

Meeting Date: October 16, 2023
Department: Engineering and Public Works
Report No.: EPW-2023-52
Submitted by: Jake Straus, Director of Engineering & Public Works
Approved by: Trisha McKibbin, Chief Administrative Officer

SUBJECT: **Mt. Brydges Wastewater Treatment Facility Update**

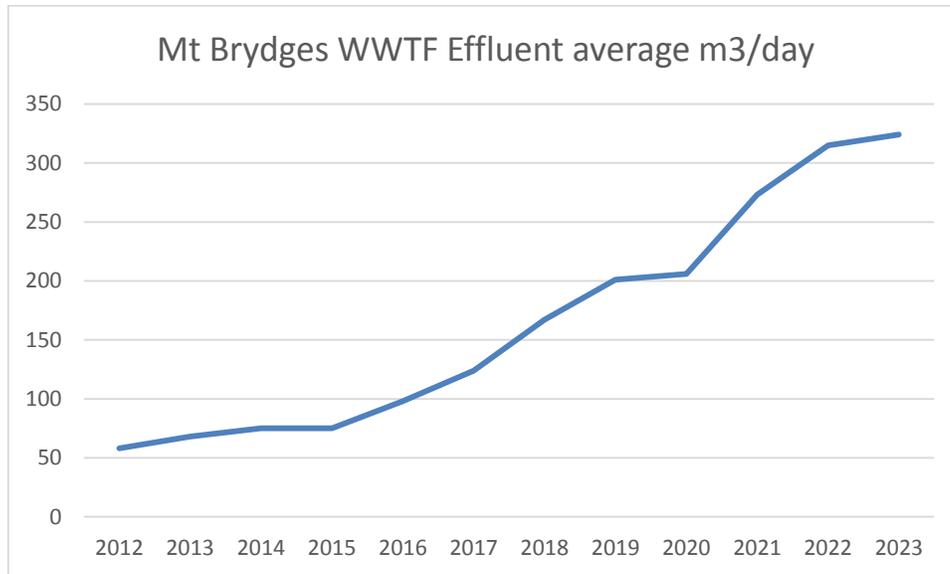
RECOMMENDATION: THAT: Council receive report EPW-2023-52 Mt. Brydges Wastewater Treatment Facility Update for information.

BACKGROUND:

At the September 18, 2023 Council Meeting, Council requested an update on the Mt. Brydges Wastewater Treatment Facility (WWTF).

Construction of a communal Sewage Works for the community of Mt. Brydges began in the spring of 2010 and was completed in the spring of 2012. The Mt. Brydges Sewage Works consists of the sewage collection system, two sewage pumping stations and a sewage treatment facility. Staff reviewed annual reports from 2022 dating back to 2017 and found compliance limits were not met. As a result, staff began to evaluate the process and determine the next steps to move forward with the Facility.

Over the last 5 years, there has been a significant increase in flows to the facility. The increases in flows to the facility result from development and an increase in the number of connections to our sanitary sewers.



Council Reports

Over several years, Council has been provided information with regards to the performance of the Mt. Brydges WWTF. In order to share this information in an easy to access manner a copy of these reports can be accessed below.

[April 3, 2020, EPW 2020-007](#)

Presentation on the Mt. Brydges WWTF and the upgrades

[June 1, 2020, EPW 2020-13](#)

Report Deferred: Fred Tranquilli, Chief Administrative Officer requests that this report be deferred as there are some deficiencies and will need some time for review. George Elliott, Director of Engineering and Public Works briefly speaks on the details of this report. Councillor Flegel asks if this happened due to a design flaw as the time frame has only been 10 years. He was curious to know if this equipment is not designed for growth. The director indicates that the tank was brought it at the time with the intent of cost savings and this was meant for a smaller community like Mount Brydges. Fred Tranquilli indicates that the technology of this unit was not the best at the time of purchase and requires a little more attention. Through the strategic plan process, this will highlight the mandatory connections.

