

# The Macallen Dam Bond Issue

## Introduction

The Newmarket Town Council and Budget Committee have unanimously voted to place a warrant article on the March 2019 Town Meeting agenda for a \$2,000,000 bond issue for repair of the Macallen Dam. The Town has owned and operated the Macallen Dam on the Lamprey River since 2004. In 2008, the Town received a Letter of Deficiency (LOD) from the New Hampshire Dam Safety Bureau indicating the dam had major safety issues. There were concerns that failure of the dam could potentially result in the loss of human life and substantial damage downstream. The Town is required to address these concerns or possibly face fines and penalties imposed by the State of New Hampshire.

## Studies and Investigations

Since 2008, numerous investigations have been conducted by the Town's consulting engineers:

- A hydraulic evaluation of the dam including the 100 year flood flows
- A dam safety breach analysis
- An analysis of alternatives to increase the spillway capacity to meet safety requirements
- An analysis of structural repairs to the abutment walls and associated costs
- A three year feasibility study, between 2011 and 2014, which looked at dam removal as an option and involved extensive public participation and considerable input from all project stakeholders.

## Repair vs. Removal

As a result of these studies and continued negotiations with the Dam Bureau, removal was determined to be the least preferred option for the following reasons:

- ***Dam removal would not appreciably reduce the flood risk***, as other constriction points and hydraulic conditions upstream also greatly affect flooding potential.
- ***Overwhelming support from the public to keep the dam***, as expressed by the residents, upstream and downtown property owners and abutters due to its intrinsic aesthetic values, historic and cultural significance, the community benefits associated with the environmental features and outdoor recreation opportunities it provides to the impoundment, and the tourism it draws



which positively impacts downtown businesses, and the local economy. Conversely, there was little support from the public that removal of the dam would be in the Town's best interest.

- **The potential costs for dam removal would be similar if not greater than the proposed rehabilitation/repair costs.** For example, the overall cost to remove the Great Dam in Exeter was approximately \$2.4 million for design, permitting and construction. In Newmarket's case, there are many unknowns associated with dam removal that could increase the costs beyond the preliminary estimates, such as the need to remediate and remove any contaminated sediments that may exist in the riverbed; the need to modify the bedrock beneath the dam to allow for fish passage once the fish ladder is removed; and the potential economic impacts on property values to upstream property owners. In consideration of these factors, it was determined that repair of the dam would be comparable in cost to removal, if not less.

## Proposed Project

In 2017, GZA GeoEnvironmental was hired to provide conceptual design options for the repair of the dam. In conjunction with a recommendation from the Macallen Dam Study Committee on the “preferred option”, the Town Council in May 2018 voted to move forward with a contract for final engineering and design in anticipation that there would be a bond issue for repair presented to the voters at the 2019 Town Meeting.

The purpose of the project is to:

- provide necessary hydraulic capacity in order for the dam to safely pass the 100 year design flood flow
- address structural deficiencies
- improve the public safety of the dam by allowing greater ability to reduce water levels ahead of forecasted flood events
- improve the aesthetics of the spillway and surrounding area

The project involves the following components:

- construction of a new concrete outlet structure with a pneumatically operated gate system
- rehabilitation of the left and right abutment walls to correct structural deficiencies
- slightly raising the height of the right embankment to increase the capacity of the impoundment
- construction of a new armored right upstream embankment

## Cost estimate, Financing and Fiscal Impacts

Estimated construction cost:	\$ 1,395,000
35% Contingency*	488,300
Administration Costs (legal, bond)	16,700
Construction Engineering	<u>100,000</u>
	\$ 2,000,000

\*contingency is conservatively high because final design was not complete at the time of cost estimate. The cost is anticipated to be lower.

The Town would issue a \$2,000,000, bond over a 20 year period with an interest rate of 4%. Over the course of the bond, \$847,777 in interest would accrue. The impact on the tax rate in Year One would be 6 cents/\$1,000 (Interest only) and in Year Two would be 23 cent/\$1,000 (Interest and Principal), which would be reduced every year thereafter over the term of the bond. Following a favorable Town meeting vote, the Town will proceed with the award of a construction award with a July 1 start date. Construction is planned to be completed by the end of 2019.