

LEAK SURVEY

Town of Weston

September 2022



PROWLER WATER CONSERVATION SYSTEMS, LLC

706 PLEASANT ST - ROCHDALE, MA - 01542

PHONE 508.365.7225 FAX 508.752.5750

PROWLERWATER.COM



LEAK SURVEY REPORT- Weston Water Department

Date of Survey: August 22 - September 16, 2022

Scope of Survey:

There are approximately **100 miles** of water mains in the Weston distribution system. All water mains on provided system maps were surveyed. Every hydrant in the system, was contacted by our personnel. In addition, any service and valve boxes that were visible were contacted at regular intervals throughout the system. Water mains into private sections that did not have master meters were also inspected. Cross country transmission lines that passed through wooded areas and under rivers were also surveyed by our crew as well as heavily traveled areas.

PRELIMINARY FINDINGS:

The water crew and engineering dept. were notified of potential leaks as the survey progressed. Normally, meetings are set up to qualify or eliminate these areas with the water crew. Pipe material and soil conditions that are documented where noise is discovered are discussed at these meetings because that information can affect further investigation. Noises caused by Pumps or sewer manholes that can't be seen are typically found at these meetings. Other Utilities, such as Sewer, Highway and Gas are typically contacted for these meetings if the presence of their lines could alter or effect any sounds that are discovered in the area of focus. Water leaks can be located electronically by correlators, but no leaks are pursued and reported unless they are physically heard with acoustic equipment. There were **8 field** meetings with the department water personnel during this survey.



FIELD MEETINGS	
8/22	Dave - @ Water Shop
8/31	Scott
9/1	Dave @ Bayberry
9/2	Dave @ Pinecroft
9/7	Dave @ Brown
9/9	Scott @ Pinecroft & Skating Pond
9/12	Scott & Dave
9/14	Scott @ Brown Dig

CONCLUSION:

Leak detection surveys, and the subsequent repairs that are the result of such surveys, serve as the most cost-effective means of conserving water and at the same time increasing revenue while saving rate payers valuable financial resources. Leak detection programs lead to increased knowledge of the distribution system, more efficient use of existing supplies, safeguarding public health and property, improved public relations, reduced legal liability due to property damage and reduced disruptions of water service to the departments customer base. Leak detection is an integral part of a complete water conservation program and, coupled with public education in water conservation, consumers are more likely to repair, and report leaks as soon as possible.



Employees involved in this survey:

Alan Banks- 44 years leak detection experience

Matt DiPilato - 2 years Experience

Corey Mitchell - Apprentice

People and days in the System		
8/22 MD & CM	8/24 MD	8/25 CM
8/29 MD	8/30 MD & CM	8/31 MD & CM
9/1 MD	9/2 MD & CM	9/7 MD & CM
9/8 MD	9/9 MD	9/12 MD
9/14 MD		9/16 MD

SUMMARY

I want to thank Dave & Scott for a great survey this year. Together we were able to find and pinpoint some important leaks. Working together is so effective at helping pinpoint and resolve issues in the system that arise out of leak detection. Thank you for your professional attitude and abilities that took this water loss survey to a higher level.

Prepared by Matthew DiPilato



DESCRIPTION OF EQUIPMENT USED:

The leak locators we use are sophisticated electronic instruments manufactured by SEBA Kmt of Baunach, Germany. These devices are digital, state of the art, self-contained instruments equipped with headphones, sensitivity and gain controls and a transducer ground pick-up. These devices are very sensitive to sound and are capable of detecting water leakage of approximately 1/2 gallon per minute. Water escaping from the orifice of a pipe has its own distinctive sound and can be heard by our instrument over other surrounding disturbances such as wind, automobiles and aircraft, and other underground utilities such as sewer flows, drainage flows, etc. The difference between this detector and others on the market is that it will respond to leak sounds beyond human hearing and give you a visible read out on the screen when this occurs.

Leak Correlators are highly sophisticated leak finders that will pinpoint leaks that are difficult to locate above ground with our acoustic leak detection equipment. The equipment consists of a central unit, or processor, in which important data is entered, such as the type of pipe material, size of pipe, etc. A second link, or transmitter, is also used in the process of locating the leak. Both units have very highly sensitive sensors which are placed directly on the pipe on easily accessible spots, such as valves, hydrants or house connections. A water leak creates a noise which transmits on the pipes to both sides of the leak. The central unit compares the leak noises picked up by both sensors, and measures the time delay of the leak noise reaching both sensors. The computer processors measure the time lag between the sound coordinates and based on pipe size and diameter they will display the footage from each sensor to the location of the leak. The Correlator is not affected by external noises such as passing traffic. Real time Correlators have a built in field calibration test that is used to verify that the instruments are in working order and are ready to process the sound that is heard between the placed microphones. This test typically gives a result of either "leak present" or "leak presence doubtful".

Instrumentation Used in this survey:

Subsurface Model LD-18 Digital Acoustic Leak Pinpointer

SubSurface Correlating Loggers

SEBA HL-50 Blue Tooth Survey Kits

SEBA HL-6000X Digital Computerized Leak Correlators

ZCorr Digital Correlating Loggers



Leak Survey - Detailed

Date	Item	Place	Approx Loss	Recheck
10/1/22	Service	41 Winter St – curb is located on Brown St	20	
10/1/22	Service	7 Bayberry Ln	15	
10/1/22	Service	10 Wood Ridge Rd	10	
10/1/22	Hydrant / Branch	760 Boston Post Rd	5 – 10	
10/1/22	Hydrant	17 Blake Rd #893	7	
10/1/22	Hydrant	Beaver Rd & Winter St	1	
Total Hydrants and GPM			GPM	15
Total Services and GPM			GPM	45
Grand Total GPM Approximated			GPM	60



Leak Survey Overview – WESTON WATER DEPARTMENT

Full System Completed SEPTEMBER 2022

Total gallons per minute for each category		
Main / Service	3 Leaks	45 GPM
Hydrants	3 Leaks	15 GPM
Total Estimated GPM: 60		

(An average GPM - gallons per minute - was conservatively estimated for each category of the leaks located throughout the system. Based on 60 psi.)

Estimated Water Loss Over Time	
DAILY	86,400 GAL
MONTHLY	2.6 MILLION GAL
Yearly	31.5 MILLION GAL

REVENUE SAVED FROM UNACCOUNTED FOR WATER LEAKAGE

As of June 2020 the A.W.W.A. quotes the national average cost for pumping 1,000,000 gallons of water per year is \$2,280.00. This cost is based on electricity, chemical treatment, maintenance, manpower, etc.

Total Estimated Annual Revenue Loss (if left unrepaired for one year)
\$ 71, 820