs East Main Street for pedestrian safety, it will also address related pipes and stormwater infrastructure. “We spend \$300,000 on paving roads each year,” he says. “We don’t want to dig them up again to fix water or sewer pipes.”

As part of the East Main project, Wetzel hopes to obtain a federal agricultural grant to cover green stormwater infrastructure, and a Massachusetts Department of Transportation reimbursement for the safety improvements. Over several years, Wetzel wants funding for pipe replacement and repair moved from the capital budget to the operating budget.

Once these twenty-year plans are complete, however, Ayer will have to start addressing mid-century asbestos-concrete water pipes that will be starting to fail, and Wetzel doesn’t yet know the longer-term sewer needs. 🌱

Resources

- Capital Improvement Plan for Public Water Systems:
www.mass.gov/eea/docs/dep/water/laws/a-thru-h/cipform.pdf
- Guidelines on Establishment of Enterprise Funds (under M.G.L. Ch. 44, Sec. 53F½):
www.mass.gov/dor/docs/dls/publ/misc/enterprisefundmanual.pdf
- Stormwater Utility Funding Starter Kit:
www.mapc.org/Stormwater_UTILITY_Funding_Starter_Kit