[July 6, 2020, EPW-2020-17](#)

Moved by Councillor Cowan
 Seconded by Councillor Baker

THAT: Council receive Report EPW 2020-17 detailing the cost expenditures related to a major failure at the Mount Brydges WWTP and future needs to optimize treatment efficiencies.

THAT: Council approve a project for Interim Flow Equalization for the Mount Brydges WWTP with a capital budget of \$90,000 funded from the Wastewater Capital Reserve Fund.

THAT: Council approve a conceptual design project for an equalization tank in the amount of \$28,250 plus HST funded from the Wastewater Capital Reserve Fund to engage RV Anderson to provide a detailed scope of works and project estimate for the construction of an equalization tank at the Mount Brydges WWTP to be constructed by 2023.

CARRIED

[March 15, 2021, EPW 2021-03](#)

[2020 Summary Report for Strathroy-Caradoc Water Distribution System](#)

Moved by Councillor Brennan
Seconded by Councillor Hipple

THAT: Council receive the report regarding the 2020 Annual Reports for the Strathroy and Mount Brydges Wastewater Treatment Facilities for information.

CARRIED

[February 22, 2022, EPW-2022-03](#)

Moved by Councillor Cowan
Seconded by Councillor Hipple

THAT: Council receive the Report EPW 2022-03 regarding the Mount Brydges WWTF Upgrades Design; and further,

THAT: Council award the design for the Mount Brydges WWTF upgrades to RV Anderson in the amount of \$384,535 (excl. HST); and further,

THAT: Council approve a budget of \$70,000 (excl. HST) for geotechnical and hydrogeological investigations and laser scanning.

CARRIED

[March 21, 2022, EPW 2022-08](#)

[2021 Annual Report - Mount Brydges Wastewater Treatment Facility](#)

Moved by Councillor Baker
Seconded by Councillor Pelkman

THAT: Council receive for information Report EPW 2022-08 regarding the 2021 Annual Reports for the Strathroy and Mount Brydges Wastewater Treatment Facilities.

CARRIED

[December 19, 2022, EPW – 2022-49](#)

[Interim Flow Equalization – Mount Byrdges Wastewater Treatment Plant](#)

[Mount Brydges WWTP Upgrades Conceptual Design Report 2021 12 01](#)

Moved by Mayor Colin Grantham
Seconded by Councillor Kennes

THAT: Council receive Report EPW 2022-49 regarding the Mt. Brydges WWTF for information.

CARRIED

[January 12, 2023, Special Meeting of Council](#)

[Mount Brydges WWTP Upgrades Conceptual Design Report 2021 12 01](#)

Moved by Councillor Brennan
Seconded by Councillor Kennes

THAT: the reports be received for information.

CARRIED

[March 20, 2023, EPW 2023-16](#)

[2022 Annual Report - Mount Brydges Wastewater Treatment Facility](#)

Moved by Councillor Kennes
Seconded by Councillor Brennan

THAT: Council receive for information Report EPW 2023-16 regarding the 2022 Annual Reports for the Strathroy and Mount Brydges Wastewater Treatment Facilities.

CARRIED

[April 3, 2023, EPW-2023-20](#)

[Summary Table](#)

[Riverbirch Biodisk Report](#)

Moved by Councillor Brennan
Seconded by Councillor Kennes

THAT: Council receive the Report EPW 2023-20 for information; and further

THAT: Council direct staff to continue with the Mt. Brydges Wastewater Treatment Facility's Upgrade project already underway and for which the ECA approvals have been submitted for.
CARRIED

[May 1, 2023, EPW 2023-28](#)

Moved by Mayor Grantham
Seconded by Councillor Kennes

THAT: Council receive report EPW-2023-28 future expansion of the Mt. Brydges Wastewater Treatment Facility for information.

