Appendix A: Draft Amendments to Municipal Code Chapter 681- Sewers

Authority: Public Works and Infrastructure Committee Item XX.X, as adopted by City of Toronto Council on XXXXX, 2013;

Enacted by Council:

CITY OF TORONTO

Bill No.

BY-LAW No. -2013

To amend City of Toronto Municipal Code Chapter 681, Sewers

WHEREAS Council has the authority to pass this By-law pursuant to subsections 8(1), (2) and (3) and section 259 of the *City of Toronto Act, 2006*, S.O. 2006, Chapter 11, Schedule A;

The Council of the City of Toronto enacts:

- **1.** Section 681-1 Definitions is amended by:
 - a) deleting in its entirety the term "POLLUTION PREVENTION PLAN SUMMARY OR PLAN SUMMARY" and its definition.
 - b) deleting the words ", or designated by the City in accordance with § 681-5, Subsection O, of this article" from the definition of SUBJECT POLLUTANT; and
 - c) deleting the words ", or designated by the City in accordance with § 681-5, Subsection N, of this article" from the definition of SUBJECT SECTOR.
- **2.** Section 681-5 Pollution prevention planning is amended by deleting Section 681-5 in its entirety and replacing it with the following:

"§ 681-5. Pollution prevention planning

A. Every subject sector industry and every industry which discharges any amount of a subject pollutant must submit their first plan to the General Manager with respect to the premises from which the discharge occurs within one year of commencing operations.

- B. Every subject sector industry and every industry which discharges any amount of a subject pollutant shall prepare a new plan and submit it to the General Manager with respect to the premises from which the discharge occurs, every six years, unless such industry continually meets the requirements of and is participating in a Best Management Practices Plan approved by Council.
- C. Form of plan.
 - (1) The plan shall be in the form designated by the City for that purpose from time to time.
 - (2) In addition to any other matter or requirement designated by the City, and notwithstanding Subsection C(3), each plan shall include the following:
 - (a) A description of the processes at the premises which use or produce subject pollutants.
 - (b) A description of those processes at the premises which are to be the subject of pollution prevention planning.
 - (c) A list of the subject pollutants present at the premises at any stage of the operations of the premises.
 - (d) A description setting out the types, quantities and concentrations of all subject pollutants discharged, directly or indirectly, to a sewer.
 - (e) A description of current waste reduction, recycling, waste treatment and pollution prevention activities with respect to sewer discharges at the premises.
 - (f) A description of pollution prevention options for subject pollutants and sewer discharge and an evaluation of those options.
 - (g) A list of possible three- and six-year targets to reduce or eliminate the discharge of subject pollutants to the City's sewers.
 - (h) A declaration from an authorized person that the content of the plan is, to the best of that person's knowledge, true, accurate and complete.
 - (3) The City may designate a different form for the plan with respect to any class of industrial, commercial or institutional premises, or with respect to any class of industry.
 - D. All plans must meet the requirements of this article as determined by the General Manager to be approved.

- E. In the event that an industry submitting a plan is not sent written notice from the General Manager that its plan is not approved by the General Manager within 90 days of the industry delivering the plan to the General Manager, the plan shall be deemed to have been approved by the General Manager.
- F. Where an industry receives notice from the General Manager that its plan has not been approved, the industry shall have 90 days to amend and resubmit its plan to the General Manager for approval in accordance with this article.
- G. In the event that a plan resubmitted to the General Manager in accordance with Subsection F of this section continues to fail to comply with the requirements of this article, the General Manager shall so notify the industry, and the industry shall be in contravention of this article and shall continue to be in contravention of this article until such time as the General Manager approves of an amended plan resubmitted by the industry.
- H. Every subject sector industry and every industry discharging a subject pollutant shall submit a plan update for the approval of the General Manager by the end of the third year from the date which the plan was required to be submitted. Such plan update shall, in addition to the requirements otherwise set out in this article, detail and evaluate the progress of the industry to accomplish the objectives set out in its plan and the industry's ability to accomplish those pollution prevention objectives.
- I. An industry or subject sector industry which discharges a subject pollutant not contained in its approved plan shall update its plan within 90 days of the discharge of the additional subject pollutant to include it unless expressly provided otherwise in this section. This shall not affect the timelines for submitting a plan under § 681-5A and § 681-5B.
- J. Every industry or subject sector industry which discharges hexavalent chromium has until December 31, 2014 to amend its latest plan to include hexavalent chromium and must thereafter include hexavalent chromium in all plans, until hexavalent chromium is no longer discharged to any sewer. This shall not affect the timelines for submitting plans under § 681-5A and § 681-5B.
- K. A copy of the plan shall be kept at all times at the premises in respect to which it was prepared and shall be available for inspection by the General Manager at any time."
- **3.** Subsection D, Section 681-9 Spills, Chapter 681 is amended by deleting the words "and plan summary"; and deleting the words "the plan summary so updated" and replacing them with the word "it" so it reads as:

