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PLANNING FOR AND RESPONDING TO WATER SHORTAGES USING SIMPLE, IN-HOUSE COMPUTER MODELS, CITY OF CAMROSE

Enarson, Jeremy^{1,2}

¹ City of Camrose, Canada

² jenarson@camrose.ca

Extended Abstract

In 2013, the City of Camrose received approval from the Province of Alberta to withdraw an additional 1.58 million cubic metres of raw water annually from the City's primary water source, Driedmeat Lake (part of the Battle River Watershed). Once approved, this newest license would supplement the City's three older licenses, bringing the total allocation to ~4.23 million cubic metres of raw water per year. The City requested this new license to facilitate the medium-term growth projections of the City, as well as to support the raw water needs of a new industrial facility that was seeking to develop in the area. With this newest license, the City would be able to grow to a population of approximately 34,000 people vs. the City's current population of 18,742 people (2016), which should provide approximately 30 to 40 years of growth based on historic growth rates and current growth projections.

However, as water allocations from the Battle River was nearing its upper limit, the City and the Province recognized that the availability of water under this newest license may be at risk, particularly during times of extended drought conditions. As part of the Province's approval for this new license, the City was required to develop a water shortage response plan (WSRP), which would be implemented by the City during times of potential and/or realized water shortages.

Over the course of the next two years, the City worked to develop this WSRP. As part of that plan, the City created an in-house spreadsheet model to track the water flows into and out of Driedmeat Lake, using a variety of City and Provincial monitoring resources. The model would then allow the City to predict the amount of water remaining in the lake and thus predict the amount of time available before the Province would impose mandatory water restrictions on the City. Once those mandatory water restrictions were imposed by the Province, the City would effectively have to live within the allocations of the City's three "older" licenses, which would equate to a 33% reduction in annual water withdrawals from Driedmeat Lake vs. what would be permitted under all four licenses.

A draft version of the WSRP was presented to City Council in the fall of 2016. Following this initial presentation to Council, the draft plan was circulated to the community and to the City's regional partners for public review and input. The plan was ultimately brought back to Council in early 2017 and was recently approved by City Council.

The purpose of this presentation is to provide an overview of the process used in developing the water shortage response plan and the spreadsheet model that the plan is based on. While being a fairly simplistic representation of the lake, the model provides results that are reasonably accurate to allow City Administration to prepare the community and its regional partners for potential water shortage situations

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N/A

References

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