Agenda Including Addeds
Advisory Committee on the Environment

3rd Meeting of the Advisory Committee on the Environment

April 7, 2021, 12:15 PM

Advisory Committee Virtual Meeting - during the COVID-19 Emergency

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Next Meeting Date: May 5, 2021

Report to Civic Works Committee

To: **Chair and Members**
Civic Works Committee
From: **Kelly Scherr, P.Eng., MBA, FEC**
Managing Director, Environmental & Engineering Services, City Engineer
Subject: **Proposed Draft Environmental Assessment Study Report for the Expansion of the W12A Landfill**
Date: **March 30, 2021**

Recommendation

That, on the recommendation of the Managing Director, Environmental & Engineering Services, City Engineer, and with the support of the Waste Management Working Group, the:

a) The report *Draft Environmental Assessment of the Proposed W12A Landfill Expansion, City of London* **BE RECEIVED**;

b) The report *Draft Environmental Assessment of the Proposed W12A Landfill Expansion, City of London* **BE CIRCULATED** for review and comment by the Government Review Team, Indigenous Communities, stakeholders and the general public from April 20, 2021 to May 19, 2021 or longer;

c) the Civic Administration **BE DIRECTED** to consider the feedback from the consultation noted in b), above, and revise the report *Draft Environmental Assessment of the Proposed W12A Landfill Expansion, City of London* as appropriate; and

d) in accordance with Council Policy, the revised report noted in c), above, **BE POSTED** on the City of London's website at least 30 days prior to a public participation meeting to be held by the Civic Works Committee, to consider the revised report.

Executive Summary

The Environmental Assessment (EA) for the proposed expansion of the W12A Landfill was completed in accordance with the Terms of Reference (ToR) and recommends that the W12A Landfill be expanded vertically over the existing waste footprint. The vertical expansion will increase the maximum height of the landfill by 26 metres and the disposal volume of the landfill by 13,800,000 m^3. It is expected the landfill expansion will accommodate 9,900,000 tonnes of waste and take 25 years to fill.

All aspects of the EA process need to be documented in an Environmental Assessment Study Report (EASR) and submitted to the Ministry of the Environment, Conservation and Parks (MECP) for approval. A draft EASR (titled *Environmental Assessment of the Proposed W12A Landfill Expansion, City of London*) has been prepared to receive feedback from stakeholders prior to submission to the MECP. It is recommended the draft EASR be circulated to obtain feedback from the Government Review Team (GRT), Indigenous Communities, general public and other stakeholders.

The Waste Management Working Group, on March 16, 2021, supported the circulation of the report.

A revised report that considers the feedback received will be taken to a public participation meeting to be held by the CWC (tentatively scheduled for July 27, 2021).

The City continues to seek feedback on the potential update to the Community Enhancement and Mitigative Measure (CEMMP) Program. This project started in November 2020. A report to CWC is expected in summer 2021.

City staff are also compiling various proposed waste disposal policies and an implementation framework that will be part of future disposal operations (e.g., the use of new capacity for disposal of waste from outside the boundaries of London). This work is part of the overall Residual Waste Disposal Strategy.

Linkage to the Corporate Strategic Plan

Municipal Council continues to recognize the importance of solid waste management and the need for a more sustainable and resilient city in the development of its 2019-2023 - Strategic Plan for the City of London. Specifically, London's efforts in solid waste management address three Areas of Focus, at one level or another; Building a Sustainable City, Growing our Economy and Leading in Public Service.

On April 23, 2019, the following was approved by Municipal Council with respect to climate change:

> *Therefore, a climate emergency be declared by the City of London for the purposes of naming, framing, and deepening our commitment to protecting our economy, our eco systems, and our community from climate change.*

Both the Resource Recovery Strategy and Residual Waste Disposal Strategy (including the EA) address various aspects of climate change mitigation and climate change adaptation. These elements are also a requirement that must be addressed as part of EA documentation.

Analysis

1.0 Background Information

1.1 Previous Reports Related to this Matter

Some relevant reports that can be found at www.london.ca under Council and Committees meetings include:

- Environmental Assessment Process – Updates and Preferred Method to Expand the W12A Landfill (September 22, 2020 meeting of the Civic Works Committee (CWC), Item 2.11)
- Proposed Terms of Reference - Environmental Assessment of the Proposed W12A Landfill Expansion (September 25, 2018 meeting of the CWC, Item #3.1)
- Draft Proposed Terms of Reference – Environmental Assessment of the Proposed W12A Landfill Expansion (April 17, 2018 meeting of the CWC, Item #3.3)

Some relevant reports that can be found at www.london.ca under City Hall (Meetings – Advisory and other Committee Meetings) include:

- Proposed Draft Environmental Assessment Study Report for the Expansion of the W12A Landfill (March 16, 2021 meeting of the Waste Management Working Group (WMWG)), Item #4.1
- Environmental Assessment Process (August 13, 2020 meeting of the WMWG), Item #4.2
- Environmental Assessment Process (December 18, 2019 meeting of the WMWG, Item #4.2)
- Proposed Terms of Reference (August 15, 2018 meeting of the WMWG, Item #2.1)
- Proposed Amended Terms of Reference (April 18, 2019 meeting of the WMWG, Item #3.2)

2.0 Discussion and Considerations

2.1 Background

An EA under the *EA Act* is a planning study that assesses environmental effects and advantages and disadvantages of a proposed project. The environment is considered in broad terms to include the natural, social/cultural and economic aspects of the environment. There are different classes (types) of EAs depending on the type and complexity of the undertaking (project). The most rigorous EA is an Individual EA. An Individual EA is less prescribed than the more common class EAs and is used for large-scale projects like landfill sites.

The first phase of the Individual EA process is the development and approval of a ToR by the Minister of the Environment, Conservation and Parks. Development of the ToR began in March 2017. The ToR becomes the framework or work plan for the preparation and review of the Individual EA. The ToR allows the proponent to produce an EA that is more direct and easier to be reviewed by interested persons. The Amended ToR for the proposed expansion of the W12A Landfill was approved on July 30, 2019.

The second phase of the Individual EA process is completion and approval of an EA. The proponent completes the EA in accordance with the approved ToR. All aspects of the EA process are documented in the EASR. The EASR is submitted to the MECP for approval by the Minister of Environment, Conservation and Parks.

2.2 EA Terminology

The EASR has a different title depending how far along it is in the approval process. For clarity these various titles are listed below in Table 1.

Table 1 - EA Terminology

Title	Definition
Preliminary Draft EASR (completed)	An early draft of the Draft EASR. The MECP does a preliminary screening of the Preliminary Draft EASR to ensure all documentation requirements have been met. The MECP provided 17 comments. Majority were minor requests to add further details.
Draft EASR (underway – Appendix A)	Comments from the MECP on the Preliminary Draft EASR have been addressed. Council approves release of the Draft EASR for feedback. The Draft EASR is submitted to GRT, public and other stakeholders for review and comment.
EASR	Comments from the GRT, public and other stakeholders on the Draft EASR have been addressed. Council approves submission of the EASR to the MECP for approval.
Amended EASR	The MECP often ask for revisions to the EASR to address comments and/or concerns prior to MECP staff submitting the EASR to the Minister for approval. These comments/concerns may come from the MECP or be received by the MECP from other stakeholders during their consultation period.
Approved EASR (or Approved Amended EASR)	EASR as approved by the Minister of Environment, Conservation and Parks.

2.3 Development of the EA

Development of the EA began on September 19, 2019 with the release of the Notice of Commencement and the start of the Community Engagement Program. The Community Engagement Program included:

- Series of Open Houses in February 2020 and November 2020. Each series of open houses was followed by a virtual open house on the project website;

- Project Website (Getinvolved.London.ca/WhyWasteDisposal) which had over 2,000 visitors during the EA phase including 565 visitors during the comment period following the November 2020 Open Houses and 437 visitors during the comment period following the February 2020 Open Houses:

- Indigenous Community engagement including two workshops;

- Updates provided to various stakeholder groups (residents within 2 kilometres of the landfill, landfill customers, community groups, key government agencies (referred to as the government review team), City advisory committees (ACE, AAC, and EEPAC), Indigenous Communities, W12A Landfill Public Liaison Committee and the Waste Management Community Liaison Committee, other interested persons who signed up to receive updates, etc.); and,

- Traditional media and social media advertising.

The EA was completed in accordance with the ToR which involved:

- addressing the List of Commitments made in the Terms of Reference to be completed in the EA (see Appendix B). 18 of the 20 commitments have been completed. Two commitments related to public engagement are on-going until the final EASR is completed;

- completing numerous technical studies examining all aspects of the environment (natural environment, socio-economic and technical);

- comparing three expansion alternatives and determining the preferred expansion alternative;

- an impact assessment of the preferred expansion alternative on the environment;

- considering and incorporating feedback from various stakeholder groups (e.g., nearby residents, community groups, Indigenous Communities, governments agencies, etc.); and,

- documenting all aspects of the EA process in the EASR.

2.4 Summary of Draft EASR

The full draft EASR (titled *Environmental Assessment of the Proposed W12A Landfill Expansion, City of London*) is provided under separate cover. The Executive Summary of the report is provided in Appendix A. It is worth noting key parts of the Draft EASR have previously been before the WMWG, Civic Works Committee, Council, and community stakeholders as it was being developed. The current report pulls all these details together in a prescribed format.

There are several supporting documents for the EASR which are also provided under separate cover and listed in Table 2.

Table 2 – List of Documents

Volume	Documents	Pages
Volume 1 (EASR)	Draft Environmental Assessment of the Proposed W12A Landfill Expansion, City of London	496
Volume 2 (Approved Amended Terms of Reference)	Proposed Amended Terms of Reference Environmental Assessment of the Proposed W12A Landfill Expansion, City of London	175
Volume 3 (Technical work plans and Waste Quantity Projections)	Atmosphere Work Plan – Revision 2 Groundwater Work Plan Surface Water Work Plan Biology Work Plan 2019 Updated Residual Waste Projections and Landfill Capacity Assessment	193
Volume 4 (Existing Conditions and Impact Assessment Reports)	Air Quality Existing Conditions and Impact Assessment Report Noise Existing Conditions and Impact Assessment Report Groundwater Existing Conditions and Impact Assessment Report Surface Water Existing Conditions and Impact Assessment Report Biology (Aquatic and Terrestrial Ecosystems) Existing Conditions and Impact Assessment Report Land Use Existing Conditions and Impact Assessment Report Agricultural Existing Conditions and Impact Assessment Report Archeological Existing Conditions and Impact Assessment Report Heritage Impact Assessment Report Socio-economic Existing Conditions and Impact Assessment Report Visual Existing Conditions and Impact Assessment Report Traffic Assessment in Support of the Environmental Assessment Design and Operations Existing Conditions and Impact Assessment Report	1,674
Volume 5 (Consultation Report)	Consultation Log	594

<u>Overview of EASR</u>
The key features of the EA that are documented in the EASR are:

- the results of numerous technical studies completed to understand existing conditions and allow for the comparison of potential expansion alternatives;

- comparison of three expansion alternatives which were 1) vertical expansion over the existing waste footprint, 2) horizontal expansion to the north with vertical expansion over part of existing footprint; and 3) horizontal expansion to the east with vertical expansion over part of the existing footprint;

- recommendation of vertical expansion over the existing waste footprint as the preferred expansion alternative;

- summary of the findings and mitigation recommendations of the various impact assessments completed for the preferred expansion alternative:

- the vertical expansion will increase the maximum height of the landfill by 26 metres and the disposal volume of the landfill by 13,800,000 m^3. It is expected the landfill expansion will accommodate approximately 9,900,000 tonnes of waste and take 25 years to fill; and,

- over 30 commitments made to facilitate the expansion. Many of these commitments came from the impact assessment studies which recommended various mitigation measures be incorporated into the design and operations to prevent adverse impacts to the environment. The complete list of commitments is provided in Appendix B and key commitments are summarized in Table 3.

Table 3 – Summary of Key Commitments

Impact Assessment Report and Finding	Commitment
Atmosphere Report (Air Quality/Noise) • Potential for noise impacts at 3691 Manning Drive. • Additional measures for dust and odour management.	• Design and implement a follow-up noise monitoring program when landfill operations are within 330 metres of 3691 Manning Drive. • Prepare a fugitive dust management plan and complaints response protocol. • Review and update the odour management plan and complaints response protocol.
Groundwater Report • Potential minor exceedance of aesthetic water quality parameter (chlorides) in several hundred years.	• Incorporate additional leachate collection measures into the landfill design (estimated cost of approximately $5 million). It should be noted the proposed additional measures will also result in improved landfill gas capture.
Biology Report • Confirmed Significant Wildlife Habitat for Monarch Butterfly and Species at Risk Habitat (SAR) for grassland birds (i.e., Eastern Meadowlark and Bobolink) on the landfill.	• Develop an Environmental Mitigation and Monitoring Plan. • Prepare and implement a SAR and Wildlife Observation Protocol to outline the steps to take in the event of an encounter with wildlife, including SAR, during the construction stage. • Consult MECP to determine appropriate compensation for habitat loss of SAR grassland birds. • Progressively re-vegetate the landfill with native plant species.
Archaeology Report • One site with cultural heritage value or interest (First Nations) located in the northern buffer area.	• Commitments to ensure no construction or other activities will take place within 10 metres of site.
Visual Report • Report identifies properties with increased visual impacts.	• Screening berms will be placed on south side of disposal area to screen disposal operations from residences to the south. • Screening berms will be constructed along White Oak Road and Scotland Drive to screen landfill operations from the road.

Impact Assessment Report and Finding	Commitment
	• Seek feedback on appropriate roadside view-mitigation measures from area residents when the Community Enhancement and Mitigation Measures Program (CEMMP) is updated. • Seek feedback from the public on appropriate visual screening measures for affected individual residential properties when the CEMMP is updated.
Climate Change	• Include the possibility of increased leachate generation from climate change into the design of the proposed replacement perimeter leachate collection system. • Include the possibility of increased leachate generation from climate change in the design of the replacement for the main leachate pump station on the W12A Landfill site.

2.5 Waste Management Working Group

The Waste Management Working Group reviewed the EASR at its March 16, 2021 meeting and passed the following resolution:

a) The report *Draft Environmental Assessment of the Proposed W12A Landfill Expansion, City of London* **BE RECEIVED** for information.

b) The release of the report for review and comment by the Government Review Team, Indigenous Communities and the general public **BE SUPPORTED** noting that minor changes/revisions to the report may be made prior to release.

2.6 Parallel Processes

The City continues to seek feedback on the potential update to the Community Enhancement and Mitigative Measure (CEMMP) Program. This project started in November 2020. A report to CWC is expected in summer 2021.

