



STAFF REPORT

TO: Council
MEETING DATE: March 20, 2018

FROM: Dave Newman
Director of Infrastructure Services
FILE NO: 5600-09-010-Z3

SUBJECT: Zone 3 Water Supply Option

RECOMMENDATION(S)

THAT the Director of Infrastructure's report regarding Zone 3 Water Supply Option be received;

AND THAT staff be instructed to issue a Request for Proposals for the siting of new monitoring well(s) and the detailed design of a new pump station and supply well;

AND FURTHER THAT staff be instructed to include the design costs for expanding the supply of aquifer water into Zone 3 in 2018 and the associated capital costs for completing the related upgrades to Town infrastructure in 2019 in the Town's 2018 Five-Year Financial Plan.

BACKGROUND/PURPOSE

As directed by Council, staff engaged Urban Systems to complete a feasibility study to explore the option of extending the Gibsons Aquifer service area into Zone 3. Three scenarios were examined in comparison to the current long-term servicing plans, with Council ultimately supporting the option involving constructing a pump station and drilling a new well, with an estimated reduction in reliance on the SCR D water supply of 95% to 98%. The intent is that the Town would provide the average daily demand and maximum daily demand to Zone 3 from the Gibsons Aquifer but would still rely on the SCR D for peak hour water use, emergency storage, and fire flow.

The above proposal for expanding the aquifer supply in the Town was presented to elected officials at a Water Information Session meeting hosted by the Town of Gibsons on March 12, 2018.

Staff are now seeking direction from Council regarding the next steps.

DISCUSSION

The option of supplying Zone 3 with aquifer water as an alternative to relying on the SCR D for supplying water to this zone is not a new idea. However, the Town's water strategies have been consistent with the status quo of supplying Zones 1 and 2 with water from the aquifer and supplying

Zone 3 with water from the SCRD. Some of the reasons behind the Town's strategy of relying on two water sources included limited data regarding the projected capacity of the aquifer, lack of infrastructure to address required pressure and water reserves, and vulnerability with reliance on only one water source.

While the above concerns and constraints are still valid, the current SCRD water crisis is prompting the need to re-examine the Town's water strategies, pursue a collaborative approach to regional water supplies, and explore some options to secure adequate water from the aquifer for the Town's use as well as potentially assisting the SCRD with their water issues. In addition, through the monitoring program initiated in 2009 as well as a significant reduction in Town water use (800 lcd in 2008 reduced to 350 lcd in 2016 and 2017) it is forecast that, with the information that the Town has at present, it is likely that the aquifer has enough capacity to serve a population of 7300. It is possible that it may be able to serve the full buildout of the Town; long term monitoring will provide the data to determine the actual ultimate yield of the aquifer.

In January 2018, Urban Systems completed a feasibility study examining the possibility of providing Zone 3 with aquifer water supply until the capacity of the aquifer is reached or until buildout, whichever comes first. This would provide the SCRD with at least short-term (decades) reduction in water demand from Gibsons which would assist in providing the SCRD with additional time to explore and implement additional supply options for supplementing the Chapman Creek water supply, including groundwater from other areas outside of the Gibsons Aquifer. Although the bulk of the water supplying Zone 3 would be from the aquifer, the Town would still be reliant on the SCRD for peak hour demand, fire flow, and emergency storage. As such, Zone 3 would need to continue to be chlorinated.

New monitoring wells would be required to monitor the increased impact on the aquifer and to gather additional data to track any changes in the projected ultimate capacity of the aquifer. Ongoing monitoring will provide the Town with ongoing indications of the direction that the Town will need to take as the ultimate yield of the aquifer is refined. Climate change, sea level rise, and changes in draw on the aquifer will all impact the amount of water that will be available over time.

The Town has applied to the Ministry of Forests, Lands, Natural Resource Operations & Rural Development (FLNRO) for groundwater licencing of 1.2 million cubic metres of water, which would serve close to the full buildout of the Town should the aquifer prove equal to the task. FLNRO has approved the application but has not yet approved a licence. Should FLNRO grant this licence, one of the conditions would be that the Town monitor for any signs of salt water intrusion; at least one of the monitoring wells noted above would serve this purpose.

While reducing the Town's reliance on the SCRD water use by 95% to 98% is a significant step and will free up water for use by the SCRD, it is not going to come anywhere near solving the SCRD's water challenges. The SCRD has a number of initiatives being considered to bolster their water supply including the Chapman Lake expansion, an engineered lake, metering, and groundwater exploration. It is understood that there will be more than one of these solutions that will need to be implemented. Metering has already saved the SCRD a significant amount of water (estimated at 2.3 million litres per day). To put this into relatable terms, the amount of water that has been tracked and saved so far via SCRD metering is approximately 1.4 times the amount of water used in the entire Town of Gibsons each year and approximately 3.7 times the amount of water used in Zone 3 alone. A total of 1300 leaks have been identified by the SCRD by installing meters on 6150 services. There are almost 500 other leaks which have been identified but not yet addressed. The

SCRD still has approximately 5000 meters to install which will provide the mechanism to identify further leaks.

Staff are recommending the next step be taken in pursuing the option of delivering aquifer water to Zone 3 is to prepare a Request for Proposals (RFP) for qualified consultants to complete a detailed design for the proposed pump station and well, as well as the siting of the new monitoring wells. The supply and monitoring wells would require input from a hydrogeologist whose involvement would be a condition of the RFP.

Alternatively, and in the interest of demands on staff time and to keep this project moving forward as expeditiously as possible, Council may wish staff to negotiate directly with Urban Systems for this work. Urban Systems is the consultant most familiar with the Town's water system and completed the feasibility study for this work.

COMMUNICATION

Communication of the action the Town is taking regarding the proposed changes to Zone 3 is part of a larger communication plan to be addressed in a separate report.

PLAN/POLICY IMPLICATIONS

Strategic Plan Implications

Expanding and refining the management of the Gibsons Aquifer is also consistent with the strategic objective of Advancing our Eco-Asset Strategy.

Financial Plan Implications

The cost of a new pump station and well is estimated at \$1.8 million; new monitoring wells would be a further estimated \$100,000 to \$150,000, depending on the ultimate number of monitoring wells. It is projected that the cost savings of water purchases will offset the capital costs over time; the length of time for cost recovery would be determined by the final costs. As there is anticipated to be an increase in water pressure, there would also be the need to reserve contingency funds to replace watermains that may develop leaks during the proposed change over. The mains most likely to develop leaks would be asbestos-cement mains that have reached or are nearing the end of their life expectancy.

Other Policy or Plan Implications

The recommendations are consistent with the Aquifer Mapping Study and the Town's Asset Management Policy.

RECOMMENDATIONS / ALTERNATIVES

Staff recommendations are on the first page of this report. Alternatively, Council may wish staff to negotiate directly with Urban Systems for this work.

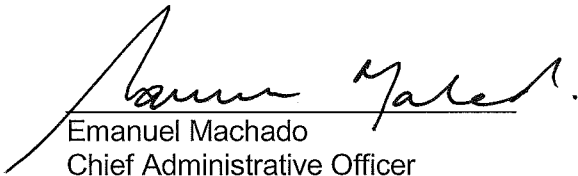
Respectfully Submitted,



Dave Newman, ASCT
Director of Infrastructure Services

CHIEF ADMINISTRATIVE OFFICER'S COMMENTS:

I have reviewed the report and support the recommendation(s).



Emanuel Machado
Chief Administrative Officer