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Today’s water utilities have a much broader mission than just making the water flow. That water must meet and exceed increasingly strict regulations imposed by federal and state environmental agencies. With an eye to the future, communities are challenged to make continued, proactive investments in order to maintain current service levels and ensure safe, sufficient, and reliable water reserves for generations to come.

Since 1994, that’s exactly what the Cohasset Water Department has done, especially during the last five years. Many essential and high-impact investments in the water system were implemented since 2003 and now provide improved quality and service to approximately 90% of the Town.
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From system-wide line maintenance to new technology that helps to improve the taste and quality of water, Cohasset deserves to be proud of its water achievements. In fact, the system has been recognized for excellence by numerous state and federal agencies.

But this was not always the case. As recently as 2005, the Department was still trying to rectify major issues that caused a catastrophic failure of the entire water system. Decades of deferred maintenance and even mismanagement created a crisis of epic proportions, one that took visionary leadership and major financial investments to overcome. Many of those investments are still being paid for today.

Cohasset’s Water Commissioners have learned from both the mistakes and successes of the past, holding fast to the belief that a Water Department is never “done” improving the system. Not only is regular annual maintenance essential to address infrastructure needs, but it is also required in order to keep up with new and ever stringent regulations.

By 2005 the Water Department addressed other quality issues by beginning 24-hour operations for the first time, replacing the filter media, moving chlorination to after filtration, installing baffles in the clearwell, and optimizing the treatment process by adding ferric chloride as an oxidant in addition to potassium permanganate. The Commissioners considered using chloramines, but rejected it because of its potential side effects, its yet unknown disinfection byproducts.

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Since 2005, investments in mission critical improvements mandated, have totaled $2,712,001. These include:

- Replace Generator ATS
- Motor Control Center
- Intake improvements
- Replace Rapid Mix Motors, Drives, Shafts, Mixers
- Replace Filter Media
- Install VFD’s on raw water & raw chemical feed pumps
- Replace 8 transmitters and 2 flow meters
- Rehabilitate Sludge Lagoons {pictured below}
- Raingarden Project.

The Commission’s aggressive plan was established to build a strong and secure water system for the future. Yet during this time, new water quality standards were mandated which brought added costs and the need for both infrastructure and technology enhancements.

Through careful study, the Department identified all of the key distribution system and treatment plant improvements necessary, then applied for and received a Drinking Water SRF low interest loan of $21 million. That financing set the stage for the next five years of system and plant improvements, at a lower cost than if conventional financing had been used.

Key on the list of improvements were a set of raingardens and other Low Impact Development stormwater structures designed to passively clean stormwater before it enters Lily Pond. The Commission was able to secure a $250,000 chapter 319 grant and a $450,000 Clean Water SRF low interest loan to support the Raingarden Project.

Today, Cohasset can look back on the past five years as a period of accelerated progress. Since 2003, key enhancements made to the award-winning water system include:

1. Exceeding quality standards imposed by increasingly strict Environmental Protection Association regulations
2. Drastic system improvements to support fire protection
3. Enhanced reliability of water delivery to customers
4. Watershed protection in the most vulnerable areas surrounding the water supply
5. The identification and removal of lead services in the water supply
6. Improved efficiency though the automation of the Lily Pond Water Treatment Plant with the SCADA (Supervisory Control and Data Acquisition) system
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10. Implementation of a new chlorine system to ensure disinfection of the water supply

The Commission’s goal in 2003 was simple and clear — to ensure that a reliable water production and delivery system would be put in place to support the ever changing needs of the community. Great effort has been made to effectively manage an increasing debt load brought on by the absolutely necessary, and often government mandated, improvements to the water system. The Commission was able to accomplish this by leveraging loan and grant programs — negating the need for any rate increase from 1998 through 2005.

Success in the rehabilitation of Cohasset’s system was spotlighted in 2003 when the Department was named to the top 10 percent of Massachusetts. The Public Water System Award, presented by the Massachusetts Department of Environmental Protection and the New England Water Works Association, simply set the stage for future excellence.

