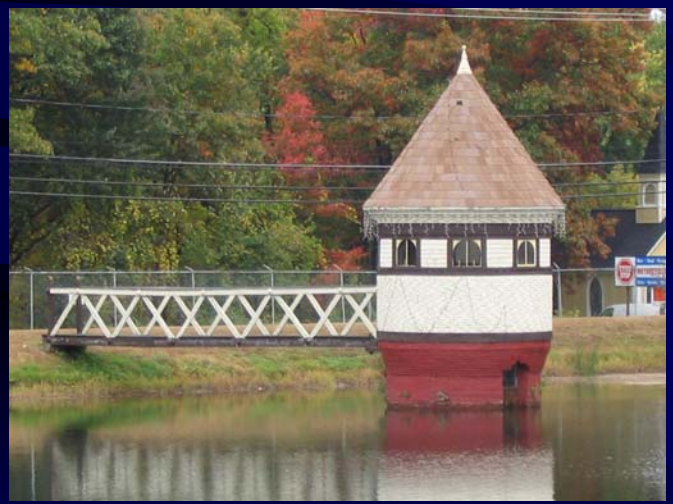
Water Dept.
Fire Dist. No.1

South Hadley Water



History

FIRE DISTRICT NUMBER ONE

In 1858 the village of South Hadley Falls was organized into Fire District No.1 in the Town of South Hadley. A hand fire engine manned by volunteer company was maintained and cisterns or reservoirs of water were established in all parts of the District.

That section of the District which lay west and south of Buttery Brook was well supplied with water for domestic purposes by the Grove Street and Spring Street Aqueduct companies and by many lines of pipe supplying one or more houses. This water was obtained from numerous springs which issued from the high bank that slopes down from the eastern plain. The hill portion of the District was dependent for water upon the scant supply furnished by shallow wells sunk into the underlying rock and a water famine came often at midwinter as well as in August.

As the town grew, the demand for water increased. The use of water had to be restricted during times of drought. It was only after several attempts that the hill folk in 1872 secured a vote of the District in favor of procuring authority from the Legislature for introduction throughout the village of a system of waterworks for fire and domestic purposes. The water was furnished by a reservoir on Buttery Brook yielding approximately 9 million gallons or 176,000 gal. per day. Due to increasing demand and expansion of the District, The Board of Water Commissioners in voted on June 8, 1891 to build a new reservoir at Leaping Wells Brook ,which was constructed the next year. That reservoir had a capacity of 30 million gallons yielding another 322,000 gallons per day.

These two reservoirs took care of the District's needs until around 1948 when it was apparent that new sources must be found to accommodate future growth. In 1951 and 1952 wells were driven in many parts of the town but to no avail. In 1951 the District signed a 45- year 3.8 MGD contract to buy Quabbin Water from the Metropolitan District Commission. The District also voted to lay a 16" water main to connect with the Quabbin Reservoir, a distance of seven miles through the towns of Ludlow and Granby at a cost of over $400,000.00. The District back then supplied over 2,300 families, which required over forty-five miles of pipe line.

On November 14, 1952 Fire District No.1 began to draw on Quabbin Water. The Buttery Brook supply was abandoned at the same time, and in 1958, the District voted to transfer the property to the town to be used for recreational purposes. The Leaping Well Reservoir was maintained for a short time, but was phased out. Vigorous attempts have been made to locate other water sources, but were found to be too costly in comparison to the Quabbin agreement.

