



A People Place, A Change of Pace
SHELBURNE
ONTARIO, CANADA

Meeting Date: Monday, January 23, 2023

To: Mayor Mills and Members of Council

From: **Stephen Burnett, Municipal Engineer**

Report: SBA 2023-01

Subject: **Water & Sewage Projects Update**

Recommendation

Be it Resolved that Council of the Town of Shelburne;

Receives the report SBA 2023-01 Water & Sewage Projects Update dated January 23, 2023.

Background

The following report provides an update summary to the new Council on the status of the current water and sewage environmental assessments and related capital infrastructure projects underway within the Town of Shelburne.

While several water and wastewater projects are crucial for the existing and long-term sustainability of the community, the sewage treatment plant capacity has generally been considered as the main bottleneck for additional servicing capacity. The last sewage allocation report presented to Council confirmed that there is not sufficient sewage allocation for any additional development and that it will not be possible to service all requested development without proceeding with the upgrades to the Water Pollution Control Plant (WPCP) at estimated costs of \$33 Million to \$34 Million.

Analysis

This report summarizes the numerous water and sewage projects that have been initiated and are on going within the Town of Shelburne to support necessary improvements to the Towns water and sewage systems to alleviate issues based on existing conditions as well as to support future growth.

Currently there are three MEA Class Environmental Assessments that are being completed by the Town along with other associated and non associated water and sewage projects. The three current EA's are;

- Water Supply Schedule 'B' Class EA
- Increased Capacity of the WPCP Schedule 'C' Class EA
- Water & Wastewater Schedule 'B' Master Servicing Plan Class EA

Water Supply Schedule 'B' Class EA

While recent discussions have been focused on sewage treatment capacity there have also been servicing and capacity issues with the Towns water supply system. Both PW1 and PW3 have been offline since the spring/summer of 2020 which has significantly limited the Towns current water supply and at present we do not have sufficient water supply to meet the current maximum day water demands.

PW1

PW1 was taken offline due to extremely low production. Rehabilitation of this well was very promising and increased flows from almost non-existent back to a sustainable pumping rate of approximately 14 L/s. However, upon testing after the rehabilitation, it was determined that air entrainment is occurring in the supply which are small bubbles that appear as turbidity in the water.

Turbidity equipment modifications and air release valves were installed in early 2022 and the system was re-tested. While the air entrainment was resolved there was still significant turbidity in the system which was determined to be coming from the aged below grade chlorine contact tanks.

These contact chamber tanks have now recently been flushed and cleaned but the well appears to still be creating turbidity on start-up which is most likely attributed to the well being offline for such a significant time period. Additional well development and testing is proposed for the first quarter of 2023 to try and resolve this turbidity issue. However, if these measures are not successful then the last alternative would be a replacement well at PW 1.

PW3

PW3 was taken offline in the spring of 2020. PW3 has naturally occurring arsenic levels, which are above the reduced drinking water limits of 10 ug/L, which therefore required treatment. During rehabilitation work on PW3 to clean up the well, it was concluded that this well water supply was GUDI with adequate filtration. This meant that UV Disinfection had to be added to the Well 3 Arsenic WTP upgrade project which also expanded the building addition footprint and added additional equipment and costs. The expanded WTP is currently under construction to deal with both the naturally occurring arsenic and also the GUDI status at PW3. It is anticipated that construction will be completed this summer and allow PW3 to come back online. A grant of \$2.7M was secured through ICIP Funding to help support this upgrade project.

PW7/PW8

PW7/PW8 permit currently only allows one of the wells to pump at a time with the other being standby and this water supply must be blended with the supply at PW 5/6 to bring the elevated arsenic supply at PW 5/6 under the updated regulation of 10 ug/L. Under this scenario, PW 5/6 can only pump at approximately 75% of it's rated capacity due to the arsenic levels. Any pumping beyond that rate would result in PW 5/6 exceeding arsenic blending levels.

To alleviate this condition and also increase the overall water supply for the Town, modeling showed that PW7 & PW8 could be run concurrently which would potentially double the supply from PW 7 & PW 8 and also allow PW 5/6 to run at its full Permit to Take Water (PTTW) rates. To confirm this modelling confirmatory pumping tests were completed and verified that PW7 & PW8 can run concurrently.

To support these higher flow rates detailed source water protection hydrogeological modeling was also required and an update to the Source Water Protection Plan has been initiated working with GRCA & NVCA. This work has recently been completed and will support an update to the PTTW for PW7/8. This request will also trigger an Intra-basin transfer notification by MNRF similar to the one triggered when PW7 & PW8 were initially developed.

Once PW7 & PW8 are permitted to run concurrently by the MECP, this also triggers the need for a standby well currently referred to as PW9. Budgetary allocation of \$400,000 has been included for the addition of PW9 in the 2023 Budget. It is expected that the approximately 8 to 12 month permitting process which is presently underway will be completed in late 2023 to allow for PW7 & PW8 to run concurrently.

With these inter-related water projects wrapping up in late winter/early spring of 2023, it will allow the Water Supply EA to be completed and submission of the Notice of completion this spring 2023. The work completed to date and completion of the improvements at PW1, PW3 and PW7/8 will provide sufficient water supply for the Town for approximately 12 years, however a new well supply, currently referred to as PW10, will be required by 2035 to meet the 20-year growth scenario.

