

TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON APRIL 17, 2018
FROM:	KELLY SCHERR, P. ENG., MBA, FEC MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEER
SUBJECT:	LONDON POLLUTION PREVENTION AND CONTROL PLAN FINAL MASTER PLAN

RECOMMENDATION

That on the recommendation of the Managing Director, Environmental and Engineering Services and City Engineer, the following actions **BE TAKEN** with respect to the London Pollution Prevention and Control Plan - Master Plan:

- (a) the Master Plan Report **BE ACCEPTED**;
- (b) a Notice of Completion **BE FILED** with the Municipal Clerk;
- (c) the Master Plan Report **BE PLACED** on public record for a 30-day review period; and
- (d) Civic Administration **BE DIRECTED** to include the recommended projects outlined in the Pollution Prevention and Control Plan in the Water and Wastewater and Treatment Budget as part of the next multi-year budget process.

PREVIOUS REPORTS PERTINENT TO THIS MATTER
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- Civic Works Committee - November 21, 2017 - Agenda Item # 7 - Pollution Prevention and Control Plan Update
- Civic Works Committee - November 21, 2017 - Agenda Item # 10 – Wastewater System Improvements Summary
- Civic Works Committee – September 26, 2017 – Agenda Item #14 – Domestic Action Plan (DAP): London – Proposal Update
- Civic Works Committee – May 24, 2017 – Agenda Item #9 – Pollution Prevention and Control Plan Phase Three - Consultant Appointment Continuation
- Civic Works Committee – March 8, 2016 – Agenda Item #11 – Pollution Prevention and Control Plan InfoWorks Modelling Consultant Appointments
- Civic Works Committee – August 25, 2014 – Agenda Item #13 – Pollution Prevention and Control Plan InfoWorks Modelling Consultant Appointment
- Civic Works Committee – February 3, 2014 – Agenda Item #4 – Pollution Prevention and Control Plan Consultant Appointment Continuation (ES2464-11)
- Civic Works Committee – May 14, 2012 – Agenda Item #12 – Consultant Appointment - Pollution Prevention and Control Plan Project ES5419

2015-2019 STRATEGIC PLAN

The 2015 – 2019 Strategic Plan identifies this objective under building a sustainable city; 1B – manage and improve our water, wastewater and stormwater infrastructure and services; and 3E – work together to protect all aspects of our natural environment including woodlands, wetlands, river and watercourses and air quality as our city grows.

BACKGROUND

Purpose

Following the Civic Works Committee report on November 21, 2017 that provided an update on the Pollution Prevention and Control Plan (PPCP), including a summary of Phase 2, this report summarizes the third and final phase of the PPCP. Phase 3 involved the final evaluation of alternatives and identification of preferred solutions to mitigate the highest priority sewer system overflows and bypasses in the City.

Context

Sewer system overflows and pumping station and treatment plant bypass structures were originally built to provide sewer system relief during extreme wet weather events to protect homes from basement flooding. London's Pollution Prevention and Control Plan is a multi-year master plan project, split into three phases designed to provide a long-term solution to address conveyance system sewer overflows and bypasses. The PPCP is intended to mitigate the associated impacts of these discharges on receiving watercourses, including the Thames River, Pottersburg Creek, Medway Creek, the Coves and Dingman Creek.

The Ministry of the Environment and Climate Change (MOECC) Procedure F-5-5 requires that the municipality or operating authority develop a Pollution Prevention and Control Plan. Procedure F-5-5 outlines the need to eliminate the occurrence of dry weather sewer overflows and to minimize the potential impacts of sewer overflows on human health and aquatic life.

DISCUSSION

The Pollution Prevention and Control Plan was undertaken as a master plan in accordance with the environmental assessment guidelines, outlined in the Municipal Engineers Association Municipal Class Environmental Assessment document (as amended in 2015).