Topics of Discussion

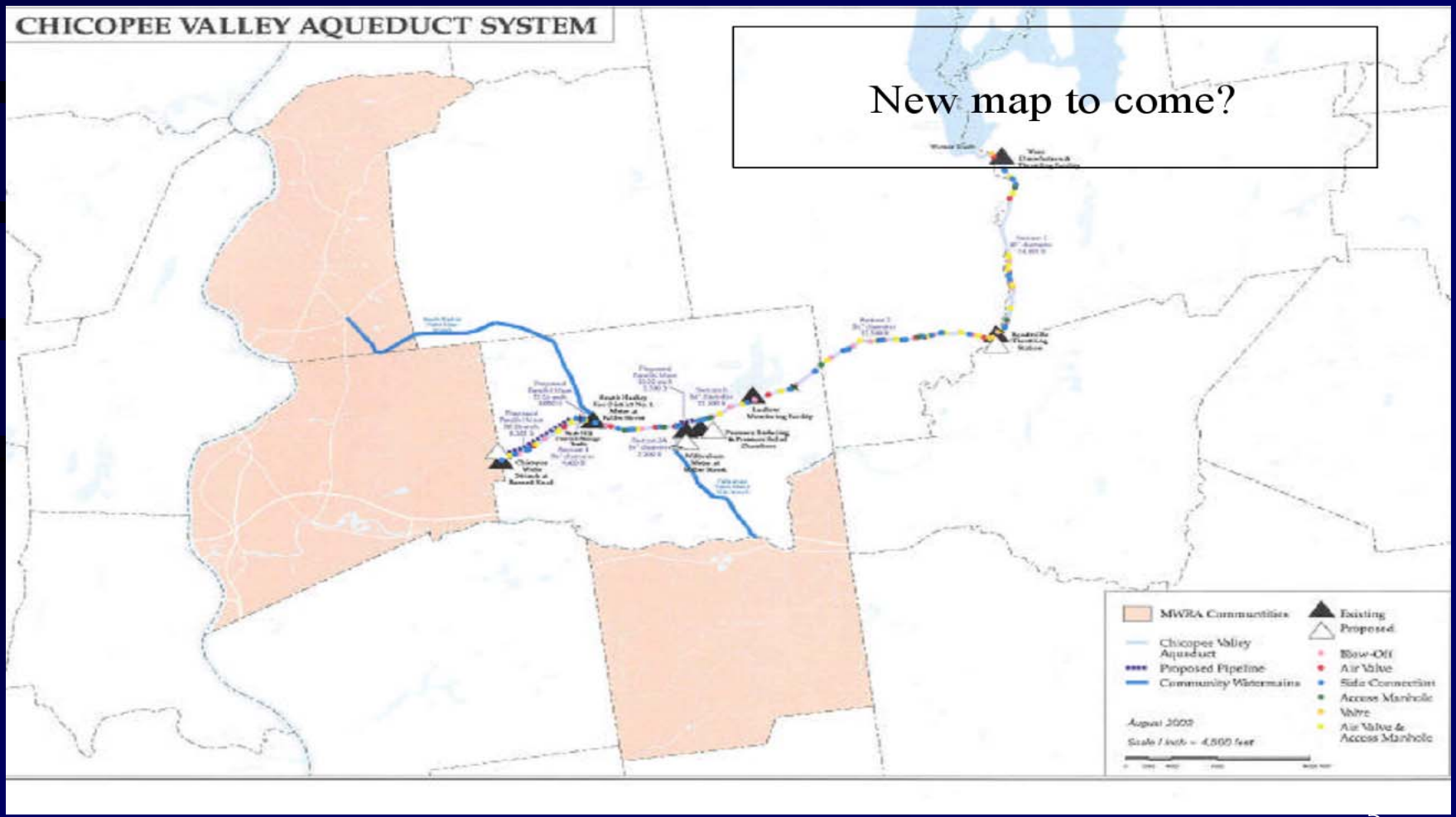
- Where does our water supply come from today?
- How does our water gets here?
- What does our system have to provide water to you ?
- Treatment that is done to South Hadley Fire Dist. #1 water supply.
- What is done to ensure safe drinking water to our consumers?
- Present and future goals of the Dept.?

Where Does Our Water Supply Come From today?

- Water comes from the Quabbin Reservoir located in Belchertown, MA.
- Reservoir has a capacity of 412 Billion gallons.
- Massachusetts Water Resource Authority replaced the Metropolitan District Commission as the water wholesaler back in the mid 80's.
- Originally served 44 member communities inclusive of South Hadley Fire District No.1, Chicopee, and Wilbraham in Western Massachusetts known as the Chicopee Valley Aqueduct (CVA) communities. All remaining members are know as the Metro-West communities.
- The Reservoir remains one of the largest unfiltered reservoirs in the world.

How does our Water get here?