- "D. Industries at whose premises a spill has occurred which are required to have a plan pursuant to § 681-5 of this article shall prepare an updated plan incorporating the information set out in Subsection B and shall submit it to the General Manager within 30 days of the spill."
- **4.** Subsection D Sediment interceptors, Section 681-10 General is amended by adding a new Subsection 681-10(D)(4) immediately after Subsection 681-10(D)(3) as follows:
 - "(4) Every owner or operator of a commercial carwash operation shall install, operate, and properly maintain a sediment interceptor in any piping system at the premises that connects directly or indirectly to a sewer. The sediment interceptor shall be installed in compliance with the most current requirements of the Ontario Building Code."
- 5. Subsection A, Section 681-12 Confidential Information is amended by deleting the words "plan summaries" and replacing them with the word "plans".
- 6. Article 1, Appendix 1 Subject Sectors is amended by deleting in its entirety "Column 3 Initial P2 Plan Due Date" and "Column 4 Six Year P2 Plan Due Date", including all contents of those columns.
- 7. Article 1, Appendix 2 Subject Pollutants is amended by adding "Hexavalent Chromium" to the list on the left side, in alphabetical order.
- 8. This By-law comes into force upon enactment.

ENACTED AND PASSED this

day of XXX, 2013.

Speaker

City Clerk

Appendix B: Pollution Prevention ("P2") Program Successes

The following section summarizes the numerous successes of the P2 Program.

I) Metal Concentration in Wastewater

Ashbridges Bay Treatment Plant ("ABTP") biosolid quality data collected from 1995 to the end of 2012 provides an indicator of metal concentrations in the wastewater. Of the 11 heavy metals that are tested twice a month, five (cadmium, arsenic, lead, total chromium, and mercury) showed an appreciable downward trend (see Figures 1 to 5, below) that can be attributed, in part, to the Sewer By-law of 2000 coming into effect.





Figure 2: ABTP Biosolid Trend for Arsenic (As) in mg/Kg



Figure 3: ABTP Biosolid Trend for Lead (Pb) in mg/Kg





Figure 4: ABTP Biosolid Trend for Total Chromium (Cr) in mg/Kg

Figure 5: ABTP Biosolid Trend for Mercury (Hg) in mg/Kg



II) Declining Concentration of Pollutants in Industrial Wastewater

The mandatory reporting of P2 Plans was largely successful with numerous industrial facilities, metal finishers, and hospitals. This is primarily due to the available resources to those organizations and their understanding that Pollution Prevention was important. The industry associations such as Canadian Association of Metal Finishers (CAMF), Ontario Printing Industry Association (OPIA), Canadian Association of Textile Colourists and Chemists (CATCC) were instrumental in promoting the P2 approach with their members and also working with the product manufacturer/suppliers to reduce/eliminate subject pollutants from products to support P2 Plans.

Significant reductions were observed in the wastewater discharge from the metal finishing sector for copper, lead, nickel, chromium, and cadmium concentrations as shown in Figure 6, below. Lead has been practically eliminated from circuit board manufacturing process. Copper reduction can be attributed to better plating process technology, and the use of Pollution Prevention to recycle/reuse chemicals. Cadmium and chromium plating has also declined over the last 10 years contributing to the reduction in the concentrations discharged to sewers.



Figure 6: Aggregate Wastewater Metal Trends from Metal Finishers

The reduction of the nonylphenol (NP) and nonylphenol ethoxylates (NPE) concentrations (which are harmful to aquatic organisms) can be attributed to:

- product reformulation by detergent manufacturers for industrial laundries;
- plating chemical and cleaner reformulation by suppliers for metal finishing & printed circuit board industries; and,
- elimination of NP/NPEs on the yarn by textile manufacturers.

Figure 7, below, illustrates the trend to virtual elimination of NPE in certain sectors.



Figure 7: Aggregate Wastewater NPE Trends from Various Sectors

III) P2 Successes Observed in the P2 Program under Toronto's Sewers By-law

Through communications between the City, ICI facilities, sector associations, and suppliers/manufacturers, manufacturers reformulated products to eliminate or reduce subject pollutants so that Toronto customers could comply with P2 in Toronto. As a result, many facilities became exempt from P2 Planning by eliminating the use or discharge of subject pollutants.

