

Executive Summary

Study Background

The City of London (the City) recently completed the East London Servicing Study Environmental Assessment Master Plan (study) under the Municipal Class Environmental Assessment (EA) process outlined in the Municipal Engineers Association's (MEA's) Municipal Class EA document (as amended in 2007, 2011 and 2015). This study was initiated as a means to plan for future growth and development expected in East London under a 20 and 50 year planning window. The Vauxhall sewershed is mostly built out, with limited infill development expected. Conversely, the Pottersburg sewershed is expected to see significant growth as a result of anticipated commercial and industrial growth.

Sewer servicing in east London comprises the Vauxhall and Pottersburg Sewersheds, which convey flows for treatment at the Vauxhall and Pottersburg WWTPs respectively. Both plants are operated under Ministry of the Environment, Conservation and Parks (MECP) Environmental Compliance Approvals (ECA) which specify that the Vauxhall WWTP has a current rated capacity of 20,900 m³/d and the Pottersburg WWTP has a rated capacity of 39,100 m³/d. Figure ES-1 depicts the boundaries of the two sewersheds as well as the location of the two WWTPs.

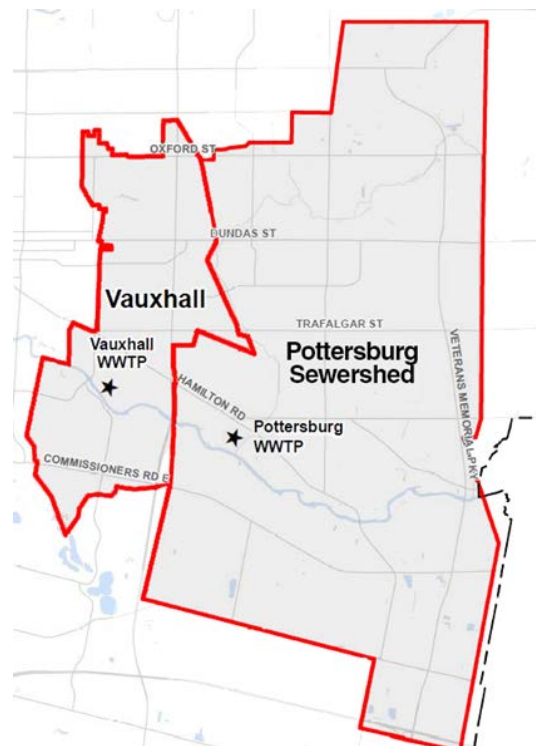


Figure ES-1. Vauxhall and Pottersburg Sewersheds

The analysis and recommendations of the ELSS was based on expected population growth in these sewersheds, the estimated capacity of the Vauxhall and Pottersburg WWTPs, as well as the condition of various infrastructure associated with both (WWTPs). The primary issues at

both WWTPs relate to aging infrastructure and high peak flows related to wet weather inflow and infiltration into each sewershed's respective sewer system, which results in a net reduction in the rated capacity (average day flow) of each WWTP. High peak flows related to wet weather also are the cause of occasional overflows at both plants, which result in discharges of raw and partially treated wastewater to the Thames River.

Desktop capacity evaluations and follow up stress testing was performed on the various treatment processes at both plants. These evaluations determined that the Pottersburg WWTP would likely struggle to achieve the treatment requirements under the plants current rated capacity as a result of high peak flows. However, Vauxhall was found to be capable of providing a higher treatment capacity than the current rated capacity of the plant. It was recognized that a project that was being completed in parallel, construction of a pipeline between the two East London WWTPs (termed the Pottersburg-Vauxhall Interconnection), could be utilized to make use of the additional capacity at Vauxhall, allowing for cost effective optimization of East London wastewater servicing overall.

However, both plants were projected to have a limited remaining service life as a result of the age of concrete tankage. As a result, the ELSS recommended that the wastewater servicing long term strategy would include replacing both facilities by a single new WWTP, to be located at the existing Pottersburg WWTP site and designed to provide treatment for flows from both sewersheds. To ensure that the City provides sufficient treatment capacity in the short-term, the ELSS recommended:

- Utilizing the Pottersburg-Vauxhall Interconnection to send a portion of the flows received at the Pottersburg WWTP to the Vauxhall WWTP for treatment (currently under construction)
- Upgrades at the Vauxhall WWTP to be completed in two phases to provide an initial increased treatment capacity of 36,000 m³/d and ultimately 60,000 m³/d.

The final upgrade to 60,000 m³/d was required to facilitate the construction of the future WWTP at the Pottersburg WWTP site, which was forecasted to require the demolition of the existing plant infrastructure. A preliminary cost estimate was developed for the upgrades associated with the short-term solution which ranged between \$34.8 million to \$74.5 million.