City staff are also compiling various proposed waste disposal policies and an implementation framework that will be part of future disposal operations (e.g., the use of new capacity for disposal of waste from outside the boundaries of London). This work is part of the overall Residual Waste Disposal Strategy.

2.7 Next Steps

The next steps and tentative timetable for approval of the EASR is presented below.

Table 4 – Tentative Timetable for EASR Approval

Date	Step
April 13, 2021	• Council approval of CWC recommendation.
April 20 to May 19, 2021	• Circulate Draft EASR to GRT and other stakeholders. • Notify interested stakeholders; place Draft EASR on-line and at City Hall for review. • The 30 day review period may be extended if stakeholders need additional time.

Date	Step
Late June/Early July, 2021	• Review of EASR by WMWG.
July 27, 2021	• CWC to hold public participation meeting for EASR. • CWC to consider recommending submission to MECP.
August 10, 2021	• Council approval of CWC recommendation.
August 19, 2021	• Formal submission of Proposed EASR to MECP (includes notice to all stakeholders).
August 19, 2021 to Mid-March 2022 or later	• MECP provides a seven week review period for stakeholders to provide comments to the MECP. • MECP evaluates EASR submission and makes recommendation to the Minister. • Minister makes Decision to Approve or Reject. • Prescribed Deadlines (Ontario Regulation 616/98) requires MECP process to be completed in 30 weeks but the process often takes longer.

3.0 Financial Impact/Considerations

3.1 Future Capital Costs

Prior to the EA, the Sanitary Landfill Reserve Fund was based on projected new disposal capacity costs of $120,000,000 including inflation.

The estimated capital cost of the preferred vertical landfill expansion is between $56,000,000 and $92,000,000 (present $2021). The wide range in costs is due to uncertainty in projecting costs 25 years into the future and the preliminary nature of the estimate (e.g., draft EASR has not been reviewed by the various government agencies).

The expected cost is $66,000,000 (present $2021) or $82,000,000 over the 25-year site life of the landfill assuming 2% inflation for future expenditures. These costs are less than previously estimated for the landfill expansion however the costs to be incurred for initial development over the next 10 years may be higher than the funding currently included in the 10-year capital budget. This is because the landfill expansion will be needed sooner than previously expected (by 12 to 18 months) and replacement of a number of on-site facilities has been accelerated (e.g., landfill gas flaring station expansion).

The required changes to the capital budget to accommodate the construction portion of this project will be addressed as part of the budget update process and brought forward as a budget amendment for Committee and Council approval.

3.1 Future Operating Costs

It is expected that operating costs of the expanded landfill site will increase by approximately 10% (about $500,000 per year) to accommodate additional and enhanced site operations including additional gas collection measures, additional environmental monitoring requirements, enhanced nuisance control measures (noise, litter, etc.), improved small vehicle depot operations, visual screening measures, etc. How to fund the additional operating costs will be part of future waste disposal policy work and budget processes.

Conclusion

All aspects of the EA process to expand the W12A Landfill need to be documented in an EASR and submitted to the MECP for approval. A draft EASR has been prepared to receive feedback on the EASR from stakeholders prior to formal submission to the MECP.

It is recommended the draft EASR be circulated to obtain feedback from the Government Review Team (GRT), Indigenous Communities, general public and other stakeholders. A revised report that considers the feedback received will taken to a public participation meeting to be held by the CWC.

Prepared by:	**Mike Losee, B.Sc.** **Division Manager, Solid Waste Management**
Submitted by:	**Jay Stanford, MA, MPA** **Director, Environment, Fleet & Solid Waste**
Recommended by:	**Kelly Scherr, P. Eng., MBA, FEC** **Managing Director, Environmental and Engineering Services and City Engineer**

c. Wesley Abbott, Project Manager, Oakridge Environmental

Appendix A Executive Summary of Draft Environmental Assessment Study Report

Appendix B List of Commitments in the Approved Amended Terms of Reference to be completed during Environmental Assessment

Appendix C List of Commitments in the Draft Environmental Assessment Study Report

Appendix A
Executive Summary of Draft Environmental Assessment Study Report

Introduction

This document is the environmental assessment study report (EASR) for the environmental assessment (EA) of the proposed expansion of the W12A Landfill site (the Project) being undertaken by the City of London (the City). This is an individual EA completed under the provincial *Environmental Assessment Act* (EAA).

The W12A Landfill is located at 3502 Manning Drive in the south end of the City of London, Ontario. The landfill has been in operation since 1977 and operates under Environmental Compliance Approval (ECA) #A042102. The residual waste disposed at the landfill is generated from an existing service area consisting of the City, the Municipality of Thames Centre, the two water treatment plants that serve the City located outside the City and a privately owned recycling facility. The site also receives Municipal Hazardous or Special Waste (MHSW) from residents and small quantity generators (businesses with limited amounts of MHSW) from within the City and from the Counties of Middlesex and Elgin; this waste is sent off-site for recycling, reuse or disposal. The landfill is expected to reach its approved capacity by 2024.

The existing W12A Landfill site has a 107 hectare (ha) fill area and is located on a 142 ha property. The average height of the landfill above ground surface is about 9 to 12 metres (m). The peak elevation is approximately 17 m above the ground surface. In summary, the currently approved W12A Landfill can be described as having a large footprint area and a low height above grade. The total approved site capacity is 12,500,000 cubic metres (m^3). The site is approved to receive up to 650,000 tonnes per year of solid non-hazardous waste, noting that over the past 10 years the site typically receives between 230,000 and 320,000 tonnes of waste per year. The landfill site is located in a favourable geologic setting, underlain by a deposit of low permeability clay till that provides a natural barrier to downward groundwater (and landfill leachate) movement. The landfill has been developed in two phases. Phase 1 comprises the eastern portion of the waste footprint; the waste rests directly on the clay soil and is surrounded by a perimeter leachate collection system (LCS). Phase 2, comprising the western portion, is underlain by a continuous granular leachate collection layer/system. The collected leachate is conveyed off-site via a forcemain and municipal sanitary sewer system for treatment at the Greenway Wastewater Treatment Plant (WWTP). Completed areas of the landfill have a landfill gas (LFG) collection system; the collected LFG is sent to an on-site enclosed flare for combustion.

The W12A Landfill has had groundwater, surface water, leachate, water well and LFG monitoring programs since 1976. A summary of the results of the 2019 monitoring programs indicates that the landfill is performing acceptably and in accordance with provincial requirements in terms of potential effects of leachate on groundwater and surface water, as well as in terms of LFG migration in the subsurface.

Additional detail on the site history, design, operations and performance is provided in Sections 1.3 and 5.13 of the EASR.

Description of the Project

To plan for the future, the City has commenced the development of two long-term waste management strategies: the Resource Recovery Strategy, and the Residual Waste Disposal Strategy. The Resource Recovery Strategy involves the development of a plan to maximize waste reduction, reuse, recycling, resource recovery, energy recovery and/or waste conversion in an economically viable and environmentally responsible manner. The current residential diversion rate is 45%. The Resource Recovery Strategy is scheduled to be completed in 2022. As an interim step, in 2018 the City completed the 60% Waste Diversion Action Plan that includes the development of programs and an implementation schedule for specific activities to increase the City's diversion rate to 60% for residential waste.

The Residual Waste Disposal Strategy involves the development of a long-term plan to manage residual waste, which will require obtaining additional residual disposal

capacity. Several ways of satisfying this need have been assessed (referred to as ‘Alternatives To’ the undertaking). The assessment of these ‘Alternatives To’ has been completed by the City using a previously completed long term waste management planning study, as described in Section 4 of the approved Amended ToR and summarized in Section 2.5 of this EASR. The preferred ‘Alternative To’ included the expansion of the W12A Landfill, which is the subject of this EA.

The purpose of the EA study is to seek approval for additional waste disposal capacity because the existing W12A landfill is reaching its approved total disposal capacity by 2024. The planning period for this EA is 25 years, so from the beginning of 2024 through to the end 2048.

To estimate the quantity of residual waste from the existing service area requiring disposal over this planning period, the City proposes to implement the Resource Recovery Strategy such that 60% residential diversion will be achieved by the end of 2022. It is projected that the expanded W12A landfill will require disposal capacity for 9,400,000 tonnes of residual waste over the 25 year planning period.

In addition, the City is proposing to assist neighbouring municipalities with their future residual waste management needs by having a larger service area for the expanded landfill. Based on interest expressed, the regional service area is proposed to consist of the City of London plus Elgin County, Middlesex County, Huron County, Lambton County and Perth County. In 2017, these municipalities annually disposed of approximately 86,000 tonnes of residual waste and had an overall residential diversion rate of 38%. Based on information about the life remaining in their existing landfills, proposed expansions of their landfills and various diversion scenarios, it is projected that an additional 500,000 tonnes of residual waste from the neighbouring municipalities could require disposal over the 25 year planning period.

Having available residual waste disposal capacity for municipalities outside of London from the proposed regional service area municipalities does not mean that London is obligated to accept waste from these municipalities in the future. City Council will have the authority to determine which, if any, municipalities or businesses outside of London can use any City facilities and under what conditions they are allowed to do so. For example, the City may require municipalities and businesses to demonstrate that their diversion rate matches or exceeds the City’s diversion rate to be allowed to dispose of residual waste at the W12A Landfill.

As such, it is proposed that the W12A Landfill expansion should be designed to dispose of 9,900,000 tonnes of waste between 2024 and 2048, which corresponds to 13,800,000 cubic metres (m^3) of additional airspace. It is also proposed for the expansion that the annual maximum waste receipt be reduced from 650,000 to 500,000 tonnes per year.

Methodology

The EA was carried out in accordance with the approach described in the approved Amended ToR, which was approved on July 30, 2019. The EA was undertaken in a series of nine steps as described below. Additional details about each step are further described in Section 3.0 of this EASR.

- Step 1 – Outline the aspects of the environment considered and characterize the existing environmental conditions;
- Step 2 – Identify the ‘Alternative Methods’ of landfill expansion (and incorporate conceptual design mitigation measures);
- Step 3 – Qualitative and quantitative, where possible, evaluation of ‘Alternative Methods’;
- Step 4 – Compare the ‘Alternative Methods’ for landfill expansion and identify the preferred alternative;
- Step 5 – Describe the preferred ‘Alternative Method’ for landfill expansion;
- Step 6 – Refine the mitigation measures and determine the net effects of the preferred alternative;

- Step 7 – Consideration of climate change;
- Step 8 – Cumulative impact assessment; and
- Step 9 – Preparation of the EASR.

The environmental, socio-economic and technical components were identified in the approved Amended ToR and reviewed by the public at Open House #2 during the ToR phase of the EA. At commencement of the EA no changes to the components used to evaluate the Undertaking were identified. Likewise, the indicators and criteria to assess the effects of the proposed Undertaking were identified during the ToR phase of the project, reviewed during the EA and no changes were proposed.

Consultation

Consultation with the public, agencies, Indigenous Communities and other stakeholders was ongoing throughout the EA process. A variety of consultation events and activities were used during the EA process. The consultation program for the EA was presented in the approved Amended ToR.

The consultation activities carried out during the EA consisted of:

- Letter and email correspondence distributed to the public, interested stakeholders (e.g. businesses using the landfill, environmental groups, etc.), Government Review Team (GRT), and Indigenous communities;
- Meetings, presentations and tours with Indigenous Communities;
- Notices published in local newspapers;
- Notices on the EA project website (https://getinvolved.london.ca/WhyWasteDisposal);
- Two open houses in the local community;
- Presentations and discussions to the existing W12A Landfill Public Liaison Committee (PLC);
- Media releases;
- Meetings and telephone calls between the City, the EA consultants, and the Ministry of the Environment, Conservation and Parks (MECP); and
- Informal meetings, telephone calls and discussions with Indigenous Communities, local politicians, business owners, community organizations and neighbours to the existing W12A Landfill on an as needed basis throughout the EA.

A complete list of issues and concerns raised and responses was compiled and is included in Volume V – Consultation Record; a summary of these issues, responses and how each was addressed in the EA is provided in Section 4.7 of the EASR. The input received during various consultation events was carefully considered and incorporated into the EA, where applicable. The following are some of the questions and concerns raised during the EA process:

- Proposed regional service area and conditions under which the neighbouring municipalities should be allowed to use the W12A Landfill;
- Landfill and other traffic;
- Height of expanded landfill – visual impacts and effects on wind;
- Beneficial use of collected LFG;
- Importance of noise and odour control;
- The importance of expanding waste diversion and resource recovery programs in addition to additional landfill capacity;
- Visual screening of landfill operations; and

- Potential groundwater impacts – impacts to groundwater quality and influence of fractures in upper portion of clay soil underlying the landfill.

In addition, the City held two workshops that were attended by interested Indigenous Communities. The first workshop focused on the groundwater assessment work plan and resulted in modifications being made to the work program. The second workshop described the proposed expansion and the results of impact assessment for specific environmental and socio-economic components of interest. These consultation activities are described in Section 4.7.3 of the EASR.

Description of the Environment Potentially Affected

Section 5.0 of the EASR provides a description of the environmental, socio-economic, and technical components, which together are defined as the existing environment that may be affected by the undertaking. The environmental component includes atmosphere, hydrogeology, surface water and biology. The socio-economic component includes socio-economic, land use and cultural heritage. The technical component includes design and operations and transportation aspects of the environment.

Section 5.1 provides an overview of the study areas (Site, Site-vicinity and Wider study areas) to provide context for the assessment. Appropriate study areas for each component were determined based on the potential extent of the effects from the proposed expansion and along the main haul route to the landfill site.

The existing conditions for the environmental, socio-economic and technical components are detailed for each component in Volume IV, Appendices D.01 through D.12 and summarized in Sections 5.2 to 5.13 of the EASR.

The Site Study Area (or Site Area when referring to the preferred approach to expansion) is the existing landfill property and adjacent lands to the north and east where expansion could occur. This Site Study Area is occupied by the existing landfill, stormwater management (SWM) ponds and ancillary landfill operations and diversion facilities and the potential expansion areas. The general area surrounding the landfill are currently characterized by a mix of agricultural uses, with some rural residential uses. The City owns a majority of the parcels within a 500 m Site-vicinity Study Area to the east of the Site Area, as well as a number of parcels to the west and north of the Site Area.

The Haul Route Study Area consist of the haul routes associated with the landfill, specifically Manning Drive between Wellington Road South and Highway 401 and Wellington Road South between Dingman Drive and Manning Drive; also, Wonderland Road South between Decker Drive and Manning Drive.

Description of the ‘Alternative Methods’ of Landfill Expansion

‘Alternative Methods’ are different ways that the proposed expansion of the W12A Landfill could be implemented to provide an additional 13,800,000 m^3 of disposal capacity over the 25 year planning period. As described in the approved Amended ToR, because of the physical constraints associated with the configuration of the existing waste footprint and geometry on the existing landfill site property, the ‘Alternative Methods’ are limited to vertical expansion above the existing waste footprint and/or lateral expansion to the north and/or east within the Site Study Area.