Other P2 successes attributed to Toronto's P2 Program include:

- General improvement in environmental performance by all sectors through public outreach, P2 plan submission requirements, and inspections;
- Amalgam separators installed for all impacted dental offices that resulted in a drop in mercury concentration in wastewater treatment plants' (WWTP) influent and sludge in 2002 and continues to decline. During the initial years of the P2 program, there was a 40-70% reduction of mercury in the biosolids;
- Thousands of inspections of commercial facilities that had previously never been inspected were inspected and many issues found and fixed;
- The requirement for installation of silver-recovery units in photofinishing operations;
- Elimination of cleaners containing NPEs by CATCC and Canadian Petroleum Products Institute (CPPI) members;
- Reduction of NPEs in the Industrial Laundry sector by over 60,000 kg annually as a result of NPE elimination by detergent manufacturers;

• Elimination of 8,000 kg per year of NPEs by Lester B. Pearson International airport which discharges to Humber Waste Water Treatment Plant from the deicing fluid through product substitution.

Toronto is looked upon as a leader in incorporating P2 in its bylaw. Other municipalities have approached the City for advice on incorporating P2 Reporting in their by-laws. Also, the Canadian Council of Ministers of the Environment's Model Sewer Use By-law is largely based on Toronto's By-law and incorporates Pollution Prevention Planning similar to Toronto's Program.

The P2 Program has had overall success considering the fact that the preparation of a P2 plan is mandatory for a subject sector facility but the implementation is not. Those who realized the benefits of P2 planning, which include reduced operating costs, reduced risks of liability, enhanced company image in the community, improved health and environmental benefits were the first to implement their P2 plan. These organizations were mainly corporations, sectors strongly supported by an association, and hospitals. Most of the sector industrial associations were very supportive of the P2 program when it was introduced and worked closely with the City to develop sector specific P2 plan forms and training for companies.

Additionally, a not-for-profit sustainability organization funded by the Federal, Provincial governments and at one time the City of Toronto assisted 42 Toronto industries, including two hospitals which resulted in a combined total annual savings of \$3,180,000 with a total capital investment of \$2,966,000 and with an average payback period of 11.2 months.

Below is a summary of Toronto Water's P2 experience in a specific sector industry.

a) <u>Textile Sector</u>

During the early years of the P2 program, Toronto Water collaborated with the Canadian Association of Textile Colourists and Chemists (CATCC) and Environment Canada. As a result, CATCC worked with yarn suppliers and other chemical suppliers to eliminate NPEs from their raw materials. In this sector, 89% of the facilities have complied with the P2 reporting requirement. Continued monitoring by Toronto Water is required to determine if new raw materials and chemicals may contain other subject pollutants.

b) <u>Printing Sector</u>

In collaboration with the Ontario Printing Industry Association (OPIA), Toronto Water developed the P2 Plan forms and the training program for this sector. This sector directly impacts the effectiveness of P2 efforts by the industrial laundries through the transfer of NPEs, solvents, and printing ink on the rags and wipes sent for washing to these types of laundries.

Printers adopted P2 initiatives by eliminating discharges of subject pollutants to the sewer through product substitution, equipment modification, and product reuse.

Thirty-five percent (35%) of Printers are now exempt from P2 submissions by elimination of subject pollutants and/or process modification to eliminate subject pollutant discharge to the sewer. However, the rags used for cleaning still contain some subject pollutants that can become an issue for industrial launderers.

Many Toronto printing companies have won awards for their environmental initiatives.

c) <u>Metal Finishing Sector</u>

The City, the Canadian Centre for Pollution Prevention (C2P2), Environment Canada and the Canadian Association of Metal Finisher (CAMF) worked co-operatively to provide a training program for this sector to participate and fulfil the requirements of the P2 Program. This collaborative effort helped to improve compliance by industries in this sector and reduce heavy metal discharges to the sanitary sewer.

d) <u>Manufacturing Sector</u>

The manufacturing sector, due to their large scale of operations, can economically and environmentally benefit the most from P2 Planning. Those that participated in the program realized savings from reduced water, energy, and raw material usage as well as improving their environmental footprint and decreasing their demands on the City's infrastructure.

e) <u>Industrial Laundries</u>

The primary concern in this sector is the discharge of NPEs, volatile organic compounds, and heavy metals. A major supplier of laundry detergent eliminated NPEs from their product and the sector reduced NPE use by over 60 tonnes, annually. The other subject pollutants enter the wastewater from wipes and rags received by laundries from printers and automotive shops. These pollutants can only be eliminated or reduced by educating the laundries' customers and by changing the criteria for acceptable rags and wipes (source control). A large industrial laundry in Toronto prepared and mailed-out educational material to its customers and provided them with assistance in reducing the solvents and other wastes going into rags for washing.