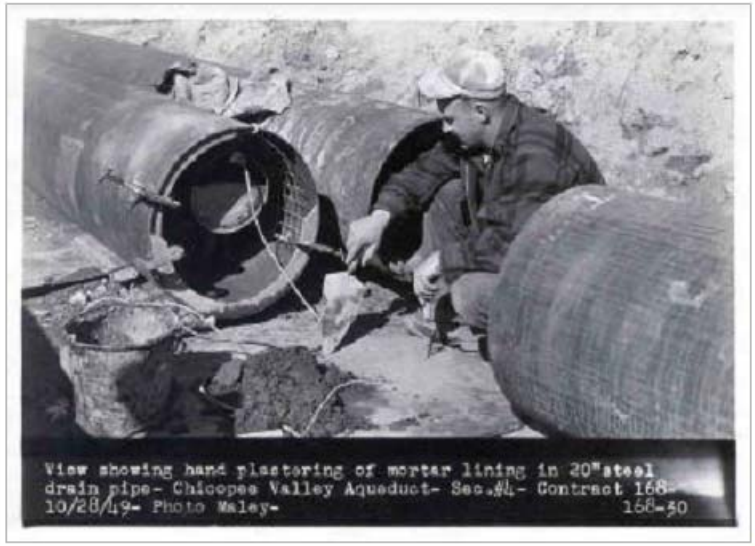
- South Hadley Dist.#1, Chicopee and Wilbraham are supplied through the 48” and 36” Chicopee Valley Aqueduct. Aqueduct material is cylindrical pre-stressed concrete pipe.



History of Chicopee Valley Aqueduct System

- CVA Intake and Winsor Dam constructed in 1930s
- Aqueduct constructed in 1948
- Chlorination started in1991

History of Chicopee Valley Aqueduct System



Completed Improvements: Nash Hill Covered Storage

- Open reservoir replaced by two concrete tanks with total capacity of 25 million gallons
- Final construction cost was $12.4 million
- Complete in 1999, under budget and ahead of schedule
- Required by consent order for Quabbin Filtration Waiver

Completed Improvements: Quabbin Disinfection Facilities

- The Ware Disinfection Facility came on-line in 2000 and provides primary disinfection by chlorination
- Ludlow Monitoring Station documents compliance with disinfection regulations
- Final construction cost was $5.1 million
- Required by consent order for Quabbin Filtration Waiver

Current Project: UV Treatment Pilot at Quabbin

- In anticipation of new federal regulations requiring 2 primary disinfectants for unfiltered systems, MWRA is piloting UV at Quabbin (rather than ozone)
- Piloting to be conducted at Winsor Power Station in 2003 - 2004
- Cost of pilot program is $1.2 million
- Capital budget contains $4.3 million for design and construction of a full scale UV facility
- Construction funds budgeted for FY07-FY09
- UV treatment facilities in Nevada, Georgia and Ontario

What does our system have to provide water to you?

Our 16” take-off point is located directly off of the 36” Chicopee Valley Aqueduct at our building at 444 Fuller St. in Ludlow. The Facility houses a master water meter and water treatment equipment.

What does our system have to provide water to you?

A 100 hp. booster pump is also available at our take-off point in Ludlow to assist in supplying water to South Hadley on high demand days.

What does our system have to provide water to you?

The District has two - 1.5 million gallon storage tanks to provide pressure as well as fire protection.