In the development of the landfill expansion alternatives, site-specific factors were considered, consisting of 1) site design requirements as set out in O. Reg. 232/98 (MECP, 1998); 2) existing leachate and LFG control and management systems, and SWM system; 3) conceptual mitigation measures for the landfill expansion; and 4) engineered system requirements.

Based on the above factors, three ‘Alternative Methods’ for expansion of the W12A Landfill were developed. These alternatives are referred to as:

- Alternative 1 – Vertical Expansion Over Existing Footprint
- Alternative 2 – Horizontal Expansion to the North and Vertical Expansion Over Part of the Existing Footprint

- Alternative 3 – Horizontal Expansion to the East and Vertical Expansion Over Part of the Existing Footprint

Alternative 1 consists of vertical expansion over the whole of the existing 107 ha landfill footprint, with a peak waste elevation of 317.65 metres above sea level (masl) along a west to east ridge in the south-central part of the footprint. Allowing 0.75 m for the final cover, this maximum elevation corresponds to a peak elevation that is approximately 25 m higher than the current landfill peak and 43 m higher than the average ground surface elevation. The design provides 4H:1V sideslopes upward from the existing sideslopes and a 5 % top slope; it is noted a majority of the waste footprint area (about 60 %) will be at the gradual 5 % top slope. With this alternative, it is proposed to move the northern property line of the landfill site to Scotland Drive, creating a north buffer width of approximately 300 m (noting that this land is all currently owned by the City).

Alternative 2 consists of a 200 m wide horizontal expansion to the north, increasing the waste footprint area from 107 to 134 ha. This will involve 2,040,000 m^3 of excavation to form the cell and management of the excavated soil. To provide the required airspace, this alternative has a peak waste elevation of 309.8 masl along a west to east ridge in the central part of the footprint. Allowing 0.75 m for the final cover, the maximum peak elevation is approximately 18 m higher than the current landfill peak and corresponds to a height above average ground surface elevation of about 35 m, some 8 m lower than Alternative 1. The design provides 4H:1V sideslopes on the north side and upward from the existing sideslopes on much of the east and west sides, and a 5 % top slope on the area of vertical expansion above the existing footprint area.

Alternative 3 consists of a 300 to 550 m wide horizontal expansion to the east, increasing the waste footprint area from 107 to 135 ha. This will involve about 821,400 m^3 of excavation to form the cell and management of the excavated soil. To provide the required airspace, this alternative has a peak waste elevation of 311.80 masl along a west to east ridge in the north end of the footprint, with the majority of the fill area having a 5 % top slope. Allowing 0.75 m for the final cover, this maximum elevation is approximately 20 m higher than the current landfill peak and corresponds to a height above average ground surface elevation of about 37 m, between Alternative 1 (higher) and Alternative 2 (lower). The design provides 4H:1V sideslopes on the horizontal expansion area and upward from the existing sideslopes on the north side and much of the east and west sides, and a 5 % top slope on the area of vertical expansion above the existing footprint. With this alternative, as with Alternative 1, it is proposed to move the northern property line of the landfill site to Scotland Drive, creating a north buffer width of approximately 300 m (nothing that this land is all currently owned by the City).

Evaluation and Comparison of Landfill Expansion Alternatives

For each of the three proposed expansion alternatives, the potential for environmental effects was assessed based on the broad definition of the environment within the Act, using a set of evaluation criteria. The evaluation criteria consist of components, sub-components and indicators; the components represent a high level aspect of the environment, each of the sub-components represents a specific aspect of the environment, and the indicators represent a potential effect of the Project.

For each sub-component, the potential effects associated with each expansion alternative were identified and comparatively evaluated using either qualitative, quantitative or a combination of each method; as well, an assessment of advantages and disadvantages of each alternative was completed. Based on the results, for each indicator the alternative methods were ranked as one of ‘preferred’, ‘less preferred’, ‘least preferred’, and ‘equally preferred’. The next step was to compile the individual component comparative evaluations of the ‘Alternative Methods’ and select the overall preferred method of landfill expansion.

The detailed comparative assessment for each indicator is provided in Sections 7.2.1 to 7.2.12 of the EASR; the rationale for the selection of the overall preferred method of landfill expansion is provided in Section 7.4 of the EASR.

The comparative evaluation of ‘Alternative Methods’ of expanding the London W12A Landfill clearly identified Alternative 1 - vertical expansion over the existing footprint - as the preferred method of expanding the landfill. Alternative 1 was ranked as most

preferred for 12 of the sub-components and least preferred for three. Some key advantages of this expansion alternative are that the same landfill footprint is utilized meaning that proximity to sensitive off-site receptors stays the same and most potential nuisance impacts are indicated to be less than associated with the other expansion alternatives, no aquatic features are destroyed as a result of construction, the thickest clay till aquitard is present offering the most protection to downgradient groundwater quality, the least modifications to the stormwater management system are required, limited loss of agricultural land and least capital cost for construction.

Description of the Preferred Undertaking

Following the identification of Alternative 1 as the proposed expansion, the expansion design concept was further refined to carry out a detailed impact assessment. Details of the refined concept design are provided in Section 8 of the EASR and summarized as follows and shown on Figure ES-1:

- To accommodate the final design in the northwest corner of the currently approved landfill, it was necessary to reduce the footprint in the northwest corner by 0.7 ha to 106.3 ha, comprised of the eastern approximately 59.1 ha of Phase 1 footprint and 47.2 ha of Phase 2 footprint. A design adjustment was also made regarding the currently approved limit of waste. To accommodate these changes while continuing to provide 13.8 million m^3 of airspace, the landfill contours were adjusted, resulting in an increase in the highest ridge elevation of waste of approximately 0.8 m, from elevation 317.65 masl to 318.43 masl.

- To accommodate future ancillary features and provide additional on-site buffer width compared to the existing landfill, the northern boundary of the landfill property will be adjacent to Scotland Drive and a 100 m buffer width will be provided on the east side of the landfill footprint and some additional area in the southeast corner to tie into the adjacent Material Recycling Facility (MRF) property line. This results in a 106.3 ha landfill footprint within a 192.4 ha landfill property.

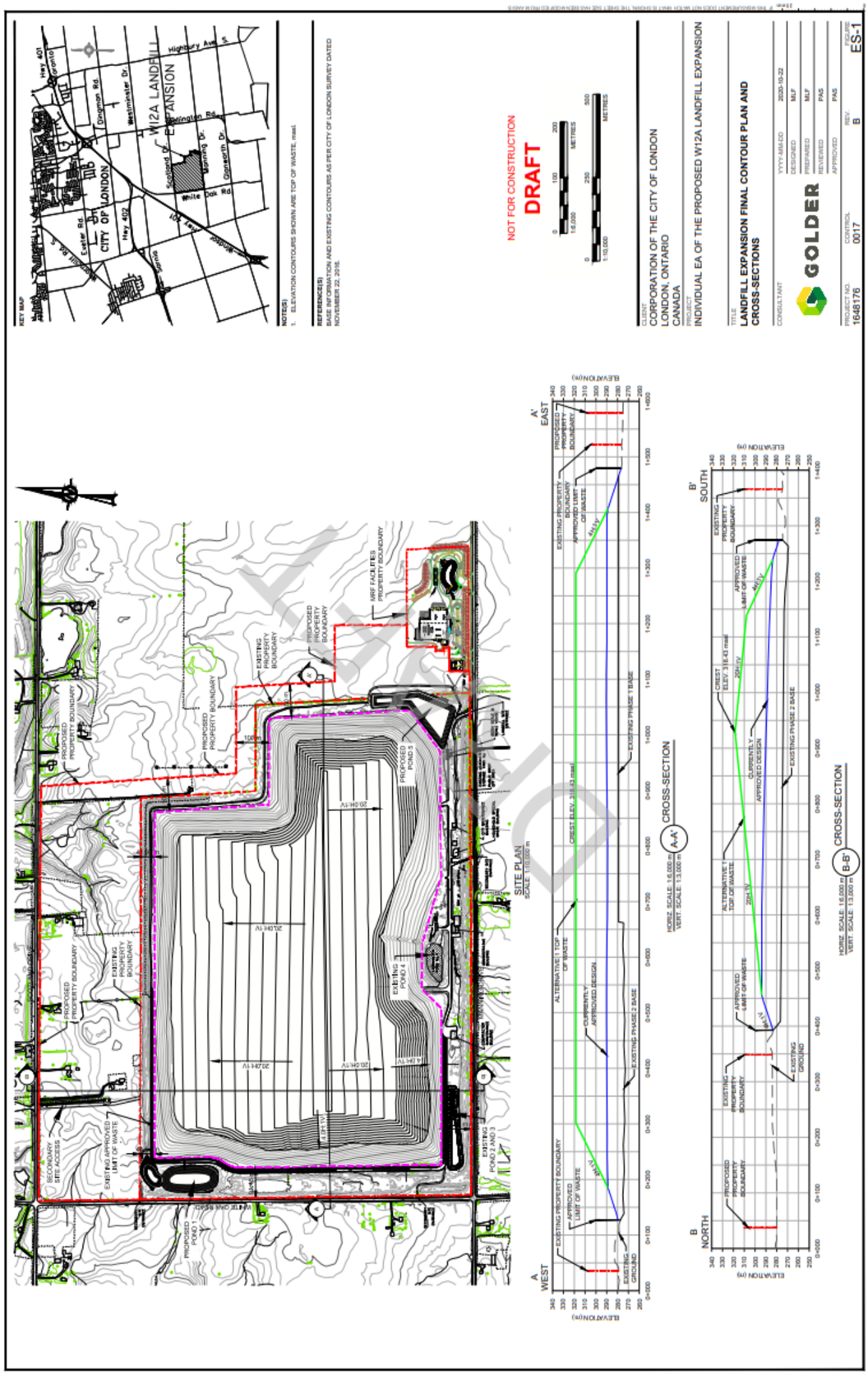
- The landfill expansion will be developed sequentially in eight Phases, 1E through 8E, with four Phases in the southern part of the landfill and 4 Phases in northern part of the landfill. Filling will start in the Phase in the southwest corner of the landfill and proceed to the adjacent northern Phase. Filling will then move eastward starting at the next southern Phase followed by the adjacent northern Phase. This process will continue until all Phases have been filled. The estimated duration of landfilling in each Phase corresponds to an average annual waste receipt of 370,000 tonnes per year over the 25 year planning period. It is estimated that each Phase will provide about 1.2 to 1.9 million m^3 of airspace and typically operate for a period of about 2.5 to 3.5 years.

- A separate cell dedicated for disposal of the non-decomposable portion of the waste stream (street sweepings, water treatment plant process residuals, sewage sludge ash and contaminated soil) will be provided in the southeastern area of the landfill expansion and utilized throughout the expansion operating period.

- To commence filling in each Phase, the existing cover material would be progressively stripped from an area large enough to accommodate the year's disposal, which is estimated to average approximately 4 ha. The area of exposed waste would be limited to that needed to spread, compact and cover the waste received on a daily basis. The active area would range from about 40 m by 25 m typically (1,000 square metres) to 50 by 30 m (1,500 square metres). The waste will be spread and compacted in lifts of about 0.6 m to a height of approximately 3 m. All waste will be covered daily.

- To reduce air emissions (for odour control purposes during landfilling operations and to increase the overall collection of landfill gases), horizontal LFG collection pipes will be installed progressively as waste is placed.

Figure ES-1: Landfill Expansion Final Contour Plan and Cross-Sections



Note: Figure reduced for inclusion in CWC Report

- For the southern Phases 1E, 3E, 5E and 7E the waste would be placed initially to build a berm along the south side of the Phase and will be covered with final cover soil and seeded to establish vegetation; the berm will screen the view of subsequent filling operations north of the berm from off-site vantage points to the south. The south side perimeter waste berm would be raised sequentially and filled in behind until the peak elevation is reached.
- For the portion of the proposed vertical expansion that will involve placement of additional waste above the Phase 2 area, the existing LCS will continue to be used to collect and remove leachate from the area. For the vertical expansion above the Phase 1 area, it is proposed to replace the existing perimeter LCS with a new perimeter LCS that will serve the same functions as the existing system. To control the potential for leachate seeps along the perimeter sideslopes that could occur as a result of leachate mounding in Phase 1, it is proposed to construct granular finger drains around the north, east and south sides of the exterior perimeter of the Phase 1 area.
- It is proposed to consider options to provide temporary leachate storage on the W12A Landfill site during storm events of significant magnitude that could result in discharge of the mixed leachate/sewage to Dingman Creek or the Thames River if the WWTP is in a by-pass situation. Although the W12A leachate represents only a small percentage of the total flow within the sewer system, the objective is to minimize the discharge of untreated leachate to these water courses. The temporarily stored leachate would be pumped off-site for treatment after the by-pass event is over.
- The leachate collected from the Phase 1 and Phase 2 LCS is currently routed through the main leachate pumping station and pumped off-site through a leachate forcemain to the Dingman Drive pump station, where it combines with municipal sewage and enters the municipal sanitary sewer system to the Greenway WWTP. Following treatment at the WWTP, the effluent is discharged to the Thames River. An assessment of the ability of this City owned, operated and maintained infrastructure to continue to manage leachate from the W12A landfill expansion was completed and the results show that this can be continued for the W12A Landfill expansion and be expected to perform acceptably during expanded site operations and post-closure. All components of this system are part of City owned, operated and maintained infrastructure, and are accessible for repair, upgrade or replacement if and as needed in the future.
- For LFG management, vertical LFG extraction wells will be installed to collect gas from within the expanded waste mass as part of the progressive construction of the final cover system following completion of filling within each Phase. The collected LFG will ultimately be combusted via blowers and flares. To reduce air emissions (for odour control purposes during landfilling operations and to increase the overall collection of landfill gases), it is proposed that a number of horizontal LFG collection pipes will be installed progressively as waste is placed and connected to the flare.
- Stormwater management will utilize the existing four stormwater management ponds, which will be upgraded and modified to manage and control the release of surface water runoff from the expanded landfill.
- It is proposed that many of the existing ancillary facilities at the site will be progressively upgraded or replaced during the expansion. In addition, it is proposed that in the vacant southeast corner area between the landfill and the MRF there will be a new scale and scalehouse, a grade-separated small vehicle drop-off for waste materials, a grade-separated small vehicle drop-off for recyclable materials (such as tires, scrap metal, ceramics, Blue Box materials, clean wood, electronics), an area for drop-off of brush, a large item drop-off area, and a new HSW depot.
- The landfill Phases will be progressively closed after the final waste contours have been reached and landfill operations have proceeded into the next Phase(s). The final cover on the landfill will consist of 600 mm of soil, topped with 150 mm of soil capable of sustaining vegetation.

