



## WATER SYSTEM UPDATE – MAY 2021

Operating a reliable and safe water system is one of the most vital responsibilities for a Municipality. The Town of Botwood recognises this responsibility – our crews work hard every week to ensure residents of our region have access to safe water.

Provincial regulations require us to test chlorine residuals every day at multiple locations in Town. Further, staff monitor our system daily to ensure adequate flows and reserves. Leaks, breaks, and other issues are addressed quickly to minimise disruptions. This past March a break on Wireless Road drained some 12,500 liters per hour from the system, effectively emptying our reserve tank over a four-day span before the break could be located and repaired.

Botwood, Peterview, and Northern Arm have an integrated water system. A 16" main line brings water some 17kms from the New Bay treatment facility to a pressure reducing valve (near Swanee Pool) and on to a tank reservoir (off Route 350). Each day we see about 2.9 million liters of water flowing through over 80kms of lines to some 1800 different services. Replacing this system would be costly, likely in excess of \$40 million. For an idea of basic costs, a single hydrant could cost \$6,000, while a large valve may cost more than \$15,000.

Maintenance is an ongoing challenge. The three Towns work both jointly and independently. While each Town maintains lines within their boundary, certain parts of the system are critical for all three Towns. Sustaining consistent flows and pressures is also an ongoing test – aged infrastructure, different pipe materials and sizes, major elevation changes, and a system spread over a large area, means constant operational demands.

Beginning the Fall of 2019, there were difficulties with water levels in the reservoir – more specifically, something was causing the refill rate to slow. In an attempt to troubleshoot this problem staff searched repeatedly across the entire system for breaks, checked the entire New Bay line on three occasions (including inspecting all air relief valves), rebuilt the main line pressure reducing valve, checked all valves between the PRV and old tank site, inspected the tank, and installed two flushing hydrants.

These efforts revealed no obvious problems, in fact, the system appears to be quite robust for its age. The search did, however, indicate the problem was likely related to a 3km section of 10" pipe between PRV and old tank site.

There is a large drop in pressure in this cast iron section of line which was installed in 1940 by the Canadian Army.

The pressure drop appears to be caused by high friction losses which indicates excessive sediment build up in the cast iron pipe. The Town consulted officials with Municipal Affairs, worked closely with the Regional Services Board, sought advice from two engineering firms, and retained the services of an engineering technologist. It was recommended that the Town develop a water system model to test and evaluate system functionality. The model indicated the old cast iron pipe is restricted.

This year the Town of Botwood will spend over \$1.5 million on water related initiatives. Two Municipal Capital Works (MCW) Projects have been approved. These projects are cost-shared by three levels of government and should help us to better manage the system and improve overall water quality.

The first project will see the installation of infrastructure to allow us to physically clean the 3km section discussed above. As well, a second pressure reducing valve will be installed on Pumphouse Road for better system control. Our goal is to complete this project by the fourth week of June. This project should improve pressure at higher elevations, lower pressure in the Water Street West area, and improve our ability to fill our reservoir.

Adequate tank reserves are crucial for system pressure, emergency demands, and line flushing. Shortly after the project is completed, the Town will begin an extensive flushing program to clean all lines (residents will be notified). We are hoping to have the system thoroughly cleaned and all lines flushed by the end of July.

The second MCW project will see a new waterline installed on Sacrey's Road along with other street improvements. This project is in the final stages of engineering and has been sent for environmental approval. The project should go to tender by early summer with work commencing shortly thereafter. The new waterline will be much larger than the existing line (3" now, going to 6") and should result improved water quality on Sacrey's Road and Commonwealth Drive.

In addition to these projects and our flushing program, Town staff will conduct other regular maintenance and system improvements. This work includes significant brush cutting along the New Bay line, replacement of 12 main line air relief valves, and installation of new monitoring equipment.

The Town of Botwood is committed to operating a reliable and safe water system. Elected officials and staff will continue to work diligently to maintain and improve this crucial system.