Industrial Drive Water Tank

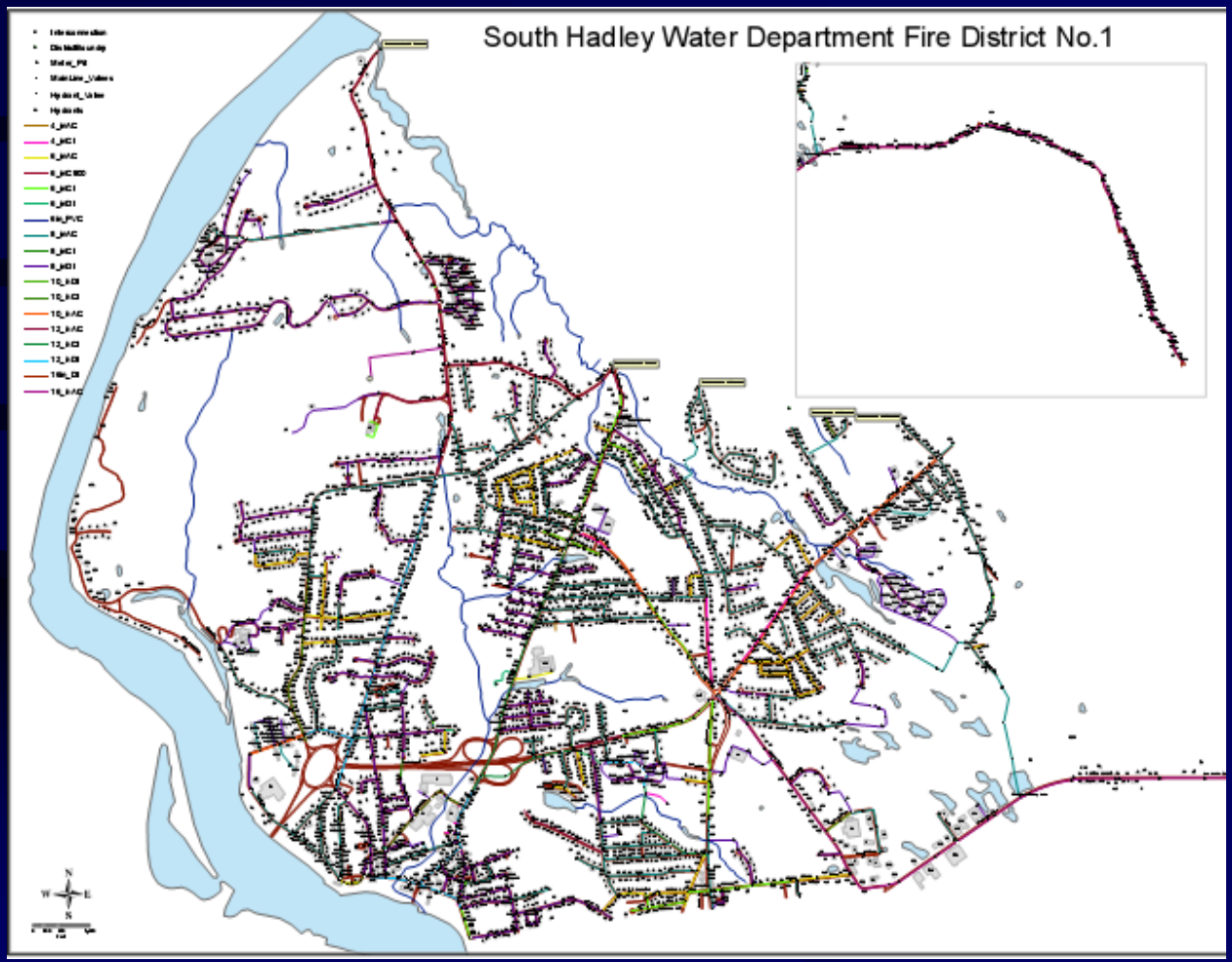
Alvord St. Water Tank

What does our system have to provide water to you?

Both Tanks are controlled by a pressure reducing valve located on New Ludlow Rd. at the Granby/ South Hadley town line.

What does our system have to provide water to you?

Today, the Distribution system consists of approximately 81 miles of water mains in various sizes from 4” to 16”.



Treatment that is done to South Hadley Fire Dist. # 1 water supply.

- As mentioned previously, CVA water is primarily disinfected with Sodium Hypochlorite at MWRA's Ware disinfection facility located on Rte. 9 in Ware.
- Chlorine residuals are measured at MWRA's Ludlow monitoring station on Rte 21 in Ludlow.

Treatment that is done to South Hadley Fire Dist. # 1 water supply cont.

- South Hadley's Treatment Facility in Ludlow can boost Chlorination if needed.
- Sodium Silicate is added at the treatment facility for corrosion control to comply with the Lead and Copper Rule.

What is done to ensure safe drinking water to our consumers?