Impact Assessment and Net Effects

Section 9.0 of the EASR presents an overview of the predicted effects of the proposed expansion on each of the components. These assessments were conducted in accordance with the requirements set out in the approved Amended ToR (Volume II) and detailed in Work Plans (Volume III Appendix B). Additional details on the impact assessments are provided in Volume IV Appendix D.

Atmosphere

The Atmosphere environment component comprises two sub-components: air quality (including dust, odour, greenhouse gas (GHG)) and noise. The details of the impact assessment for the Atmosphere Environment (air and noise) are provided in Volume IV Appendix D.01 and Appendix D.02, respectively.

Air Quality

The effects of the Project on air quality were identified for different phases of the expansion and involved the following three steps:

- Calculating representative emissions rates for each of the significant sources;
- Carrying out atmospheric dispersion modelling to predict off-site concentrations of the indicator compounds; and
- Comparison of predicted concentrations to existing conditions and the Applicable Guidelines.

The emission estimation methods followed accepted MECP practices including, where applicable, guidance in the Ontario MECP document *Procedure for Preparing an Emission Summary and Dispersion Modelling Report Version 4.1* (MECP, 2018b).

To determine potential effects of the proposed project on air quality and odour, the predicted concentrations of indicator contaminants were compared to Ontario's Ambient Air Quality Criteria (AAQC) (MECP 2018) and the Canadian Ambient Air Quality Standards (CAAQSs) (CCME 2014).

The maximum cumulative concentrations of all indicator compounds are below the relevant guidelines for all indicator compounds, with the exception of NO_2 on a 1-hour basis related to the CAAQS but NO_2 meets the AAQC standard. Although the AAQC is less conservative for NO_2, it is technically more appropriate for the situation being considered.

The predicted compound concentrations associated with the expansion are predicted to meet the relevant air quality criteria.

In addition to the assessment of the effects of the Project on ambient air quality and odour, consideration was given to an evaluation of compliance by determining whether an Environmental Compliance Approval (ECA) for air and noise under Section 9 of the *Environmental Protection Act* (EPA) could be obtained based on whether the facility is in compliance for those sources regulated under O. Reg. 419/05. At the landfill, this would include landfill gases and materials handling emissions. All mobile equipment is exempt from compliance requirements under O. Reg. 419/05. The assessment indicates that the proposed facility will be in compliance with Schedule 3 of O. Reg. 419/05.

Noise

The methodology used for the noise assessment was based on the MECP publications *"Noise Guidelines for Landfill Sites"* (Landfill Guidelines) (MECP 1998) and NPC-300 (MECP 2013). These guidelines outline the sound level limit criteria for evaluating landfilling operations and ancillary facilities (i.e., stationary noise sources).

The noise assessment was carried out at the representative points of reception (PORs) identified within the Site-vicinity Study Area. All representative PORs identified in this noise assessment are conservatively described as being located in a Class 3 area, as defined in NPC-300 as a rural area with an acoustical environment that is dominated by natural sounds.

Noise predictions of landfilling operations, ancillary equipment, and off-site haul routes were each assessed independently against the MECP guidelines (where applicable), and then combined to assess change relative to existing noise levels.

The results of the assessment indicate that mitigation measures are required when landfilling within an area of the south portion of the landfill so that the Project does not result in an adverse effect on noise (i.e., a moderate or high magnitude rating) at a specific existing receptor.

Geology and Hydrogeology

The details of the impact assessment for long-term groundwater quality and quantity are provided in Volume IV Appendix D.03.

The groundwater quality assessment was carried out using the contaminant transport model POLLUTE (Rowe et. al., 1994) and results were compared to the MECP Reasonable Use Guideline (RUG) B-7 (MECP, 1994), noting that this guideline establishes a quantitative benchmark for protecting off-site groundwater quality for drinking water purposes.

The soil stratigraphy at the landfill was simplified for the model which consisted of the Surficial Aquitard (silty clay), Upper Aquifer (sand), Lower Aquitard (silty clay) and White Oak Aquifer (lower sand aquifer). The fractures that were studied in the upper portion of the Surficial Aquitard were accounted for in the modelling. As required in O.Reg. 232/98 (MECP, 1998) the model assessed the impact of groundwater contaminants benzene, cadmium, chloride, lead,
1,4-dichlorobenzene, dichloromethane, toluene and vinyl chloride from the expanded landfill on the receiving groundwater.

The direction of groundwater flow on and in the area of the W12A Landfill can be generally described as north to south. Water supply wells in the area obtain their water supply from both the Upper Aquifer and White Oak Aquifer. The modelling demonstrated no groundwater quality impacts on the White Oak Aquifer for the groundwater contaminants of interest. In the Upper Aquifer, all RUG were met over the 1,000 year modelling time frame except for chloride that is predicted to have a peak impact of 129 mg/L, which is slightly above the allowable RUG of 128 mg/L in the Upper Aquifer. As a result, additional design mitigation measures were evaluated for off-site groundwater quality protection. The addition of incorporating leachate collection into the design of a first tier of horizontal landfill gas collector trenches required over the top surface of the Phase 1 area prior to vertical expansion was considered. With this additional mitigation design, the modelling demonstrated all groundwater quality impacts were below the RUG for the groundwater contaminants of interest in the Upper Aquifer.

Because of the existing landfill's location overlying the Surficial Aquitard, its presence does not affect the recharge of the groundwater system and has no effect on groundwater levels or groundwater quantity in the Upper and White Oak Aquifers beneath the landfill or off-site further to the south of the landfill site. With the proposed landfill expansion consisting of a vertical expansion above the existing landfill footprint, the expansion will not have an effect on downgradient groundwater levels or groundwater quantity off-site to the south of the landfill site.

Surface Water

The details of the impact assessment for surface water quality and quantity are provided in Volume IV Appendix D.04.

The existing drainage network in the vicinity of the landfill is currently divided into four general areas with a system of berms, slopes and perimeter drainage ditches directing runoff generated within the W12A Landfill Operations Area to four separate stormwater management (SWM) ponds. During landfill expansion, surface drainage from potentially contaminated areas, i.e., originating from active landfilling areas, will be contained locally within berms and will discharge into the waste and eventually into the leachate management system. Hence there is no anticipated change to surface water quality as a result of contact with landfill expansion waste. Surface drainage from non-contaminated areas such as road areas and areas with interim or final landfill cover will be conveyed to the SWM ponds via the internal drainage ditches.

To update the design of the existing SWM ponds under changed conditions from the landfill expansion (peak of the landfill shifting, sideslopes of the landfill that are longer and steeper in some locations, and movement of some of the ancillary features on the site), the model Visual Otthymo was used to evaluate changes to water quantity. As a requirement of the MECP SWM Planning and Design Manual (MECP, 2003) the updated designs to the SWM ponds required Enhanced Level Protection (80% total suspended solids (TSS removal)) and matching post-expansion outlet flows from the ponds to corresponding pre-expansion flows for selected storm events.

Because of the required quality and discharge quantity controls for the SWM ponds (e.g., larger ponds, new control structures, etc.), there is not expected to be an adverse impact on off-site surface water quantity or quality. A summary of SWM pond modifications is provided as follows:

- SWM Pond 1: the pond will be expanded to the north, increasing the size of the main pond and forebay. The outlet structure will be modified such that flows will match or be less than pre-development flows. The new outlet pipe for the pond is designed as a submerged reverse sloped pipe to promote separation/floating of oils, providing potential for spilled material to be recovered prior to off-site release occurring. The existing outlet structure for the pond will be fitted with a valve to allow emergency closure to assist in spill / leachate containment activities, if needed. A 600 mm diameter pipe with a ditch inlet grate will be provided at two elevations to provide discharge control for larger storm events. The updated permanent pool volume of SWM Pond 1 exceeds the required permanent pool volume to achieve the Enhanced Level Protection (80% TSS removal).
- SWM Pond 2/3: the landfill expansion will result in a decreased drainage area to this pond; however, to meet the Enhanced Level Protection (80% TSS removal) as defined by the MECP Stormwater Management Planning and Design Manual (MECP, 2003) the permanent pool depth will be increased and some modifications will be made to the existing outlet structure. A minimum sized orifice of 75 mm will be used to control the pond outflow for the baseflow storage and 25 mm storm. The outlet pipe for the pond is designed as a submerged reverse sloped pipe to promote separation/floating of oils, providing potential for spilled material to be recovered prior to off-site release occurring. The existing outlet structure for the pond will be modified and used and fitted with a valve to allow emergency closure to assist in spill / leachate containment activities, if needed. An overflow weir with 1.0 m bottom width, 3H:1V sideslopes with rip-rap covering is proposed to provide discharge control for larger storm events. The updated permanent pool volume provided in the proposed wet pond of SWM Pond 2/3 exceeds the required permanent pool volume to achieve the Enhanced Level Protection (80% TSS removal).
- SWM Pond 4: under proposed expansion conditions Pond 4 would receive stormwater runoff from a smaller total drainage area. The existing permanent pool and active storage is sufficiently sized to meet the Enhanced Level Protection (80% TSS removal) as defined by the MECP Stormwater Management Planning and Design Manual (MECP, 2003). The existing outlet structure will be modified with an appropriately sized orifice to control discharge and the existing double inlet catchbasin would be maintained for larger storm events. An overflow weir would be added for storm events larger than the 1:100 year return period design storm. The existing outlet structure for the pond will be modified and used and fitted with a valve to allow emergency closure to assist in spill / leachate containment activities, if needed. A 600 mm outlet pipe with a ditch inlet grate will be provided at one elevation for the controlled discharge of large storm events.
- SWM Pond 5: under proposed expansion conditions, Pond 5 would receive stormwater runoff from a larger total drainage area. The Pond would be expanded to the east and north to increase both the permanent pool and active storage capacities. The existing outlet structure orifice and weir will be modified to match pre-development peak flows. The existing outlet structure for the pond will be fitted with a valve to allow emergency closure to assist in spill / leachate containment activities, if needed. The provided permanent pool volume in the proposed wet pond

exceeds the required permanent pool volume to meet the Enhanced Level Protection (80% TSS removal) requirement.

The proposed works are predicted to result in surface water quality conditions that are comparable or better to existing conditions and meet MECP PWQO (MOEE, 1994) requirements. Post-closure, the pond operations will continue such that surface water quality downstream of the site remains protected.

Biology

The Biology environment component comprises two sub-components: aquatic ecosystems and terrestrial ecosystems. The details of the impact assessment on the Biology component (aquatic and terrestrial ecosystems) are provided in Volume IV Appendix D.05.

The impact assessment considers the potential direct and indirect impacts of the W12A Landfill preferred expansion alternative on the aquatic and terrestrial ecosystems within the Site and Site-vicinity Study Areas for the construction, operations and closure stages of the landfill expansion.

The proposed expansion of the W12A Landfill avoids many potential impacts by situating the future expansion on the existing landfill fill area.

Aquatic Ecosystems

Direct Impacts:

- Because the proposed modification to SWM pond weirs and outlets will all occur within the landfill area, and there are no physical alterations to the downstream SWM infrastructure, including the ditches, culverts, or other downstream watercourses, no direct impacts to aquatic species or habitat are anticipated from the proposed modifications to SWM system. Similarly, there are no anticipated direct impacts to aquatic ecosystems during the Operations Stage and during closure and post-closure activities related to the expansion of the W12A Landfill.

Indirect Impacts:

- No indirect impacts to aquatic species or habitat are anticipated during the Construction Stage, since there are no proposed modifications to the SWM pond weirs and outlets for existing structures that convey discharged pond water to downstream watercourses;
- Although the proposed works associated with the Operations Stage for the proposed expansion are not expected to result in direct impacts to aquatic ecosystems, there will be changes to drainage areas and the resulting water balance (i.e., reduced water drainage to Dodd Creek; increased surface water drainage to Dingman Creek). The changes in drainage area are expected to have a negligible effect on runoff and drainage downstream of the site in both the Dingman and Dodd Creek subwatersheds. Further, modifications to the existing SWM infrastructure, along with mitigation measures (i.e., erosion and sediment control), are expected to result in surface water quality conditions that are comparable to existing conditions and meet the MECP PWQOs; and
- Potential indirect impacts associated with closure and post-closure activities are limited to the management of leachate and stormwater management within the landfill. With the continued operation of the leachate control system and the proposed SWM ponds, indirect impacts as a result of landfill closure are not anticipated.

Terrestrial Ecosystems

Direct Impacts:

- Direct impacts are anticipated for Confirmed Significant Wildlife Habitat for Monarch and Species at Risk Habitat for grassland birds (i.e., Eastern Meadowlark and Bobolink) during construction and operational stages on the existing landfill. Impacts related to the removal of habitat will be temporary in nature as they will be revegetated when vertical capacity is reached to mimic habitat conditions currently

present (e.g., grassland species, common milkweed). The direct impacts to these areas during the construction stage are not considered to be significant and may be avoided.

- Should stripping of existing vegetation for the new diversion and drop-off facilities in the southeastern corner occur during the breeding bird window (April 1st to August 31st), there is potential for impacts to nesting birds and may contravene the *Migratory Birds Convention Act*.
- Other potential direct impacts during construction may include common wildlife species that may occupy areas of the existing landfill site; these may include groundhogs, Killdeer, common snake species, etc.
- Accidental destruction of nests, stockpiling of stripped material creating nesting opportunities for birds, or wildlife mortality may occur as part of the operations stage. These occurrences can be avoided through the implementation of standard operational measures, the continuation of measures implemented during the construction stage, and potential compensation for SAR Habitat.
- Activities associated with landfill closure include the addition of topsoil and plantings of native vegetation; as such, the project closure will result in an overall compensation for natural communities lost during construction and operations.

Indirect Impacts:

During the construction and operations stages of the expansion of the W12A Landfill, potential indirect impacts to terrestrial ecosystems are likely to be limited to the following types of impacts:

- Dust deposition on vegetation in adjacent vegetation communities during construction;
- Dust and airborne waste deposition in natural habitat during operations;
- Noise related impacts to wildlife in adjacent habitat;
- Introduction of invasive plant species via construction equipment; and
- Accidental injury or mortality of wildlife or vegetation (i.e., adjacent trees) from construction equipment and/or vehicles.

The indirect impacts during construction and operations are not considered significant and are mitigatable with standard measures. Indirect impacts as a result of landfill closure are not anticipated.

To avoid or minimize impacts to SAR and wildlife related to the construction stage, a detailed Environmental Mitigation and Monitoring Plan (EMMP) will be developed. Vegetation removal associated with the construction stage and with the operations stage will have to avoid direct impacts to the SAR Birds, including Bobolink and Eastern Meadowlark; all habitat removal should occur outside of the bird nesting season (April 1 to August 31) unless first assessed by an ecologist. The preparation and implementation of a SAR and Wildlife Observation Protocol will also be required.