A single leak the size of a dime consumes:
- 60,900 gallons per day
- 1,827,000 gallons per month
- 22,228,500 gallons per year
- Enough water in a week to fill an Olympic-size swimming pool

Over the past ten years, 417 individual system leaks were identified and fixed, resolving problems for residents with dirty and potentially contaminated water. These repairs saved the Town more than 75 million gallons of water per year and approximately 200 million to date. This translates to a cost savings in excess of $100,000 per year (based just on the incremental costs of water treatment).
**Action, then inaction: a crisis in the making**

To fully understand the significance of the Public Water System Award, it is important to understand what hurdles had to be overcome. Fixing a problem that was years in the making has not been an easy task.

Back in the 1960s, Cohasset proactively realized the water supply of the day would not support its growing community for long. A plan was launched to build the Aaron River Reservoir and a treatment plant on Lily Pond in order to guarantee water for a population projected to grow to 20,000 by the 1980s.

When both projects were completed in 1978, community leaders assumed their problems were resolved. For more than a decade, little was done to enhance the water system aside from the occasional repair when something broke.

Then in 1994, the years of deferred maintenance became evident in the worst possible way, the water stopped flowing. On Memorial Day, which also happened to be one of the hottest days of the year, more than 300 homes in the Jerusalem Road area endured days without water.

Increased demand for water, brought on by such modern conveniences including in-ground residential sprinkler systems, were draining capacity in parts of the community. Subsequent watering bans provided a temporary bandage to the ailing system, but a more robust plan of action was needed. Citizens soon became aware of other system-wide issues, ranging from excess sediment in the Bear Hill storage tank to water main leaks in need of repair.

Additionally, the Department was facing both labor turmoil and annual budget deficits. The water crisis set the stage for the next fifteen years, a period focused on the repair and improvement of Cohasset’s water system.

**Repairing years of neglect: 1994 - 2003**

Fixing a problem that took more than a decade to create has not been an easy task. Construction of new water mains and repairs to older mains dominated efforts up until 1997. The Commission then turned attention to other key concerns of the day, including inadequate water flow for firefighting, insufficient water reserves and the need for added water storage capacity.

Financial issues led to the installation of new water meters and quality concerns were addressed with enhancements to the water supply filter beds. Yet it was labor unrest in the Department that set the stage for long term growth as the Commission decided to contract out the day-to-day operations of the Department. Today, American Water Services continues to provide daily management as it has for the past ten years.

By 1998, essential groundwork was in place for the further improvements to come. Through 2001, the Department worked to clean and line miles of water mains, replace other water mains, and construct a second water storage tank.

This new tank was significant, as it was needed to ensure that adequate water flow for firefighting was available. As important was the need to build a taller tank to make sure there would be enough sustained water pressure to support fire flow.

When the new Scituate Hill Tank was placed online in early 2001, the old Bear Hill Tank was taken offline so it could be drained, cleaned, inspected and repaired. The removal of more than seven feet of sediment from that tank helped improve drinking water quality.

Attention was also focused on upgrades for the Lily Pond Treatment Plant, which had not received any major repairs since it was first brought on line in 1978. Watershed protection efforts were also launched. Even though many improvements had been funded and implemented by the end of 2001, the fiscal health of the Department was significantly improved over its poor state back in 1994. Yet even with no major distribution system challenges remaining, the Commission knew there was still much work to be done.

**Accelerating progress: 2003 - 2008**

By 2003, drastic improvements to support fire protection were also being put into place, beginning with an aggressive and ongoing effort to replace pipe throughout the water main distribution system. Larger diameter mains replaced older, smaller pipe, thus increasing fire flows.
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This period also brought new revenue opportunities, as the Department initiated a 20-year agreement to sell water to Linden Ponds in Hingham. Erickson Communities, owners of Linden Ponds, constructed a transmission line and pump station for the Department and paid for many of the system improvements necessary to produce and deliver the water.

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