[July 4, 2023, EPW 2023-40](#)
[2023 Mt Brydges Effluent Summary](#)

Moved by Councillor Brennan
Seconded by Councillor Pelkman

THAT: Council receive report EPW-2023-40 for information.

CARRIED

Ministry of Environment Conservation and Parks (MECP)

The MECP oversees the wastewater treatment facility and received regular reporting from the Municipality on the performance of the Facility. This reporting includes monthly R1 which is the Municipality's reporting requirement along with copies of the annual reports and lab results. Whenever the Facility is out of compliance from the limits set in the Environmental Compliance Approval (ECA), the Municipality is also required to verbally report to the MECP along with a written notice.

The MECP has expressed concerns with the performance of the Mt. Brydges WWTF and with the continued growth resulting in additional flows which will add to the loading on the facility contributing to non-compliance. The Municipality is in regular communication with the MECP and has communicated with them that Council approved dedication of funds for the needed capital improvements as well as the plans for an interim and medium term solution. Staff believe that since the MECP is aware of the work planned and see the dedication of funding they have not yet issued any orders or fines due to the performance of the Facility. Fines/orders can be issued by the MECP at anytime with a wide range of dollar values and actions required.

Before any changes can be implemented at a facility, the MECP must approve these changes through the issuance of a new Environmental Compliance Approval (ECA).

When staff identified the issues in 2018, work began on solutions to bring the WWTF into compliance. The Municipality currently has two ECA applications in with the MECP. The first one is for the interim solution, the second a medium term solution.

Interim Solution

The interim solution is the conversion of the existing spare tank into an equalization tank. This would allow for a steady flow of wastewater into the process.

The advantages of this approach include:

- Equalization of flows into the treatment process
- Using existing infrastructure

The anticipated cost of this solution is \$250,000 based off of preliminary engineering estimates, with the engineer designs completed by RV Anderson (RVA). The actual cost of the project will be provided upon the tendered price from the contractor. This funding is approved in the Mt. Brydges WWTF Capital Budget.

The application for an updated ECA was submitted in May of 2022. The MECP has not yet completed their review. On September 22, 2023 the MECP reached out asking some additional questions on the pre-design report to be answered to help complete their review. This is a normal part of the process and our Engineering Consultant submitted a response to the Ministry on October 6, 2023.

Once a new ECA has been received, the Municipality will be able to tender the works. Anticipated completion for the works would be 9 months (this includes expected delay timing for parts). The role of the MECP in the regulatory framework is to peer review the proposal for the plan developed by RVA and municipal staff.

Medium Term Solution

The medium term solution is currently in the design phase. The associated ECA application for the midterm solution was submitted in January 2023. This upgrade will include the transition to an extended aeration treatment, similar to the Strathroy WWTF along with other process improvements.

The advantages of this approach include:

- More robust system
- Remove materials before they enter the treatment process (headworks facility)
- Superior handling of uneven facility flows
- Recovers much quicker to process upsets
- Staff's confidence in the process
- Proven treatment method

The upgrade to an extended aeration process will involve the following:

- Addition of a headworks/blower building
- Facility updates to meet current building/fire codes
- Reuse of existing tanks by removing the rotating biological contactors (RBCs)
- Installation of diffused air system

- Chemical system upgrades
- SCADA upgrades
- Waste activate sludge tank
- Site upgrades to accommodate the changes including lab facilities

The anticipated cost of this solution is \$5,750,000 based off of preliminary engineering estimates. The actual cost will be provided upon the tendered price from the contractor. This funding is approved in the Mt. Brydges WWTF Capital Budget.

Once a new ECA has been received, the Municipality will be able to tender the works. Anticipated completion for the works would be 2 years.

Staff have contacted the ministry approximately every 2 weeks to follow up on the status of the ECA applications. The CAO and the Director of Engineering and Public Works recently conducted a Zoom meeting with Ministry reps to express the urgency of receiving a response from the Ministry on these applications. It was during this meeting that the Municipality was informed that the municipality now has new Ministry reps. as the Ministry has had some staff changes.