Public and Agency Consultation

Throughout the project, there have been opportunities for input from the public, agencies and stakeholders, interest groups, and First Nations. Phase 1 included a public information centre on October 3, 2012 and Phase 2 included a public information centre on May 28, 2014. A final public information centre for Phase 3 was held on November 1, 2017.

A technical steering committee was formed which included membership from the City, MOECC, Upper Thames River Conservation Authority and the consultant team (Jacobs, formerly CH2M Hill Canada Limited). The technical steering committee was regularly consulted throughout the development of the PPCP. Final comments were provided by the MOECC in late October 2017.

A PPCP presentation was provided to the following City advisory committees in February 2018:

- Advisory Committee on the Environment; and
- Environmental and Ecological Planning Advisory Committee.

PPCP Phase 1

Phase 1 of the plan involved a review and analysis of background information available on watercourse water quality and the sewer system including overflows, pumping station and wastewater treatment plant bypasses. As part of this phase, 149 sewer system overflows were confirmed in the City which corresponds to 51 discharge points to the receiving watercourses. Phase 1 of the Pollution Prevention and Control Plan was completed in 2014.

PPCP Phase 2

Phase 2 of the plan was intended to further develop the benthic and water quality characterization of the receiving watercourses in relation to the impacts of sewer system overflows and bypasses. Twelve hydrologic and hydraulic modelling assignments were also completed between 2014 and 2016 for selected sewersheds. This modelling characterized the sewer system overflows in terms of the frequency and volume of overflows corresponding to different events, in order to determine compliance with Procedure F-5-5.

Since the Pollution Prevention and Control Plan was initiated in 2012, a total of 11 of the 149 sewer system overflows have been removed through various infrastructure renewal projects. The City has made progress with the elimination or mitigation of sewer overflows in parallel with the development of the plan. Various pumping station and wastewater treatment plant upgrades and expansions have also taken place since 2012 to improve the overall system. A summary of wastewater system improvements since 2008 is outlined in the report, "Wastewater System Improvement Summary," Civic Works Committee (November 21, 2017).

As each wastewater treatment plant and pumping station undergoes a modification, upgrade or expansion in the City, efforts are taken to reduce the potential for bypasses associated with wet weather flows. The PPCP specifically focused on sewer system overflows in the conveyance system and bypasses at pumping stations.

Priority sewer overflows and pumping station bypasses were identified during Phase 2 based on:

- The reach of the watercourse being identified as "impaired" based on the selected approach for water quality characterization, at the discharge location; and,
- Overflow volume at the location being greater than 1,000 m³ for the typical year.

A long list of alternative mitigation strategies were outlined during Phase 2 and then screened to a short list based on the characteristics of the sanitary sewage system for each of the priority overflows. These strategies include:

- Source controls;
- Conveyance controls; and,
- End-of-pipe controls.

The Phase 2 analysis provided a prioritized list that included six groups of sewer system overflows and five pumping stations. A long list of alternatives was screened and

reduced to a short list of alternatives for each of the prioritized overflow groups and pumping stations. Phase 2 of the PPCP was completed in December 2017.

PPPC Phase 3

Phase 3 of the PPCP involved the further evaluation of the short list of alternatives for the prioritized overflow groups and pumping stations, previously developed during Phase 2. The evaluation included technical, social, planning and economic criteria to identify the preferred solution for mitigating or eliminating each prioritized overflow/bypass.

This phase included an overall implementation plan with the recommended projects and their associated costs, as well as the implementation timeframe. The Executive Summary of the Phase 3 PPCP report is attached as Appendix A.

Lake Erie Action Plan

The Canada-Ontario Lake Erie Action Plan to reduce phosphorous loading by 40% by the year 2025 is a bold and ambitious goal. The City of London is dedicated to meeting or exceeding the objectives for phosphorus reduction as set by this plan to ensure both the health of the Thames River and the Great Lakes basin.

One of the municipal actions identified in the Lake Erie Action Plan for phosphorus reduction is combined sewer replacement. The plan states:

“The City of London will accelerate plans to separate combined sewers, including the design and construction of necessary stormwater outlets, with the target of separating 80 per cent (17 kilometres) of its combined sewer system by 2025.”