Compensation for habitat loss will be required as regulated under the ESA (O. Reg. 242/08), to determine appropriate compensation measures for Bobolink and Eastern Meadowlark. Compensation for Significant Wildlife Habitat for Monarch will be achieved at project closure with the implementation of native plantings which are recommended to include common milkweed, a host plant for the species.

Land Use

The details of the impact assessment on land use are provided in Volume IV Appendix D.06.

The W12A Landfill is zoned “Waste and Resource Management (WRM) Zone 1”. This zoning permits the waste management facility that currently operates on the site, as well as the MRF adjacent to the east side of the landfill.

A variety of studies were completed to assess impacts to surrounding uses. Of particular relevance to the assessment of impacts to sensitive land uses in the Site Area and Site-vicinity Study Area is the noise, odour and air assessments. Generally, it is concluded in these associated studies that the proposed landfill expansion is expected to meet all Provincial criteria with respect to noise, odour and air quality and is not expected to result in impacts in excess of these criteria to the public. These studies recommended various mitigation and monitoring programs to help minimize potential impacts associated with landfill operations following implementation of the Project.

The proposed landfill expansion does not result in the limits of waste being extended towards any of the sensitive land uses as defined by Guideline D-4 (Land Use on or Near Landfills and Dumps). Provided the recommended impact mitigation for noise and air quality (i.e., odour) are implemented, the proposed expansion is not expected to have significant adverse impacts on these uses. Further, in light of the intended use of the Site Area, it is determined that the landfill expansion would be compatible with the existing land uses within the Site-Vicinity Study Area.

It is not anticipated that sensitive land uses would be constructed in the vicinity of the W12A Landfill site within the 2035 planning horizon defined for the City's new Official Plan. Accordingly, it is determined that the Project should not adversely impact on future land uses within the Site-vicinity Study Area.

No significant impacts or adverse effects are expected with respect to the surrounding land uses, no mitigation or monitoring is required at this time from a land use perspective. Notwithstanding, the measures recommended in conjunction with this EA should be implemented to mitigate any potential impacts (noise, odour, dust) to land uses proximate to the existing landfill facility and to protect natural heritage features and functions.

Agriculture

The details of the impact assessment on agriculture are provided in Volume IV Appendix D.07.

Agricultural uses within this defined area are characterized by conventional agricultural production that is in keeping with regional and provincial trends (e.g., cash crop production, livestock operations).

The assessment of impacts on agricultural land and operations within the Site-vicinity Study Area was based on the Province's draft Agricultural Impact Assessment Guidelines (released March 2018) (OMAFRA 2018).

As an outcome of the agricultural impact assessment, the Project is expected to generate minimal land use impacts on agricultural land and/or operations in the Site-vicinity Study Area. Notwithstanding, mitigation and monitoring programs associated with the expanded landfill operations recommended in conjunction with this EA should be implemented to minimize any potential impacts on local agricultural activities and the larger agricultural system.

Archaeology

The details of the impact assessment on potential archaeological resources are provided in Volume IV Appendix D.08.

An archaeological assessment was completed to identify known archaeological resources within the Site Study Area.

The Stage 1 background study determined that portions of the Site Study Area had archaeological potential and, as such, would require Stage 2 Archaeological Assessment to identify archaeological sites that may be present. The Stage 2 assessment involved a combination of pedestrian survey at 5 m intervals and shovel test pit survey at 5 m intervals, and resulted in the identification of seven archaeological locations. One location was considered to have cultural heritage value or interest and recommended to be subject to a Stage 3 Archaeological Assessment.

The results of the Stage 3 Archaeological Assessments identified the presence of one site with archaeological potential in the Site Area (White Oak 1 site), located on the north side of the western portion of the existing landfill footprint. The presence of high

artifact-yielding test units (e.g., ≥10 artifacts) indicates that the White Oak 1 site has further cultural heritage value or interest and will require Stage 4 mitigation prior to development. This conclusion is consistent with Section 3.4.1, Standard 1a of the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI)'s *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). There are no further concerns for impacts to archaeological sites in the remainder of the Site Study Area. This White Oak 1 site plus a 10 m buffer requires avoidance during construction, operation and closure of the Project and this can be accomplished without disruption to the Project.

The MHSTCI reviewed the results and recommendations presented in the Stage 3 Archaeological Assessment Report and accepted this report into the Provincial Register of archaeological reports, and issued a standard letter of compliance with the Ministry's 2011 *Standards and Guidelines for Consultant Archaeologists* and the terms and conditions for archaeological licensing.

Cultural Heritage

The details of the impact assessment on potential built heritage resources are provided in Volume IV Appendix D.09.

Seven properties in the Site-vicinity Study Area were identified as requiring cultural heritage assessment to determine if any of the properties had cultural heritage value or interest (CHVI) in accordance with *Ontario Heritage Act Regulation 9/06* (Ontario, 1990b). They were identified for study because they are properties with buildings or structures 40 or more years old and evaluated as having potential cultural heritage value or interest (CHVI) if they met one or more of the criteria prescribed in *Ontario Heritage Act Regulation 9/06* or was a part of a potential cultural heritage landscape. One additional property with buildings or structures 40 or more years old was also identified but evaluated to not meet at least one criterion for CHVI prescribed in O. Reg 9/06 (Ontario 1990b).

No cultural heritage resources of value or interest were identified within the Site-vicinity Study Area that could potentially be impacted by the proposed W12A Landfill expansion and no further cultural heritage studies or monitoring of any properties is recommended.

Socio-economic

The Socio-economic component comprises two sub-components: local economy; and residents and community. The details of the socio-economic impact assessment are provided in Volume IV Appendix D.10.

Local economy

The Project is not expected to create any new jobs in the community during operation, the existing landfill workforce is deemed sufficient. New jobs during construction activities are expected. It is estimated that with the additional infrastructure operations associated with the expansion, the annual operating cost could increase approximately 10% to $5 million. Several stop-controlled approaches along the haul routes are forecast to operate at a poor level of traffic control in the future (2048) conditions. However, traffic signals, if warranted, would be due to the projected increase of background traffic volume and/or movement of this background traffic and not the traffic associated with the landfill expansion. Other businesses (excluding farms as these were assessed within the agriculture component) in the Site-vicinity Study Area are not anticipated to be affected negatively or positively as a result of the landfill expansion. In terms of the local economy, no changes to employment or use of local vendors is anticipated and over time the landfill is expected to have increased costs and generate additional revenue for the City.

In terms of capital costs, the proposed expansion design has an estimated budget of $55 to $90 million, with a midpoint estimate of approximately $72 million (in 2020 dollars).

Residents and Community

The W12A Landfill site is located in a largely agricultural area with few socio-economic features of note. The most likely potential impact to the socio-economic environment is

from nuisance effects such as litter, noise, odour or dust, which can affect use and enjoyment of private properties or outdoor spaces. The presence of the landfill and proposed changes to it associated with the expansion are not expected to result in any out-migration of existing residents who are accustomed to living in an area where agricultural and industrial noise is commonplace. Adherence to applicable municipal and provincial guidelines and use of best management practices at the W12A Landfill site related to control and mitigation of effects such as litter, noise, dust or odour will assist in reducing potential effects to local residents. Continued use of a complaints protocol will be key tools in monitoring socio-economic effects and ensuring good community relations during construction and operations.

Visual

The details of the impact assessment for visual are provided in Volume IV Appendix D.11.

The visual impact of the proposed landfill expansion on existing residential properties within 3,500 m of Site-vicinity Study Area was assessed. This was done by calculating a visual effect rating using relevant factors that affect the visual impact from different viewpoints in private outdoor areas and from public rights of way within the Site-vicinity Study Area.

For the majority of the viewpoints, the visual effect is moderate to very low. However, the landfill expansion will have a very high visual impact on four properties and have a high visual impact on two properties. Three of the six properties with high to very high visual impacts are owned by the City and three properties are privately owned.

The most obvious views of the proposed landfill expansion are from the south. To reduce the visual impact of daily operations, the site development plan proposes that waste would be placed initially to build a berm along the south side of the landfill's waste disposal area and will be covered with final cover soil and seeded to establish vegetation. This berm will screen the view of subsequent filling operations north of the berm from off-site vantage points to the south.

The existing perimeter berms with trees on the south, west, north and a portion of the east sides of the landfill are effective at visually screening the existing landfill from traffic beside the landfill on Manning Drive and White Oak Drive and are expected to continue to screen the view of the expanded landfill, but not from Scotland Drive or Wellington Road South. With the proposed expansion, the landfill property boundary will be moved northward to Scotland Drive and new berms with tree plantings will be constructed along the new property boundary (White Oak Road northward to Scotland Drive, Scotland Drive) to visually screen the landfill expansion from traffic beside the landfill on Scotland Drive.

The City will seek feedback on appropriate roadside view-mitigation measures from area residents when it updates its Community Enhancement and Mitigative Measure (CEMMP) Program. The first step in updating the CEMMP is seeking stakeholder feedback on how the program can be improved, including what are appropriate visual screening measures for individual residential properties. The project to update the CEMMP started in November 2020.

Transportation

The details of the impact assessment on transportation are provided in Volume IV Appendix D.12.

Taking into account the additional vehicles generated by the W12A Landfill, as well as applying the projected 1.0% annual growth rate for background traffic across the Site-vicinity Study Area, operational analyses along the haul routes were completed.

The two signalized intersections, found along Wellington Road at both Dingman Drive and Manning Drive, continue to operate with minor increases reported to the volume to capacity (v/c) ratio, delays, and 95th percentile queues. All movements at these two intersections, as well as the overall intersection performance, are forecast to remain at a good to reasonable level of service (LOS). Critical movements are not expected to occur by the 2048 horizon year at either of these intersections.

The remaining intersections and site accesses within the Site-vicinity Study Area operate under a stop-control condition. Compared to the existing conditions analyses, most stop-controlled intersections are not anticipated to see any significant changes to operations with a few notable exceptions: Wonderland Road (Highway 4) at both ramp terminals from Highway 401; Wellington Road at Scotland Drive; Wellington Road at Westminster Drive. These stop-controlled approach exceptions along the haul routes are forecast to operate at a poor level of traffic control in the future (2048) conditions. However, traffic signals, if warranted, would be due to the projected increase of background traffic volume and/or movement of this background traffic and not the traffic associated with the landfill expansion.

An assessment carried out on the effects of temporary major road closures and resultant use of Emergency Detour Routes (EDR) as related to the W12A Landfill traffic indicates that, depending on the road that is closed and the closure location along either Highway 401 or 402, the rerouted traffic could potentially combine with landfill traffic. If Manning Drive is closed in front of the W12A Landfill, alternate site access to and from both White Oak Road and Scotland Drive would be readily available.

Design and Operations

The details of the assessment of impacts associated with the design and operations of the proposed expansion are provided in Volume IV Appendix D.13.

The Description of the Preferred Landfill Expansion (see Section 8 of the EASR) covered off the proposed expanded landfill phasing and development; estimated leachate generation and on-site leachate management; estimated LFG generation and on-site management; and geotechnical assessment. In addition, a soil balance for the proposed expansion was completed as well as an estimate of probable capital and operational costs.

A soil balance estimates the volume of soil materials available on site for potential use in constructing various components of the expansion compared to the types and volumes of soil materials required for their construction. With the continued use of alternative daily cover materials and stripping of the existing final cover prior to placing waste for the vertical expansion, it is estimated that following construction of the final cover using on-site soils there will a surplus of 162,000 m^3, which can readily be accommodated within the expanded landfill site property limits.

It is estimated that the capital costs of implementing the expansion (including engineering and contingencies) are in the range of $55 to $90 million, with a midpoint estimate of approximately $72 million (in 2020 dollars). The current annual operating cost, including both staff and the operations, is approximately $4.5 million (in 2020 dollars). It is estimated that with the additional infrastructure operations associated with the expansion, the annual operating cost could increase to $5 million.

In terms of potential impacts associated with site design and operations:

- Phasing and Development: The design of the expansion phasing and the approach to development of each phase will reduce potential visual impacts (i.e., view of ongoing site landfilling operations) from off-site vantage points to the south, from where the site operations are most visible for the greatest number of existing residences. For landfilling, the area from which the existing final cover will be stripped prior to placement of waste and the active area used for waste disposal will be kept as small as practical to minimize the potential for odours and litter.

- Management of Leachate: The management of leachate will continue to rely on the same LCS approaches that have proven effective in preventing impacts on off-site groundwater resources and surface water quality. In addition, the design will provide sufficient temporary leachate storage to minimize the potential for untreated leachate release due to storm events that are sufficiently large to cause overflows from the off-site pumping station and WWTP.

- Management of LFG: The expansion will continue to utilize an active LFG collection system (installed both during landfill operations and progressively with the final cover as expansion phases are completed) to capture and flare LFG and thereby control odour and greenhouse gas releases.

- Geotechnical Considerations: Geotechnical analysis demonstrates that the proposed expansion will be stable in terms of overall stability of the waste, and that settlement of the underlying clay till deposit due to the weight of the vertical expansion of waste will not adversely affect the operation and performance of the underdrain LCS below the Phase 2 area.
- Soil Balance: The expansion is expected to use a combination of available on-site stockpiled soil and alternative daily cover consisting of off-site waste materials. It is anticipated that there will be an overall soil surplus at the end of the expansion period. The expansion will require aggregates and asphalt for infrastructure construction and maintenance; otherwise, the expansion is not expected to consume off-site soil resources from licensed pits or other borrow sources.
- Capital and Operational Costs: The capital costs associated with the expansion can be planned within the municipality's annual capital expenditures budgeting process. The operating costs are comparable to but somewhat higher than the current operating costs. These cost components are not expected to impact municipal finances.

Climate Change Considerations

The document entitled "Considering Climate Change in the Environmental Assessment Process" (MECP, 2019) was used as a guide for incorporating measures in the landfill expansion design that reduce both the potential impact of climate change on the landfill (i.e., climate change adaptation) and its potential impact on climate change (i.e., climate change mitigation).

In terms of potential impacts from climate change on the landfill expansion, it is expected that the planned 25 year operational period of the landfill expansion, i.e., through 2048, will be too short to be significantly affected by impacts from climate change. However, during the post-closure period, longer term changes in precipitation and temperature could possibly affect the vegetative cover growth on the closed landfill and/or runoff of surface water from the landfill final cover and the performance of the components that comprise the SWM system. The proposed stormwater pond designs were assessed to predict conditions during the 1:250 year return period storm event to evaluate potential climate change effects. It is expected that the ponds will perform acceptably under such storm conditions. The potential impacts from climate change related to precipitation will also be taken into account in the final design of site infrastructure components related to leachate collection and temporary storage on-site. Adjustments to landfill operations can be made, as required, in future to mitigate potential effects from temperature extremes and winds associated with climate change.