- Water is sampled for coliform bacteria twice monthly at 8 different locations within the District approved by the Department of Environmental Protection.
- Lead and Copper sampling is done annually at 15 locations between the months of June and Sept. when the water is most aggressive.
- Disinfection By-Products such as Trihalomethanes and Haloacetic Acids are sampled Quarterly at four locations within the Distribution system.

Present and Future goals for the Water Dept.?

The Board of Water Commissioners are committed to upgrading the system by ensuring reliability of supply for both fire and domestic purposes, optimizing water quality and protection of infrastructure.

Some examples of those upgrades are:

Replacement of Water mains

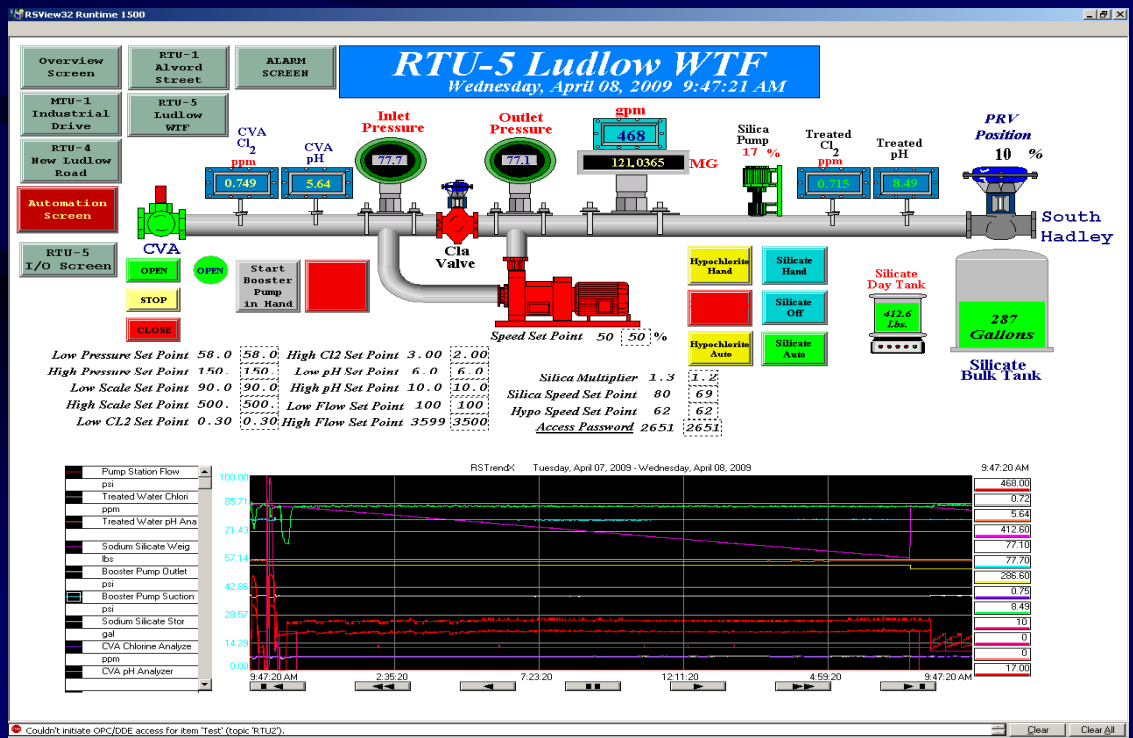
85 % of the water mains are made of a material called transite. These particular water mains are 50 years old on average and becomes very weak over time. This pipe is attributed to 90% of breaks that occur. Pipe is replaced with cement - lined ductile iron.

Integration of a Supervisory Control and Data Acquisition (SCADA) system.

A SCADA system can provide a variety of different features.

The primary advantages of our system are :

- Monitoring all of our locations (Tanks, Treatment Facility, and Pressure reducing valve vault) for tank heights, valve positions and most importantly security.



SCADA System Cont.

- System is entirely monitored and remotely controlled via radio signal from our office located on Granby Road.
- SCADA system also has the ability to control various features at our Treatment Facility such as emergency shut down or start-up of pumps and pressure reducing valve adjustment.

Conclusion

The Board of Water Commissioners feel strongly that the Water Department – Fire District No.1 has been operated very efficiently by providing the residents with what they expect from a municipal department at the lowest possible cost.