Closed Landfill (Mt. Brydges WWTF site)

A neighbour of the Mt. Brydges WWTF has expressed concerns with regards to the closed landfill and the proposed works at the Mt. Brydges WWTF. The Mt. Brydges WWTF is on the same site as the previously closed landfill. Our Consulting Engineer (BM Ross) has been involved in the work at the closed landfill for many years.

The MECP completed an on-site inspection of the closed landfill on May 30, 2023. From their inspection there were two items that the Municipality was asked to follow up on. They were:

- 1) Limited precipitation had occurred in the days leading up to the landfill site inspection. During the inspection there was a saturated area noted on the west side of the landfill limit, that did not appear consistent with the remainder of the area. Also, nearby was a large drainage tile that appeared to start at the top of the embankment, abutting the landfill limit, leading to the stream at the bottom. The Ministry requested that the municipality further investigate these two areas of concern.
- 2) The Ministry did not share BM Ross's confidence, noted in the 2022 Annual Report, that chloride levels in the surface water sampling were truly representative of chloride conditions. The Ministry suggested additional sampling between point ESR (stream east side rear) and SEG (stream east of gate) to better define landfill influence.

In response, BM Ross visited the site and recommended additional sampling. The sampling was completed and the results were provided to the MECP with no concerns raised. The Municipality will undertake additional sampling this fall as due diligence.

COMMENTS:

With the colder weather approaching it is likely that the RBC's performance will deteriorate, resulting in the need to divert flows. The lack of response from the MECP with regards to review/approval of the ECA applications suggests that the effluent quality from this facility is not of high importance.

Historically to reduce facility loadings and flows when the weather gets colder and the facility becomes out of compliance, staff have directed influent to the spare tank for diversion to the Strathroy WWTF.

Typically, if the facility was out of compliance (double the limit for ammonia) in the winter, diversion would take place daily for the duration of the winter months. Even though the MECP has not provided approval of either of the ECA applications (interim solution has been over 16 months), the MECP may impose orders that require the diversion of influent or the issuance of fines. If staff divert flows, there is a significant impact to the ratepayers. It should be noted that even if the Municipality diverts flows, the MECP may still issue fines or order additional diversion with this option as well.

As the municipality is now working with new Ministry reps., staff are continuing to have discussions with them, and in an upcoming meeting will be specifically discussing options for the upcoming winter months.

Our Engineering Consultant RV Anderson who has experts in the wastewater industry took a fulsome review of our facility and determined the interim solution is the next step forward in improving the facility results in the short term. It is important to note that any renovations or fixes to the facility will need to go through the ECA process. As an example, if we wanted to insulate our RBC's, we would need to retain MECP approval through the ECA process.

CONSULTATION:

The preparation of this report and recommendation was completed in consultation with:

- Director of Finance/Treasurer
- Chief Administrative Officer
- Manager of Environmental Services

FINANCIAL IMPLICATIONS:

Interim Solution - The anticipated cost of this solution is \$250,000 based off of preliminary engineering estimates

Medium Term Solution - The anticipated cost of this solution is \$5,750,000 based off of preliminary engineering estimates.

Diversion Costs -The transportation costs are estimated to be \$28.25 (weekday hours) per cubic meter of wastewater that is diverted. These costs are increased during weekends/outside of regular work hours. The average daily flow for the last 5 months is around 350 cubic meters per day. Therefore, if half the flow is diverted it would cost approximately \$5,000 per day.

STRATEGIC PLAN ALIGNMENT:

This matter is in accord with the following strategic priorities:

Local Infrastructure

- Households and businesses in Strathroy-Caradoc are supported by reliable, financially responsible and well-maintained infrastructure networks.

ATTACHMENTS:

- Caradoc Landfill (Closed) Inspection

- Caradoc Landfill (Closed) Response