In terms of potential impacts from the landfill expansion on climate change, the two main ways that a landfill expansion could affect climate change are the generation of GHG that enters the atmosphere, and reduction of GHG sequestration by removal of forested areas. For the proposed vertical expansion of the W12A Landfill above the existing footprint, there will not be any clearing of forested areas, and therefore no associated adverse effects related to GHG sequestration. The annual GHG emission rates in tonnes per year for each activity for the existing landfill and the proposed expanded landfill were estimated. GHG generated from the landfill expansion, which will peak in 2049 and then decline over time, will be controlled by an active LFG collection and flaring system. The system will have a LFG collection efficiency that is expected to significantly improve by 2049 in comparison to 2020 and this will result in decrease GHG emissions annually.

Cumulative Impact Assessment

A cumulative impact assessment of the potential effects of the proposed landfill expansion in combination with past, present and reasonably foreseeable future activities, where possible, was carried out following a framework often used in federal EA processes and is described in Section 11 of the EASR.

The cumulative effects analysis involved a scoping phase and an analysis of effects phase. For the scoping phase, the components that had residual negative effects (after

mitigation) from the proposed landfill expansion were identified. After this, other projects or activities in the area that may affect the same components were identified.

During the analysis of effects phase, the other projects or activities were evaluated to assess if their effects would overlap in timing or spatial extent with the effects of the Project, accounting for and including the proposed landfill expansion mitigation. The nature and extent of the possible cumulative effects were then identified along with any possible mitigation and/or monitoring strategies.

The identified environmental, socio-economic and technical components from the proposed landfill expansion with identified residual, negative effects are: atmosphere (air/odour and noise); hydrogeology; surface water (quantity); biology; land use; agriculture; socio-economic, transportation and visual. The existing zoning and land use in the vicinity of the site was considered in determining the other projects and activities to include in this cumulative assessment. It was determined that the effects from the landfill expansion would not overlap with those from other projects or activities for the hydrogeology, surface water, agriculture or visual components. For the remaining components, the landfill expansion will utilize operating procedures, monitoring programs and mitigation measures such that the landfill complies with provincial requirements. Potential remaining cumulative effects are described. In light of the existing zoning and the associated Official Plan policy framework, it is considered unlikely that new sensitive land uses would be introduced in close proximity to the landfill.

Monitoring and Contingency

The proposed expansion of the W12A Landfill has been designed to incorporate mitigation measures to minimize the potential for unacceptable environmental effects. Following the identification of mitigation measures, the environmental effects of the proposed expansion were evaluated. Although, efforts have been made to conservatively estimate potential impacts associated with the proposed W12A Landfill expansion, there is always some potential for variability between predicted and actual conditions. Effective monitoring and contingency measures are intended to address this potential variability and confirm the assumptions used in this assessment.

An effective monitoring program provides results to: indicate whether the facility is working as expected and that the assumptions used in the assessment were correct; assess on an ongoing basis whether mitigation measures as designed and operated are effective; and identify unforeseen problems so they can be addressed in a timely manner. The proposed monitoring program for the proposed W12A Landfill expansion is summarized in Section 12.0 of the EASR and details are provided in the D&O Report (Volume IV, Appendix D.13) and includes requirements for air quality, noise, groundwater quality, surface water quality and quantity, LFG and biology.

The final details will be determined in consultation with the MECP and incorporated in the ECA amendments for the proposed expansion.

In the event that the ongoing groundwater or surface water monitoring programs detect unexpected problems, it may be necessary to implement contingency measures to further reduce the potential for any adverse environmental effects associated with the proposed expansion of W12A Landfill. The current ECA for the W12A Landfill has a trigger mechanism that requires prescribed actions to be taken should the monitoring results indicate that certain thresholds are reached, whereby additional investigations and assessments are undertaken to confirm the monitoring results and determine if it is necessary to implement contingency measures to prevent non-compliance with the RUG for groundwater, or to prevent leachate-impacted waters from accessing the stormwater management ponds. As part of the ECA amendment application process for the expanded landfill, the trigger mechanisms and contingency measures will be reviewed and modified, if required.

An overview of the proposed contingency measures that could be put into effect are described in Section 12.2 of the EASR.

Summary of Commitments and Other Approvals

Section 13.0 of the EASR lists the commitments made by the City during the ToR process, how they have been considered in the preparation of the EASR and their current status. Generally, these commitments relate to a committed target of 60% residential residual waste diversion by the end of 2022, the preparation of work plans for technical studies as identified in the ToR, assessment of 'Alternative Methods' of expansion and detailed description of the preferred alternative, completing a cumulative effects assessment, preparing a draft EA for public review and ensuring public consultation events and availability of the draft and final main body of the EASR to the public, holding workshops based on interest indicated by stakeholders, engaging with Indigenous Communities, and refining the purpose statement (if required).

Commitments made by the City during the EA study process are also listed in Section 13.0. The City will report on the status of these commitments via compliance monitoring to the MECP annually until such time as all commitments are completed or addressed/superseded in EPA/*Ontario Water Resources Act* (OWRA) conditions of approval. Generally, these commitments relate to effects monitoring requirements, design of site components, operating procedures, mitigation measures and best management practices.

Following approval of the W12A Landfill expansion EA by the Minister of the Environment, Conservation and Parks, approval under the EPA and the OWRA will then be required; these approvals will take the form of amendments to the existing landfill ECAs. Approvals will also be required under the *Ontario Heritage Act* to implement the expansion and under several pieces of legislation for specific matters related to the natural environment. Approval under the *Planning Act* related to rezoning of a portion of the expanded landfill property may also be required.

Appendix B
List of Commitments in the Approved Amended Terms of Reference to be completed during Environmental Assessment

ID	Commitment (Location where Commitment was made in ToR)	Status
1	The EA will be prepared in accordance with subsections 6(2)(c) and 6.1(3) of the *EA Act. (ToR Section 2.4)*	Completed Refer to Sections 2.2 and 2.7.1 of this EASR.
2	The City has committed to a target of 60% residential waste diversion by the end of 2022. *(ToR Section 3.1)*	Completed On March 2, 2020, London Municipal Council approved the budget to fund actions to increase waste diversion from 45% (current level) to 60% waste diversion by the end of 2022. This includes funding the implementation of the Green Bin Program as part of the 60% Waste Diversion Action Plan. The City's Resource Recovery Strategy, an even broader, more long term look at waste diversion and resource recovery, will be completed in 2022 (refer to Section 2.3 of this EASR). The projected residual waste requiring disposal over the 25 year planning period for the expansion is based on the City achieving 60% residential waste diversion by end of 2022 (refer to Volume III Appendix C: 2019 Updated Residual Waste Projections and Landfill Capacity Assessment). Based on the COVID-19 pandemic, the City will now have its 60% Waste Diversion Action Plan programs operational by the end of 2022 as 9 to 12 months have been lost from the original timeframe.
3	When requested, the City will meet with individuals or groups at their convenience to assist them with understanding the project information and providing input; for example, if they are unable to participate in planned public consultation events or require more information.	Ongoing As described in Section 4.0 of this EASR, the City offered to meet and met with individuals or groups at their convenience during the EA process. The offer to meet with individual and groups was included on the Project Website and the Notice for Open House 4.
4	The City will contact Indigenous groups to discuss their consultation needs and continue to involve them in the EA process. *(ToR Section 8.3)*	Ongoing Refer to Indigenous community subsections within Section 4.0 of this EASR and materials related to Indigenous community consultation in Volume V Appendix E.

ID	Commitment (Location where Commitment was made in ToR)	Status
5	Where described in the ToR for the environmental components, detailed work plans for the technical studies will be prepared and provided to the appropriate GRT agency for review and concurrence. *(ToR section 7.6)*	Completed Refer to work plans in Volume III Appendix B.
6	The City will share work plans with Indigenous Communities and post work plans on the project website. *(ToR section 7.6)*	Completed A workshop was held for Indigenous Communities to review the detailed work plans on August 26, 2019. Feedback from this workshop resulted in changes to the Groundwater work plan. The work plans were posted on the project website.
7	The City will consider the stated purpose of this EA during the EA process and will refine the purpose if required. The final purpose statement will be provided in the EA study report. *(ToR Section 1.2)*	Completed Refer to Section 2.1 of this EASR.
8	During the EA, assumptions used in determining the projected residual waste from the existing service area will be refined and assessed. This will be described in the EA study report. *(ToR Section 3.3.6)*	Completed Refer to Volume III Appendix C: 2019 Updated Residual Waste Projections and Landfill Capacity Assessment and Section 2.4 of the EASR.
9	During the EA the proposed regional service area will be confirmed and further assessed. This will be described in the EA study report. *(ToR Section 3.3.7)*	Completed Refer to Section 2.4 of this EASR and Volume III Appendix C: 2019 Updated Residual Waste Projections and Landfill Capacity Assessment.
10	During the EA, the preliminary criteria and indicators for each of the environmental, socio-economic and technical components will be refined and described in the EA study report. *(ToR Section 7.3)*	Completed Refer to Section 3.3 of this EASR.
11	The preliminary Study Areas will be reviewed and confirmed during the EA and described in the EA study report. *(ToR Section 7.2)*	Completed Refer to Section 5.1 of this EASR.
12	A more detailed description of the environmental conditions will be prepared during the EA to reflect the confirmed Study Areas using a combination of sources of existing information and site-specific investigations and studies and provided in the EA study report. *(ToR Section 5)*	Completed Refer to Section 5.0 of this EASR and to the individual component reports in Volume IV.

ID	Commitment (Location where Commitment was made in ToR)	Status
13	The individual Alternative Methods of expanding the W12A Landfill will be identified, refined and confirmed during the EA, and described in the EA study report. *(ToR Section 6)*	Completed Refer to Section 6.0 of this EASR
14	Further input on the relative importance of the assessment indicators will be obtained during the initial stages of the EA. *(ToR Section 7.5.4)*	Completed Additional input on the importance of the assessment indicators was sought during Open House #3. Refer to Section 4.0 of this EASR and Volume V Appendix F.05.
15	During the EA, the capability of the WWTP to continue to receive the leachate generated from the preferred landfill expansion alternative will be evaluated. This will be described in the EA study report. *(ToR Section 7.5.2)*	Completed Refer to Section 8.1.2 of this EASR.
16	The preferred expansion alternative will be assessed from the perspective of climate change. *(ToR Section 7.5.7)*	Completed Refer to Section 10.0 of this EASR.
17	A cumulative impact assessment will be completed and described in the EA study report. *(ToR Section 7.5.9)*	Completed Refer to Section 11.0 of this EASR.
18	Post-closure commitments will be described in the EA study report.	Completed Refer to Section 13.0 in this EASR.
19	The list of ToR commitments will be provided in the EA study report together with the way in which these commitments were addressed during the EA and the location of the information within the EA documents. The EASR will also include a list of commitments made by the City during the preparation of the EA studies and during consultation throughout the EA process. *(ToR Section 11)*	Completed Refer to Tables 13-1 and 13-2 in Section 13.0 of the EASR.
20	The City commits to developing a monitoring framework during the preparation of the EA. *(ToR Section 11.2)*	Completed Refer to Section 12.0 of this EASR.

Appendix C
List of Commitments in the Draft Environmental Assessment Study Report

ID	Component (if applicable)	Commitment (Location of Where Commitment was Made in the EA Document Package)	Project Phase
A	-	Implementation of all required Site effects monitoring and reporting programs. (EASR – Section 12)	Construction, operations and post-closure
B	-	The City has committed to implementing its 60% Waste Diversion Action Plan. (EASR – Section 2.3)	Operations
C	Atmosphere	Application of dust suppressant on unpaved roads on a routine basis. (EASR –Volume IV – Appendix D.01)	Construction and operations
D	Atmosphere	Sweep/clean the roads as required to prevent mud track out on vehicles. (EASR –Volume IV – Appendix D.01)	Construction and operations
E	Atmosphere	On-site vehicles and equipment engines will meet Tier 3 emission standards and be maintained in good working order. (EASR –Volume IV – Appendix D.01)	Construction and operations
F	Atmosphere	Minimize idling of vehicles on-site. (EASR – Volume IV – Appendix D.01)	Construction and operations
G	Atmosphere	Site will operate with approx.1,500 m^2 maximum working face. (EASR – Volume IV – Appendix D.01)	Operations
H	Atmosphere	Landfill will be capped and LFG collection system installed and put into operations progressively as Phases of landfilling are completed. (EASR – Volume IV – Appendix D.01)	Operations and post-closure
I	Atmosphere	Prepare a fugitive dust management plan and complaints response protocol. (EASR – Section 12.1.1.1 and Volume IV – Appendix D.01)	Pre-construction
J	Atmosphere	Review and update the odour management plan and complaints response protocol. (EASR – Section 12.1.1.1 and Volume IV – Appendix D.01)	Pre-construction
K	Atmosphere	Design and implement a follow-up noise monitoring program for the expanded landfill when landfill operations are within 330 m of POR R15 on Figure 5.2-4 in Section 5.2. Requirements for nearby vacant lots will be developed if a noise-sensitive building is constructed. (EASR – Section 9.1.2.3 and Volume IV – Appendix D.02)	Operations
L	Groundwater	Design horizontal landfill gas collectors for dual purpose as gas and leachate collectors, in the north-south direction at 30 m spacing and to a depth of 3 m into the existing waste fill over the top surface of the Phase 1 area. (EASR – Section 9.2 and Volume IV – Appendix D.03)	Pre-construction

