

Report to Civic Works Committee

To: Chair and Members
Civic Works Committee

From: Kelly Scherr, P.Eng., MBA, FEC
Deputy City Manager, Environment and Infrastructure

Subject: Wastewater Treatment Operations Master Plan – Notice of Completion

Date: February 1, 2022

Recommendation

That on the recommendation of Deputy City Manager, Environment and Infrastructure, the following actions **BE TAKEN** with respect to the Wastewater Treatment Operations Master Plan:

- (a) The Notice of Completion **BE FILED** with the Municipal Clerk;
- (b) The Wastewater Treatment Operations Master Plan report **BE PLACED** on public record for a 30-day review period; and
- (c) The recommended implementation plan presented in the Wastewater Treatment Operations Master Plan will not be formally approved and endorsed until following the 30-day public review period and following responses to any comments received in accordance with the Master Planning process.

IT BEING NOTED THAT the pace for advancing the projects recommended through this Master Plan will be addressed through existing programs and budgets and Council's decisions through the upcoming 2024-2028 multi-year budget process.

Executive Summary

Purpose

The purpose of this report is to notify Council of the City of London's Wastewater Treatment Operations Master Plan, completed in-house by City of London staff.

Context

The Wastewater Treatment Operations Master Plan was initiated as a planning study to develop an informed, comprehensive long-term plan for the City's wastewater pumping stations and wastewater treatment plants to meet asset renewal and environmental commitments.

This master plan was undertaken by Wastewater Treatment Operations staff, with occasional support from third parties for specialized assignments and public meeting and materials preparation. Completing this project in-house built internal capacity for high-level system planning and ensured the retention of institutional knowledge.

Linkage to the Corporate Strategic Plan

This recommendation supports the following 2019-2023 Strategic Plan areas of focus:

- Building a Sustainable City:
 - London's infrastructure is built, maintained, and operated to meet the long-term needs of our community by replacing aged and failing infrastructure with new materials and sizing new infrastructure to accommodate future development; and
 - Protect and enhance waterways, wetlands, and natural areas.

Analysis

1.0 Background Information

1.1 Previous Reports Related to this Matter

Civic Works Committee – December 14, 2021 – Agenda Items #2.4: Unwanted Water: Quantifying Inflow and Infiltration in London’s Wastewater Sewer System

Civic Works Committee – September 21, 2021 – Agenda Item #2.3: Sewage Overflows and Bypasses Into the Thames River – Sanitary Cross Connections

Civic Works Committee – April 20, 2021 – Agenda Item #2.3: Sewage Overflows and Bypasses Into the Thames River

Civic Works Committee – September 24, 2019 – Agenda Item #2.5: Wastewater Treatment Operations Environmental Assessment - Master Plan Study Initiation

Civic Works Committee – August 13, 2018 – Agenda Item #2.9: East London Sanitary Servicing Study – Municipal Class Environmental Assessment: Notice of Completion

Civic Works Committee – April 17, 2018 – Agenda Item #2.6: South London Wastewater Servicing Study Municipal Class Environmental Assessment: Notice of Completion

Civic Works Committee – April 17, 2018 - Agenda Item #2.5: London Pollution Prevention and Control Plan - Final Master Plan

Civic Works Committee – September 26, 2017 – Agenda Item #3.14: Domestic Action Plan (DAP): London – Proposal Update

Strategic Priorities and Policy Committee Committee – August 29, 2016 – Agenda Item #2.5 – 2019 Development Charge Study - In-House Completion of Master Plan Studies

2.0 Discussion and Considerations

Wastewater that enters the sanitary sewage collection system is conveyed either to a pumping station or directly to a wastewater treatment plant, where it is treated prior to discharge to the Thames River. Operating a wastewater pumping station or treatment plant often requires the upgrade of existing facilities, or the construction of new infrastructure.

The City’s wastewater system consists of 1,360 km of sanitary sewers, 34 pumping stations and 69 km of forcemain. The collection system, including these sewers, pumping stations and forcemains, convey sewage to the City’s five wastewater treatment plants, which include (from east to west):

- Pottersburg Wastewater Treatment Plant;
- Vauxhall Wastewater Treatment Plant;
- Adelaide Wastewater Treatment Plant;
- Greenway Wastewater Treatment Plant; and
- Oxford Wastewater Treatment Plant.

Such a large and complex system is costly to build and operate, so a well-informed plan is essential in order to ensure that maintaining the current high levels of performance can be achieved in a fiscally responsible manner.

2.1 Master Plan Process

The Municipal Engineers Association Municipal Class Environmental Assessment (2000, as amended in 2007, 2011 and 2015) is an approved planning process for municipalities to follow to meet the requirements of the Environmental Assessment Act.

The Class Environmental Assessment process allows for the consideration of alternative solutions to meet the problem/opportunity presented, as well as the review of the various impacts of these alternative solutions.

The City of London recognizes the importance of Master Plans, completed in accordance with the planning process of the Municipal Engineers Association Class Environmental Assessment, to guide long-term planning of municipal infrastructure on a system-wide basis, such as for wastewater infrastructure.

The Wastewater Treatment Operations Master Plan addresses Phases 1 and 2 of the Class Environmental Assessment process and provides a broad level of assessment including a recommended implementation plan that lists various recommended projects. Some of the recommended projects will require further study as project-specific Class Environmental Assessments, prior to design and construction.

