

Town looking at \$20 million bill to upgrade treatment plant, boost water supply

Written By PETER RICHARDSON

The Town's engineers, S. Burnett and Associated presented two detailed reports to Council concerning the wastewater treatment plant and the drinking water supply last Monday night (June 22).

Due to the projected and real growth of Shelburne and the recurrent odour problems associated with the wastewater treatment plant recently, an Environmental Assessment was initiated to assess the alternatives for the next 20 years for sufficient waste water treatment. The process is intended to establish the most cost effective and environmentally sound and sustainable approach to treating Shelburne's waste water.

Currently, the Town utilizes a Class III extended aeration treatment plant, with the treated effluent flowing into the Beasley Drain and finally the Nottawasaga River. The projected population in Shelburne by 2040 is estimated to be 15,000 people and the current plant projections will near it's allowable maximum by 2021 and exceed them by 2022. At present, the current average daily capacity sits at 3,420 cubic metres per day. In 2021, the flow will be 3,398 m³/day and in 2022 will surpass the limit at 3,459 m³/day. The rated capacity required in 2040 would be 5,100 m³/day. These figures are based on population projections of 9,993 in 2021, 10,374 in 2022 and 15,000 in 2040.

The options available for consideration are - do nothing, increase water efficiencies and reduce extraneous flow, expand the existing plant, build a second plant just to handle the additional flow, build a completely new plant and finally build a pipeline to a neighbouring system capable of handling the flow. Of these, several are non-starters. Doing nothing solves nothing, increasing efficiencies is no longer viable and a pipeline is not practical, nor is it financially or economically viable.

The best option, is to upgrade the existing water pollution control plant, based on the assimilated capacity study approved by the Ministry of 5,100 m³/day. The Ministry of the Environment Conservation and Parks has recently raised it's compliance criteria for wastewater treatment and these new criteria will bring extended aeration to near it's physical limits, to meet them. As a result, the design concepts to improve the plant include three options. First is to stay with the extended aeration, with nitrification and denitrification. Second, is to use SBR, or Sequencing Batch Reactors and third, to use Membrane Biological Reactors. Both two and three are new technologies, with three being the most stringent high end technology of all.

The existing plant, which was built in the 60's, had a created capacity of 2,500 m³/day, so 3,420 m³/day is pushing the limits of that technology. The sludge storage capacity is too small, most of the equipment is undersized and some technology, like the present UV system, is obsolete, as a result, the concentration is on options one and three.

There are some government funding options to be explored, but the Town will still be required to provide a very significant portion of the costs and that will likely require significant borrowing to do so.

Once the EA is approved, the design stage of the upgrade will require about one year, to fifteen months, while the actually construction another two years, for a total of at least three years till completion. Council received an estimate for this work, in 2018, of between \$11 million and \$14 million, however, Mr. Burnett explained that in each of the past two years, prices for this type of work have risen by 30 to 40 percent each year. At best, the current estimates would be on the very low end of the scale, if they are even relevant.

When asked by Mayor Wade Mills if the design elements were now comparatively solid, Steve Burnett said yes, but they could still vary by between 10 and 15 percent. Coun. Walter Benotto asked if they were considering a Membrane Biological Reactor system, MBR, to which the answer was yes. Although the most advanced system type, it allowed for some components to be eliminated and others to be downsized. It also had good longevity factors as well as guaranteed particle sizes, due to it's membrane sizes.

Unfortunately, depending upon scheduling and capacity allocations already in existence, this project could see a development freeze in Shelburne until completion of the upgrades.

Shelburne water supply

Steve Burnett's next report concerned the Town's water supply. Presently provided by six wells and four pumping stations, the water volume supplied, is already potentially inadequate. The existing wells provide a flow of 3,836 m³/day, or 44 litres per second, which is adequate for an average day's demand. However, the max draw is 4,400 m³/day, which is inadequate to supply the Town, without utilizing its storage capacities to supplement the wells output. The supply, is certainly not capable of meeting the projected demands on the system. Again, the solution options are to do nothing, to increase water efficiencies, rehabilitate wells 1 and 3, pump 7 and 8 concurrently, at 18.9 litres per second, locate and develop a new well, add additional arsenic treatment to wells 5& 6, or to limit the Town's growth.

Wells 1 and 3 have already been rehabbed, though not yet approved by the Ministry, pending a flow test this summer. Likewise, wells 7&8 must also be flow tested to validate their ability to pump 37.8 litres per second. Also, wells 7&8 are not in the Nottawasaga Conservation Area watershed, but rather that of the Grand River Conservation Authority. Hence, the GRCA will have to oversee the guidelines of the Water Protection Requirements for increasing the flow rates of these two wells.

Above and beyond all this, the pumps at the wells will have to be upgraded to larger capacity units, in order to maintain the required flow rates. Regardless, barring any permit delays from the authorities involved, it is the expectation of S. Burnett and Associates that all this can be accomplished by spring to early fall of 2021.

With all the changes in the financial segments of these projects, it is totally uncertain, at this time what the final cost will be to Shelburne. However, it is safe to assume, that they will run in excess of \$20 million dollars and all before the end of 2022, or potentially sooner.