ID	Component (if applicable)	Commitment (Location of Where Commitment was Made in the EA Document Package)	Project Phase
M	Surface Water	Design post-expansion outlet of surface water flows to corresponding pre-expansion flows to convey design storm flows. (EASR – Section 8.5.5 and Volume IV – Appendix D.04)	Pre-construction
N	Surface Water	Provide Enhanced Level Protection (80% TSS removal) as defined by the MECP SWM Planning and Design Manual (MECP, 2003). (EASR – Section 8.5.5 and Volume IV – Appendix D.04)	Pre-construction
O	Surface Water	Engineer surface drainage from potentially contaminated areas to be contained locally within berms and discharge into the waste and eventually into the leachate management system, and separate from surface drainage from non-contaminated areas. (EASR – Section 8.5.5 and Volume IV – Appendix D.04)	Pre-construction
P	Surface Water	Design ditch sizes to convey the 1:100 year return period design storm and culverts sized to convey a 1:25 year return period design storm as per *O. Reg. 232/98*. (EASR – Section 8.5.5 and Volume IV – Appendix D.04)	Pre-construction
Q	Surface Water	Inspect ESC measures during construction on a weekly basis, and after significant rainfall events (e.g. greater than approximately 10 mm). Inspection reporting, highlighting any ESC deficiencies, will be prepared for each inspection, and kept on-Site for reference and reported to MECP, if needed. (EASR – Volume IV – Appendix D.04)	Construction
R	Biology	A detailed EMMP will be developed, including a construction monitoring program. (EASR Section 9.4 and Volume IV Appendix D.05)	Pre-construction
S	Biology	Conduct all vegetation clearing activities outside the breeding bird season. (EASR Section 9.4 and Volume IV Appendix D.05)	Construction and operations
T	Biology	No vegetation clearing between April 1 to August 31 unless a nest search is completed by a qualified ecologist. (EASR Section 9.4 and Volume IV Appendix D.05)	Construction and operations
U	Biology	Prepare and implement a Species at Risk and Wildlife Observation Protocol to outline the steps to take in the event of an encounter with wildlife, including SAR, during the construction stage. (EASR Section 9.4 and Volume IV Appendix D.05)	Pre-construction, construction, and operations
V	Biology	Consult MECP to determine appropriate compensation for habitat loss of SAR grassland birds, specifically for Bobolink and Eastern Meadowlark, as regulated under the ESA (*O. Reg. 242/08*). (EASR Section 9.4 and Volume IV Appendix D.05)	Pre-construction

ID	Component (if applicable)	Commitment (Location of Where Commitment was Made in the EA Document Package)	Project Phase
W	Biology	Progressively re-vegetate as landfilling is completed in the expansion phases. Plantings should include native species that are known to occur within the region and may include compensation plantings as determined through consultation with the MECP for Bobolink and Eastern Meadowlark habitat compensation. (EASR Section 9.4 and Volume IV Appendix D.05)	Operations
X	Archaeology	EMMP (EASR Section 9.7 and Volume IV Appendix D.08)	Construction and operations
Y	Archaeology	Install a temporary fencing barrier to clearly delineate a 10-metre protective buffer around White Oak 1 site (AfHh-926). The protected area and the location of the temporary barrier will be shown on all contract drawings and be labeled as a “no-go” zone where construction activities will not be permitted. (EASR Section 9.7 and Volume IV Appendix D.08)	Construction and operations
Z	Archaeology	Provide instructions to all construction staff to stay outside of the 10 m protected area and ensure appropriate monitoring by a licensed archaeologist during any construction which takes place within. (EASR Section 9.7 and Volume IV Appendix D.08)	Construction and operations
AA	Archaeology	Implement a construction monitoring program whereby a licensed archaeologist would be present to monitor any construction activities (excavation or stockpile placement) that extend to the edge of the protected area, if these activities occur. (EASR Section 9.7 and Volume IV Appendix D.08)	Construction and operations
AB	Archaeology	Implement a post-construction monitoring program on the effectiveness of the monitoring and avoidance strategy for reporting to MHSTCI by the licensed consultant archaeologist, if construction monitoring occurs. (EASR Section 9.7 and Volume IV Appendix D.08)	Operations
AC	Land Use	Confirm if the intended uses of the Site Area comply with existing Zoning By-law permissions.	Pre-construction
AD	Visual	Waste will be placed initially to build a berm along the south side of the landfill’s waste disposal area and will be covered with final cover soil and seeded to establish vegetation. This berm will screen the view of subsequent filling operations north of the berm from off-site vantage points to the south. The south side perimeter waste berm would be raised sequentially and filled in behind until the peak elevation is reached.	Operations
AE	Visual	Construct new berms with tree plantings along the new property boundary (White Oak Road northward to Scotland Drive, Scotland Drive).	Operations

ID	Component (if applicable)	Commitment (Location of Where Commitment was Made in the EA Document Package)	Project Phase
		(EASR Section 9.9 and Volume IV Appendix D.10)	
AF	Visual	The City will seek feedback on appropriate roadside view-mitigation measures from area residents when it updates its CEMMP.	Pre-construction
AG	Visual	City will seek feedback from the public on possible improvements to the CEMMP and on appropriate visual screening measures for affected individual residential properties	Pre-construction
AH	Climate Change	Include the possibility of increased leachate generation from climate change into the design of the proposed replacement perimeter LCS for the Phase 1 area of the landfill, as well as the design of the proposed system of temporary leachate storage on the W12A Landfill site during storm events of significant magnitude that could result in discharge of the mixed leachate/sewage to Dingman Creek or the Thames River if the WWTP is in a by-pass situation temporarily.	Pre-construction
AI		Include the possibility of increased leachate generation from climate change in the design of the replacement for the main leachate pump station on the W12A Landfill site.	Pre-construction

Draft Environmental Assessment Study Report and Supporting Documents
https://getinvolved.london.ca/whywastedisposal/widgets/50223/documents

List of Files and Corresponding Content

Filename	Volume	Document(s)
Draft_EASR_Volume_1_Part_1	I	Draft EASR (Section 1 to 5.2)
Draft_EASR_Volume_1_Part_2	I	Draft EASR (Section 5.3)
Draft_EASR_Volume_1_Part_3	I	Draft EASR (Section 5.4 to 5.5.3)
Draft_EASR_Volume_1_Part_4	I	Draft EASR (Section 5.5.4 to 6.4)
Draft_EASR_Volume_1_Part_5	I	Draft EASR (Section 6.6 to 7.4)
Draft_EASR_Volume_1_Part_6	I	Draft EASR (Section 8.0 to 8.1)
Draft_EASR_Volume_1_Part_7	I	Draft EASR (Section 9.0 to 9.5)
Draft_EASR_Volume_1_Part_8	I	Draft EASR (Section 9.6 to 14.0)
Draft_EASR_Volume_2	II	Approved Amended Terms of Reference
Draft_EASR_Volume_3_Part_1	III	Atmospheric (Air and Noise) Work Plan
		Groundwater Work Plan
		Surface Water Work Plan
		Biology Work Plan
		2019 Updated Residual Waste Projections and Landfill Capacity Assessment (Executive Summary)
Draft_EASR_Volume_3_Part_2	III	2019 Updated Residual Waste Projections and Landfill Capacity Assessment (Main Report)
Draft_EASR_Volume_4_Part_1	IV	Air Quality Existing Conditions and Impact Assessment Report
		Noise Existing Conditions and Impact Assessment Report
		Groundwater Existing Conditions and Impact Assessment Report
Draft_EASR_Volume_4_Part_2	IV	Groundwater Existing Conditions and Impact Assessment Report (continued)
Draft_EASR_Volume_4_Part_3	IV	Groundwater Existing Conditions and Impact Assessment Report (continued)
Draft_EASR_Volume_4_Part_4	IV	Surface Water Existing Conditions and Impact Assessment Report
Draft_EASR_Volume_4_Part_5	IV	Surface Water Existing Conditions and Impact Assessment Report (continued)

Draft Environmental Assessment Study Report and Supporting Documents
https://getinvolved.london.ca/whywastedisposal/widgets/50223/documents

List of Files and Corresponding Content

Filename	Volume	Document(s)
Draft_EASR_Volume_4_Part_6	IV	Surface Water Existing Conditions and Impact Assessment Report (continued)
		Biology (Aquatic and Terrestrial Ecosystems) Existing Conditions and Impact Assessment Report
Draft_EASR_Volume_4_Part_7	IV	Biology (Aquatic and Terrestrial Ecosystems) Existing Conditions and Impact Assessment Report (continued)
Draft_EASR_Volume_4_Part_8	IV	Biology (Aquatic and Terrestrial Ecosystems) Existing Conditions and Impact Assessment Report (continued)
Draft_EASR_Volume_4_Part_9	IV	Biology (Aquatic and Terrestrial Ecosystems) Existing Conditions and Impact Assessment Report (continued)
		Land Use Existing Conditions and Impact Assessment Report
		Agricultural Resources Existing Conditions and Impact Assessment Report
		Archaeology Existing Conditions and Impact Assessment Report
Draft_EASR_Volume_4_Part_10	IV	Archaeology Existing Conditions and Impact Assessment Report (continued)
Draft_EASR_Volume_4_Part_11	IV	Archaeology Existing Conditions and Impact Assessment Report (continued)
Draft_EASR_Volume_4_Part_12	IV	Archaeology Existing Conditions and Impact Assessment Report (continued)
		Heritage Impact Assessment Report
		Socio-economic Existing Conditions and Impact Assessment Report
Draft_EASR_Volume_4_Part_13	IV	Visual Existing Conditions and Impact Assessment Report
		Traffic Assessment in Support of the Environmental Assessment

Draft Environmental Assessment Study Report and Supporting Documents
https://getinvolved.london.ca/whywastedisposal/widgets/50223/documents