2.2 Evaluation of Alternatives

Six alternatives were identified to form the long list of alternative solutions for the Wastewater Treatment Operations Master Plan, including:

- 1) Do nothing;
- 2) Limit growth;
- 3) Plan/design/build a new wastewater treatment plant and/or new pumping stations at new location(s);
- 4) Optimize, upgrade and/or expand existing system (wastewater treatment plants and pumping stations);
- 5) Reduce unwanted water (inflow and infiltration) in the system; and
- 6) Manage/reduce peak flows.

These six alternatives are illustrated below, in Figure 1, along with the evaluation criteria.



Figure 1. Evaluation of Alternatives

The first three alternative solutions were screened out of the evaluation and not considered any further. Doing nothing and limiting growth do not address challenges or constraints related to future servicing, growth, infrastructure renewal, and climate change adaptation. These two alternatives also do not comply with the City's Official Plan (London Plan), Corporate Strategic Plan and other relevant studies and plans. Constructing a new wastewater treatment plant and/or pumping stations at a new location was not recommended for further consideration at this time, until there is an extension of the existing urban growth boundary to warrant this review.

The following three alternatives were carried forward for further consideration and evaluation as part of this Master Plan:

- Optimize, upgrade and/or expand existing system (wastewater treatment plants and pumping stations);
- Reduce unwanted water (inflow and infiltration) in the system; and
- Manage/reduce peak flows.

It was recognized that reducing unwanted water and peak flow management were suitable alternatives to be considered in combination with other alternatives (and not as stand-alone alternatives). Maximizing the useful life and capacity of the existing wastewater system is preferred by the City to best utilize built infrastructure, and to limit and/or defer capital investment.

The following three key strategies were identified to support the optimization, upgrading and expansion of wastewater treatment plant infrastructure:

- a) implement the recommendations of the East London Sanitary Servicing Master Plan;
- b) complete existing plant upgrades and expansions; and
- c) explore and complete desktop plant re-rating and de-rating to recognize the actual capacity of existing plant infrastructure.

The following three key strategies were identified to support the optimization, upgrading and expansion of pumping station infrastructure:

- a) expand and/or enhance flexibility of the pumping station to manage peak flows, growth etc.;
- b) upgrade/improve operation of the pumping station; and
- c) decommission the pumping station, where gravity drainage is feasible.

Wastewater treatment plant and pumping station projects were then identified which met one of the three strategies, with consideration of the following evaluation criteria:

- technical: technically feasible and can be designed and constructed/implemented
- environmental: improvements enhance climate change resiliency, and any environmental impacts to be mitigated
- financial: costs to be planned, reviewed, and approved through current programs and budgets and supplemented by federal and provincial funding
- jurisdictional/regulatory: aligns with local, provincial, and federal plans, policies, programs etc.
- social/cultural: any construction and operational impacts to be mitigated to minimize impacts on communities/public, including odour and noise.

2.2 Consultation

This section summarizes the public, agency, stakeholder, and First Nations consultation completed for the City's Wastewater Treatment Operations Master Plan. A project website and Get Involved webpage were developed to allow for enhanced consultation during the ongoing COVID-19 pandemic. Two virtual Public Information Centres were held in 2021, with recordings of each session available following the live presentation and question and answer period.

The following First Nations were consulted as part of this Master Plan:

- Aamjiwnaang First Nation;
- Bkejwanong (Walpole Island);
- Caldwell First Nation;
- Chippewas of Kettle and Stony Point;
- Chippewas of the Thames First Nation;
- Oneida Nation of the Thames;
- Delaware Nation at Moraviantown (Eelūnaapèewii Lahkèewiit); and
- Munsee-Delaware Nation.

Letters were provided to each First Nation to accompany each of the project notices. The Master Plan included the following First Nations engagement opportunities:

- Online virtual workshop with representatives of Chippewas of the Thames First Nation and Walpole Island First Nation - Friday, April 30, 2021
- Oneida Environment Committee Meeting – November 10, 2021
- Chippewas of the Thames First Nation – December 1, 2021.

3.0 Recommendations and Next Steps

A recommended implementation plan is presented in the Master Plan for both wastewater treatment plants and pumping stations, with short-term, medium-term, and long-term projects including capital costs and applicable Class Environmental Assessment schedule. The Master Plan report will be made available on the Get Involved webpage during the public review period. The Notice of Completion for the Master Plan is included as Appendix 'A'. The City commits to undertaking a review of this Master Plan every five years, in accordance with the Municipal Class EA planning process.

Conclusion

The Wastewater Treatment Operations Master Plan has been completed in accordance with the Municipal Class Environmental Assessment process and fulfills Phases 1 and 2. The recommended implementation plan that has been developed through this Master Plan will guide capital projects, maintenance activities and operational strategies over the next several years. Recommended projects will be addressed through existing programs and budgets and through the next multi-year budget process.

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Recommended by: Kelly Scherr, P.Eng., MBA, FEC, Deputy City Manager, Environment and Infrastructure

CC: Marcy McKillop, Environmental Services Engineer
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Kyle Murray, Environmental Services Engineer

Appendix 'A' - Notice of Completion