The City accepted the recommendations of the ELSS and initiated a Schedule C Municipal Class EA to further the planning of the required upgrades to increase treatment capacity at the Vauxhall WWTP. As part of this process, the City and their consultant, Jacobs Engineering, has since reviewed projections on anticipated flows received at these two plants, as well as construction methodologies, and it is currently believed that parts of the Pottersburg WWTP can be kept in service during construction of the future East End Plant. As a result, the expansion goal of 60.0 MLD of treatment capacity at the Vauxhall WWTP would no longer be necessary.

Revised Short-Term Wastewater Servicing Strategy for East London

Rather than completing the Schedule C Municipal Class EA to expand the Vauxhall WWTP, the City now intends to issue an Addendum to the East London Sanitary Servicing Study. The addendum provides additional details regarding cost estimation, approvals and timing. At a high level, the upgrades that are now being contemplated to allow the City to achieve the minor increase in wastewater treatment capacity at the Vauxhall WWTP are expected to have a significantly reduced capital cost compared to what was originally estimated in the ELSS.

The revised strategy currently proposed is to carry out some minor upgrades at the Vauxhall WWTP to realize the available capacity previously identified and to better manage peak flows received as a result of inflow and infiltration (I/I) into the sewer collection system. These minor upgrades will include some construction efforts at the Vauxhall WWTP site, but will be relatively minor with no anticipated disruptions to the current wastewater treatment process.

- **Vauxhall WWTP Re-Rating:** Based on the results of the previously completed capacity assessments as well as the minor capital upgrades proposed, the Vauxhall WWTP can likely be re-rated to a revised rated capacity of 36,000 m³/d. The re-rating is a methodology whereby the City would prove to the Ministry of the Environment, Climate and Parks, using historical performance data and supporting engineering analysis/reports, that the level of treatment considered necessary to protect the health of the Thames River will be met. The City has had some preliminary discussions with the Ministry of the Environment, Conservation and Parks (MECP) and are currently working through the approach to amend the original study findings and recommendations. To date the MECP has been receptive to the proposed revised strategy.
- **Flow Equalization:** The Pollution Prevention and Control Plan (PPCP) Master Plan that was completed in 2018 focusses on reducing bypasses and overflows in the City. The City intends to continue to implement methods to improve wet weather performance at their WWTPs. As part of the proposed re-rating of the Vauxhall WWTP, the City is proposing to implement a significant amount of equalization capacity, which will dampen peak flows conveyed through the plant. This will permit an increase in the rated capacity of the plant and also result in a significant reduction in the number of bypasses and overflows from the Vauxhall WWTP. The Pottersburg WWTP is also negatively impacted by higher than typical peak flows. Equalization will also be implemented to maximize the performance of the existing treatment process and to also facilitate the pumping of flow via the Pottersburg-Vauxhall Interconnection. Both the PPCP and the ELSS contemplated improved wet weather performance as part of the recommended alternatives. It is noted that the addition of equalization at a sewage treatment plant is identified as a Schedule B activity in the Municipal Class EA document. Therefore, the completion of these two master planning documents has fulfilled the Class EA requirements to proceed with this infrastructure.
- **Increased UV Capacity:** The current UV system at Vauxhall WWTP is reportedly designed for a peak flow of 49.75 MLD. While the unit is properly sized for the Plant's rated capacity, it is undersized relative to the peak flows received at the plant. Additionally, this unit is coming to the end of its life and will require replacement in the coming years. It is therefore considered prudent to replace the UV system with a new unit that meets all current design requirements.

Since the two facilities will be effectively joined via the Pottersburg-Vauxhall Interconnection, the Ministry of the Environment has expressed a desire to consider combining the two WWTPs under a single Environmental Compliance Approval. The only change anticipated is that the MECP has indicated that the treatment requirements associated with both East London WWTPs will become more stringent. Historically, the City has demonstrated environmental stewardship by producing an effluent well below both the current and proposed treatment requirements imposed by the MECP at both WWTPs. City staff believe that the current process is capable of continuing to provide this level of treatment.

At this time, the City's long-term solution to meeting the wastewater servicing needs of East London remains as recommended by the ELSS; a future single facility will be built at the

Pottersburg Site to service all flows generated in East London, replacing both the Pottersburg and Vauxhall WWTPs. The City envisions that within the next 15 to 20 years, the public consultation process will be initiated for the new East End Plant, which will be a Schedule C Class EA, and an Assimilative Capacity Study to assess the Thames River would be completed at that time. The Vauxhall WWTP would become a pumping station after the new East End Plant is built.