New Water Tower

An EA previously completed in 2012 identified the need for increased water storage capacity to support the growth of the Town for fire protection and emergency storage. Construction of the Tower commenced in the fall/winter of 2021 and is nearing completion. It is anticipated that the Tower will be commissioned and brought online in the late winter/spring of 2023. Due to the significant financial impacts of COVID and supply chain delays the construction costs were significantly higher than expected at approximately \$7.2M and required significant borrowing by the Town. The new water tower will provide 20 years' worth of growth from a water storage, emergency storage and fire protection perspective.

Increased Capacity of the WPCP Schedule 'C' Class EA

As previously presented to Council, the WPCP is in need of significant upgrades and expansion to satisfy the needs of the current development applications and the projected 20-year growth. The previously presented capital improvements for the WPCP are estimated at between \$33 Million to \$34 Million.

Effluent water quality criteria as stipulated in the Assimilative Capacity Study was approved by MECP in April 2020 and SBA has worked with the NVCA on an adaptive monitoring and stewardship program for the Boyne River to satisfy the remaining environmental mitigation measures.

In 2021, Council approved using \$2M from capital reserves to fund the design and tendering portion of the WPCP upgrades which are currently ongoing. The final WPCP EA Public Information Center (PIC) was held in 2022 and the Final EA documents and Notice of Completion will be issued in early 2023.

Initial timing was based on completion of the detailed design and tendering the works by the end of 2023 with construction occurring in 2024 to 2026, contingent on funding. However, the impacts of Bill 23 and the Town's ability to offset construction costs with Development Charges may significantly effect these timelines.

Based on the 2022 sewage allocation summary report, there is not sufficient sewage capacity to service the current pending development applications or any additional development approvals beyond the currently approved developments. An update to the sewage allocation based on 2022 year end flow data will be presented to Council in early 2023.

Given the significant capital costs of the proposed WPCP upgrades necessary to support the next 20 years of growth within the Town, it is paramount that a sound and clear financial strategy is formulated which may include establishing a development front-ending agreement taking into consideration the impacts of Bill 23 and/or Provincial and Federal Grants necessary to support this significant endeavour.

Water & Wastewater Schedule 'B' Master Servicing Plan Class EA

A water and wastewater Master Servicing Plan EA was initiated in 2021 and is nearing completion. Since water supply and sewage treatment have been determined through separate Class EA's the main purpose of this EA is to determine any bottlenecks in the current water distribution system and sewage collection system as well as the most appropriate methods of servicing each area of Town.

The last Master Servicing Plan was completed in 2003 and was severely outdated and did not fully account for the currently proposed expansion of the West End Town Expansion area.

The Master Servicing Plan EA has determined the existing bottlenecks and necessary water and sewage improvements that need to be completed to service all areas of Town and the future West End Expansion area. The following is a brief list of the bottlenecks identified and upgrades necessary;

- Upgrades & Expansion to Fiddle Glen Sewage Pumping Station
- Upgrade to Fiddle Glen Sewer Trunk Line
- Upgrades to sections of South-East sewer lines near the WPCP
- Upgrades to the North-East Sewer Trunk line near the WPCP
- Upgrades to South Lane Sewer Trunk line south of main street
- Upgrades to Franklin Sewer Trunk line

It is anticipated that this Master Servicing Plan will be completed in the spring/summer of 2023 and will determine the most appropriate method of providing water supply, storage and distribution to the unserved areas of Town, will determine the most appropriate method of providing sewage collection and pumping from the unserved areas and will determine the associated infrastructure and estimated costs to implement these services.

SCADA Upgrade Project

A SCADA upgrade project was initiated in 2022 and is nearing the end of the design phase with tendering proposed for the capital works in early 2023. The purpose of this capital project is to update the Town's water and wastewater supervisory control and data acquisition (SCADA) system which is the computer control system, network and data communication that controls and monitors all aspects of the Town's water and sewage systems. While some of the Town's water system SCADA was upgraded at Well 7/8 and Well 5/6 when Well 7 & 8 were constructed in 2015, the Town's current system is outdated with some components dating back to the 90s. The capital costs associated with the proposed works are in the \$1.150M range.

Financial Impact

The upgrades to the Water Pollution Control Plant (WPCP) was estimated costs to be \$33 Million to \$34 Million in 2022. It is expected due to significant inflationary impacts the project cost will increase.

The tendering and construction of the WPCP upgrades would be delayed until a financial plan can be determined by staff and recommended to Council due to the implications of Bill 23.

Policies & Implications

N/A

Consultation and Communications

N/A

Council Strategic Priorities

Council's Strategic Priorities has three Goals - Sustainable, Engaged and Livable. There are a total of 12 targets with the three Goals.

This report aligns with the following Sustainability and Engaged Goals;

Target T2: Municipal services review and evaluation

Target T3: Invest and fund critical infrastructure for future

Target T4: Promote Balance Growth

Target T6: Promote more open communication

Respectfully Submitted:

Stephen Burnett, Municipal Engineer

Reviewed by:

Denyse Morrissey, CAO