As industrial laundries have little control of the contaminants coming in from the rags and uniforms, the primary focus in their P2 plan was customer education to reduce subject pollutants at source. This sector requires both wastewater treatment and air pollution technologies to remove the pollutant from the water via the air. The air pollution requires a Ministry of Environment Environmental Certificate of Approval ("ECA") prior to installation and requires proof of Provincial Air Standards being met through specialized engineering calculations and documentation in an ECA application followed generally by noise assessment reviews. Experience has shown that a company can wait up to nine months before being granted an ECA by the MOE. This is an example of why P2 implementation would not work in this sector.

f) <u>Commercial Laundries</u>

Other than elimination of NPE in detergents, commercial laundries successfully implemented various P2 methods to dramatically reduce the formation of chloroform by sorting the dirtiest laundry to the least dirty laundry, using automatic chlorine dosing for accurate dosing to the type of laundry being cleaned, reducing the concentration of the chlorine, using chlorine scavengers and some substituting hydrogen peroxide for chlorine at great expense. Many companies, however, still do not comply with the chloroform limit and sometimes other parameters such as oil and grease. As they have little control of what waste is coming in, wastewater treatment is needed and like industrial laundries may require air pollution control.

This sector is another example of where P2 implementation would not fully work to achieve compliance with By-law limits.

g) <u>Dry Cleaners</u>

The primary concern is the health hazard posed by emission of tetrachloroethylene, also known as "perc" or perchloroethylene, to the atmosphere. Toronto Water inspected all the drycleaner facilities and this sector which has a 100% compliance rate with P2 reporting. The dry cleaning machines are continuously improving with better recovery and alarm systems and directly regulated by Environment Canada, with the Provincial Ministry of the Environment also regulating Dry Cleaners for proper chemical usage and handling.

h) <u>Dental Clinics</u>

The Sewers By-law requires all dental clinics to install an advanced amalgam separator and this has been complied with fully by the dental community. The only remaining issue is regular amalgam separator maintenance. Yearly, Toronto Water reminds suppliers of amalgam separators and dentists to ensure the required maintenance is performed.

i) <u>Autobody Refinishing Sector</u>

The autobody industry group known as The Collision Industry Information Assistance (CIIA) is very focused in Pollution Prevention and provides compliance assistance to its members. As a result many autobody refinishing businesses have either switched to water based paints or use high efficiency spray guns to reduce solvent usage. This sector has a 72% reporting compliance rate and has been saving money while implementing P2.

j) <u>Automotive Sector</u> – repair shops, gas stations, carwash facilities

In 2005, Council approved addition of the BMPs for the automotive repairs, vehicle wash, and gas station sectors to achieve compliance with P2. As a part of their inspections, Toronto Water By-law Officers ensure that an automotive shop complies with the BMP requirements.

Toronto Water is working with Municipal Licensing and Standards ("MLS"), whereby MLS inspectors report to Toronto Water when an environmental issue is found with an automotive shop. Toronto Water By-law Officers then take appropriate action to ensure compliance with the Sewers By-law and BMPs. An example is when a shop lacks an oil/water separator. This is a pilot project between the two divisions at this time.

k) <u>Photo Finishing Sector</u>

In 2007, Toronto Water created a BMP for Photofinishers in conjunction with Photo Marketing Association. This sector has a high compliance rate for installation and maintenance of the silver recovery unit for the remaining non-digital processing shops. With many facilities moving towards digital imaging, this sector is no longer an issue.

1) <u>The Healthcare Sector</u>

The training program for this sector was designed and delivered by the Canadian Centre for Pollution Prevention along with the City of Toronto. The range of activities in this sector is broad and includes printing, photo finishing, laboratory, and laundry. The compliance rate and the quality of P2 plan summaries are exceptional as hospitals have invested considerable time and effort to verify the benefits of P2 in all their departments. Hospitals were very proactive in their approach in conducting detailed studies of the wastewater characterization, and taking a multimedia approach in P2 Plans. Hospitals have received P2 awards and found significant savings from reduced water, energy, and wastes, reducing their environmental impacts and footprint.

Hospitals have been very proactive in implementing pollution prevention and many have taken the multimedia approach for reduction. One such example is the North York General Hospital (NYGH). Figure 8, below, demonstrates the significant reductions achieved by the hospital during 2002 to 2006 in seven major areas: subject pollutant, water, energy, greenhouse gases, hazardous waste, biomedical waste and solid waste.



Figure 8: Hospital "A" Environmental Footprint 2002-2006 (per m² Basis*)

m) <u>Non-Subject Sectors</u>

Industries that have been required to submit P2 Plans but are not listed in Appendix 1 of the Sewers By-law as a subject sector are generally classified as Non-Sector. An example of this is Lester B. Pearson International Airport which discharges to the Humber Waste Water Treatment Plant and which eliminated 8,000 kg of NPEs from the de-icing fluid by product substitution.

n) <u>Hotels and Motels</u>

In 2010, Toronto Water began a survey on the more than 100 hotels and motels in Toronto. The primary subject pollutants of concern for this sector are nonylphenol, nonylphenol ethoxylates and chloroform. Since 2010, most facilities are compliant in the P2 Plan reporting requirements and addressed any Sewer By-law violations.