Another municipal action identified in the Lake Erie Action Plan for phosphorus reduction is sewer system overflow reduction. The plan states,

“The City of London will circulate for agency and public review an implementation plan that provides the scope and timing for managing the highest priority sanitary sewer overflows as identified in the City’s Pollution Prevention and Control Plan by the end of Q2 2018. To support the implementation, the City of London will facilitate a proof of concept in-field pilot project of high-rate treatment technologies with the support of industry (Trojan Technologies) and academic (Western University) partners, and will continue its private property weeping tile disconnection program.”

The City’s PPCP has been developed in coordination with the objectives for phosphorus reduction identified in the Lake Erie Action Plan.

Master Plan Report

The complete PPCP Master Plan is available on www.london.ca/ppcp, including separate reports for each of the three phases. Subject to Council approval, notification will be made placing the reports on public record for the final public review period that concludes the Municipal Engineers Association Municipal Class Environmental Assessment master planning process. Comments received during the review period will be reviewed and considered during the implementation of the plan.

Individual projects with specific impacts will be subject to project specific environmental assessments.

Cost Implications

The implementation plan provided in the PPCP outlines various short (1-5 years), medium (5-10 years) and long (10-20 years) term projects, studies and initiatives to be completed. A summary of the costs associated with the recommended PPCP works for each period is outlined below:

	Construction Cost Estimate	Engineering Cost Estimate	Total
Short-term	\$24.8 M	\$1.75 M	\$26.6 M
Medium term	\$175 M	\$21.6 M	\$197 M
Long-term	\$2.4 M	\$7.6 M	\$60 M

Portions of existing budgets are available to support selected short-term projects, initiatives and studies. There is significant pressure on existing accounts given the various competing priorities including, but not limited to:

- End-of-life infrastructure renewal needs;
- Growth driven core area servicing;
- Servicing to support the Rapid Transit initiative;
- Support the City of London goals for phosphorus reduction outlined in the Lake Erie Action Plan;
- Anticipated provincial requirements to provide Low Impact Development infiltration/filtration infrastructure as part of infrastructure renewal projects; and
- Managing the overall water/wastewater infrastructure gap.

The budget forecast implications and changes, related to the recommended PPCP projects, will be reviewed and included in the Water and Wastewater and Treatment Budget as part of the next multi-year budget process.

Future Updates

The PPCP will be reviewed and updated on a regular basis, in accordance with the Environmental Assessment guidelines outlined in the Municipal Engineers Association Municipal Class Environmental Assessment document (as amended in 2015) for Master Plans. The PPCP will be formally reviewed and updated in 2023.

CONCLUSIONS

The Pollution Prevention and Control Plan (PPCP) provides the City with a road map to address priority sewer overflows and bypasses through selected strategies and infrastructure improvements. The Master Plan process for the PPCP has been thorough and extensive and is now complete. The PPCP will guide future efforts to manage and improve the City's sanitary and storm water infrastructure, while mitigating the impacts of wet weather system overflows on the receiving watercourses.

The Phase 3 PPCP report is now ready for the final advertised public review period that will complete the Master Plan process. Comments received during the final public review period will be reviewed and considered during the implementation of the plan, and as part of subsequent updates to the plan.

Acknowledgements

This report was prepared by Marcy McKillop, P.Eng., Environmental Services Engineer, Wastewater and Drainage Engineering Division.

SUBMITTED BY:	CONCURRED BY:
TOM COPELAND, P. ENG. DIVISION MANAGER WASTEWATER AND DRAINAGE ENGINEERING	SCOTT MATHERS, MPA, P. ENG. DIRECTOR, WATER AND WASTEWATER
RECOMMENDED BY:	
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April 9, 2018

Appendix 'A' – Executive Summary – Pollution Prevention and Control Plan Phase 3 Report