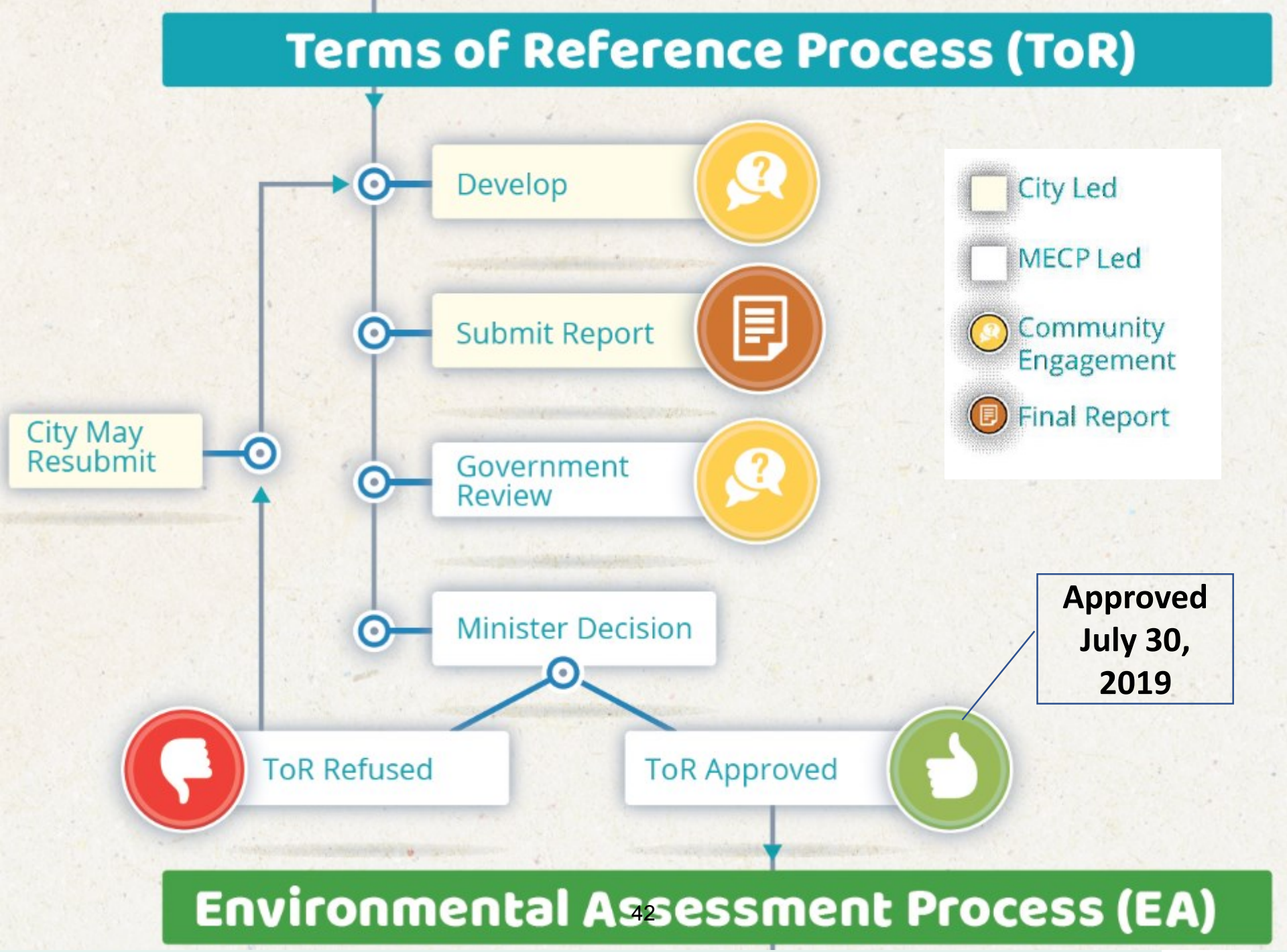
List of Files and Corresponding Content

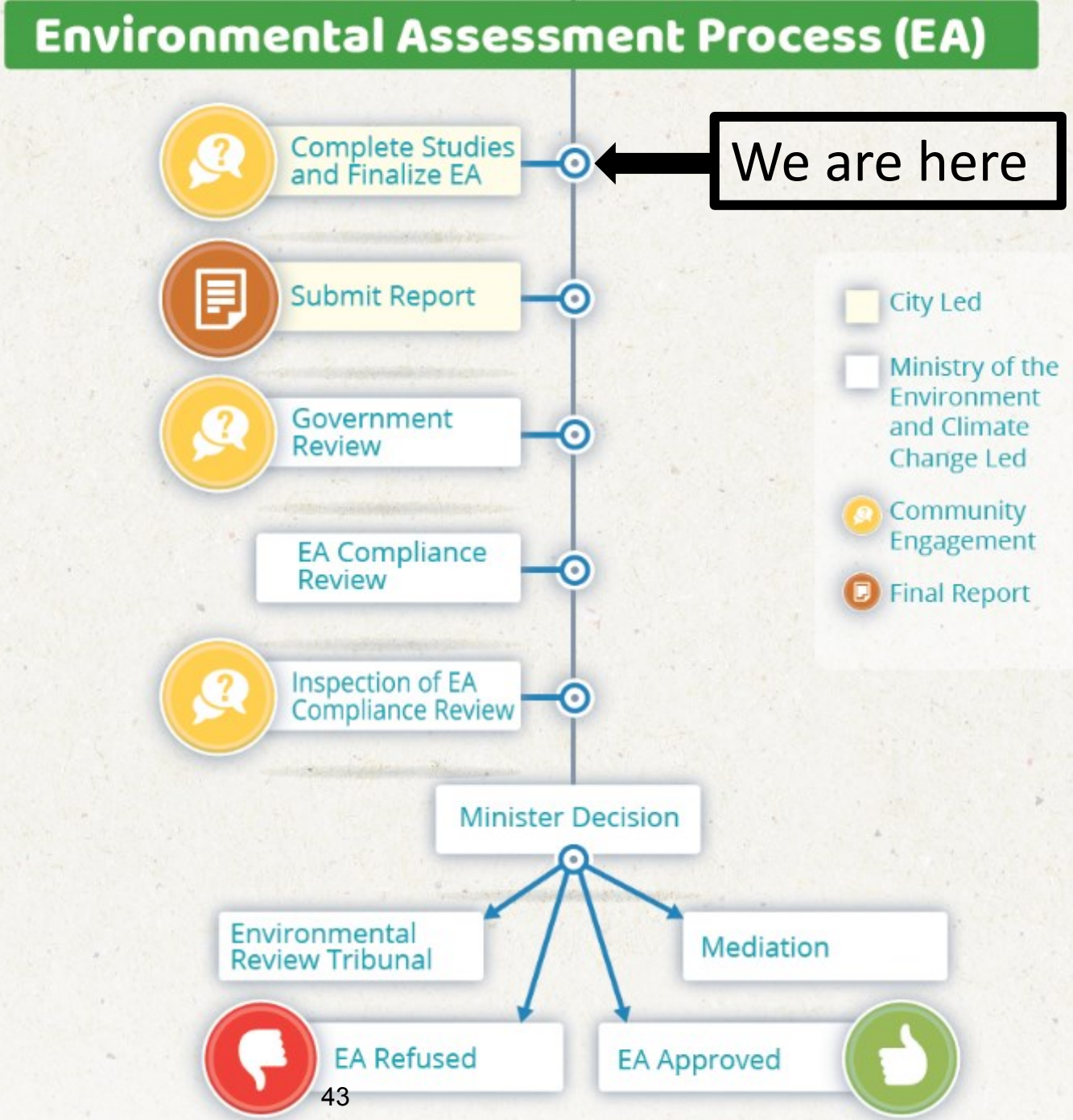
Filename	Volume	Document(s)
Draft_EASR_Volume_4_Part_14	IV	Design and Operations Existing Conditions and Impact Assessment Report
Draft_EASR_Volume_4_Part_15	IV	Design and Operations Existing Conditions and Impact Assessment Report (continued)
Draft_EASR_Volume_4_Part_16	IV	Design and Operations Existing Conditions and Impact Assessment Report (continued)
Draft_EASR_Volume_5_Part_1	V	Appendices AA, E, F (F.01 to F.03)
Draft_EASR_Volume_5_Part_2	V	Appendices F (F.03 to F.05)
Draft_EASR_Volume_5_Part_3	V	Appendices F (F.06), G (G.01 to G.03)
Draft_EASR_Volume_5_Part_4	V	Appendices G (G.04 to G.05)
Draft_EASR_Volume_5_Part_5	V	Appendices G (G.06), H (H.01 to H.02)
Draft_EASR_Volume_5_Part_6	V	Appendices H (H.03 to H.07)
Draft_EASR_Volume_5_Part_7	V	Appendices H (H.08 to H.12), I

Environmental Assessment Process Draft Environment Assessment Study Report (EASR)

Advisory Committee on the Environment

April 7, 2021


Terms of Reference Process (ToR)
Develop
Submit Report
Government Review
Minister Decision
City May Resubmit
ToR Refused
ToR Approved
City Led
MECP Led
Community Engagement
Final Report
Approved July 30, 2019
Environmental Assessment Process (EA)


Environmental Assessment Process (EA)
Complete Studies and Finalize EA
We are here
Submit Report
Government Review
EA Compliance Review
Inspection of EA Compliance Review
Minister Decision
Environmental Review Tribunal
Mediation
EA Refused
EA Approved
City Led
Ministry of the Environment and Climate Change Led
Community Engagement
Final Report

Complete Studies & Finalize EA

Steps	Status
1. Characterize the existing environmental conditions	Complete
Work Plans online for review and comment **Indigenous community review**	
2. Identify the alternatives for landfill expansion (and incorporate conceptual design mitigation measures)	Complete
3. Evaluation of alternatives	Complete
4. Comparison of the alternatives for landfill expansion for each component of the environment and then identify the overall preferred alternative for landfill expansion	Complete
Open House #3 – February 26 & 27, 2020	
5. Refine the mitigation measures and determine the net effects on the environment of the preferred alternative for landfill expansion	Complete
6. Describe the preferred alternative for landfill expansion	Complete
7. Consideration of climate change	Complete
8. Cumulative impact assessment	Complete
Open House #4 – Fall 2020 **Indigenous community review**	
9. Preparation of the EA Study Report	90% complete
Various opportunities will be available to comment on the EA Study Report through the City and the Ministry of Environment, Conservation and Parks (MECP)	

We are here

Website
getinvolved.london.ca

Meetings
W12A Landfill PLC, Waste Management CLC, Waste Management Working Group

Meet with residents
(If requested)

Key Comments from Open House in November 2020

- Potential for odours to travel further
- Increased winds at cemetery (Analysis completed)
- Impact on wireless internet (CEMMP)
- Groundwater quality concerns
- Potential visual impacts (CEMMP)
- Nuisance wildlife (CEMMP)
- Need to limit waste from outside London
- Need sunset clause

New actions as a result of comments in green

CEMMP - Community Enhance and Mitigative Measures Program

MECP Comments
Review of Preliminary Draft EASR

- Completed by MECP EA Project Coordinator before release to stakeholders
- Comments provided in Consultation Record (Volume 5)
- 17 comments in total
- Majority were minor requests to add additional details in main report (Volume 1)
- Recommended including amending procedures (allows for minor changes to undertaking after EA approved)

Draft EASR

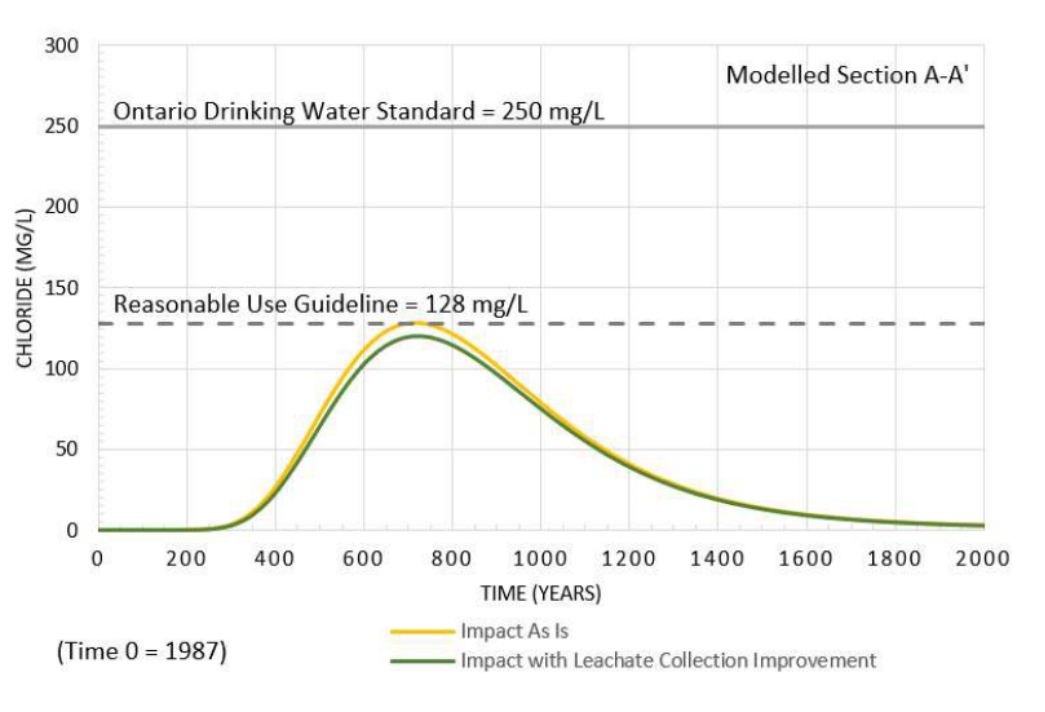
- Five Volumes with more than 3,000 pages
  - Volume 1 - Draft EASR
  - Volume 2 - Approved Amended Terms of Reference
  - Volume 3 - Technical Work Plans and Waste Quantity Projections
  - Volume 4 - Existing Conditions and Impact Assessment Reports
  - Volume 5 - Consultation Log
- Found at… getinvolved.london.ca/whywastedisposal/widgets/50223/documents
- Comments accepted until May 19, 2021

Key Commitments in Draft EASR
Protection of Species at Risk (SAR)

- Develop an Environmental Mitigation and Monitoring Plan
- Prepare and implement a SAR and Wildlife Observation Protocol to outline the steps to take in the event of an encounter with wildlife, including SAR, during the construction stage
- Consult MECP to determine appropriate compensation for habitat loss of SAR grassland birds
- Progressively re-vegetate the landfill with native plant species

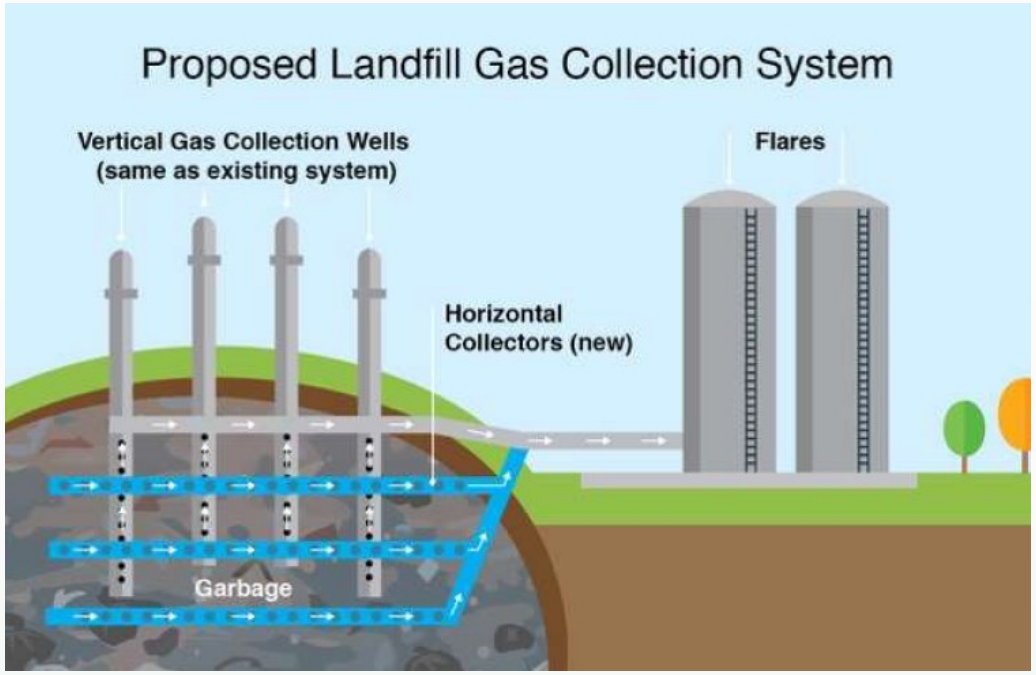
Key Commitments in Draft EASR
Groundwater Protection Measures

- Incorporate additional leachate collection measures into the landfill design
- Estimated cost of approximately $5 million
- Proposed additional measures will also result in improved landfill gas capture



Key Commitments in Draft EASR
Atmosphere (Air Quality/ Noise)

- Review and update the odour management plan and complaints response protocol
- Design and implement a follow-up noise monitoring program when landfill operations are within 330 metres of 3691 Manning Drive
- Prepare a fugitive dust management plan and complaints response protocol



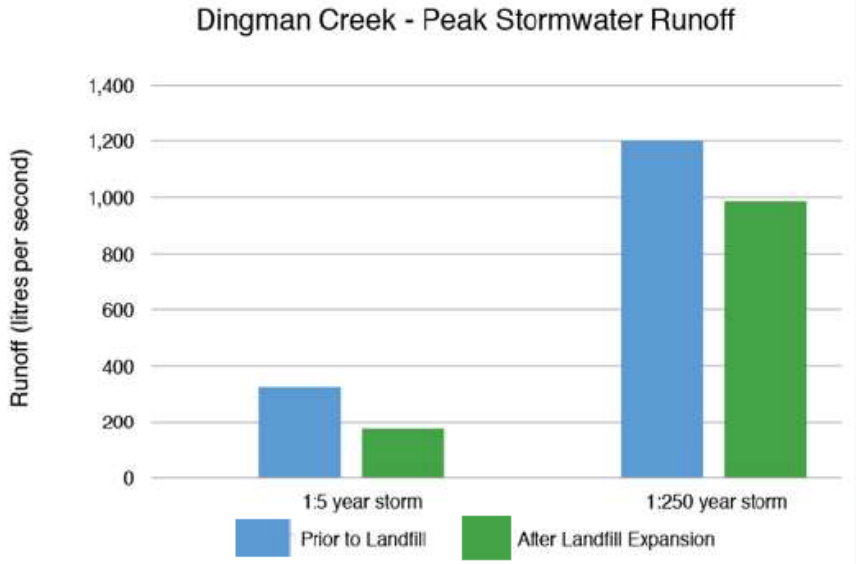
Key Commitments in Draft EASR
Archaeology

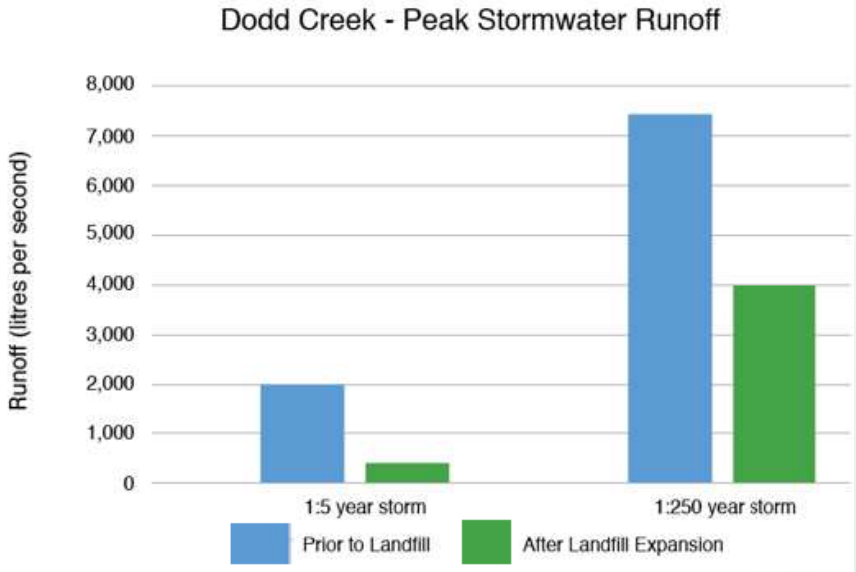
- No construction or other activities will take place within 10 metres of site with cultural heritage value or interest (First Nations) located in the northern buffer area

Key Commitments in Draft EASR Climate Change Measures

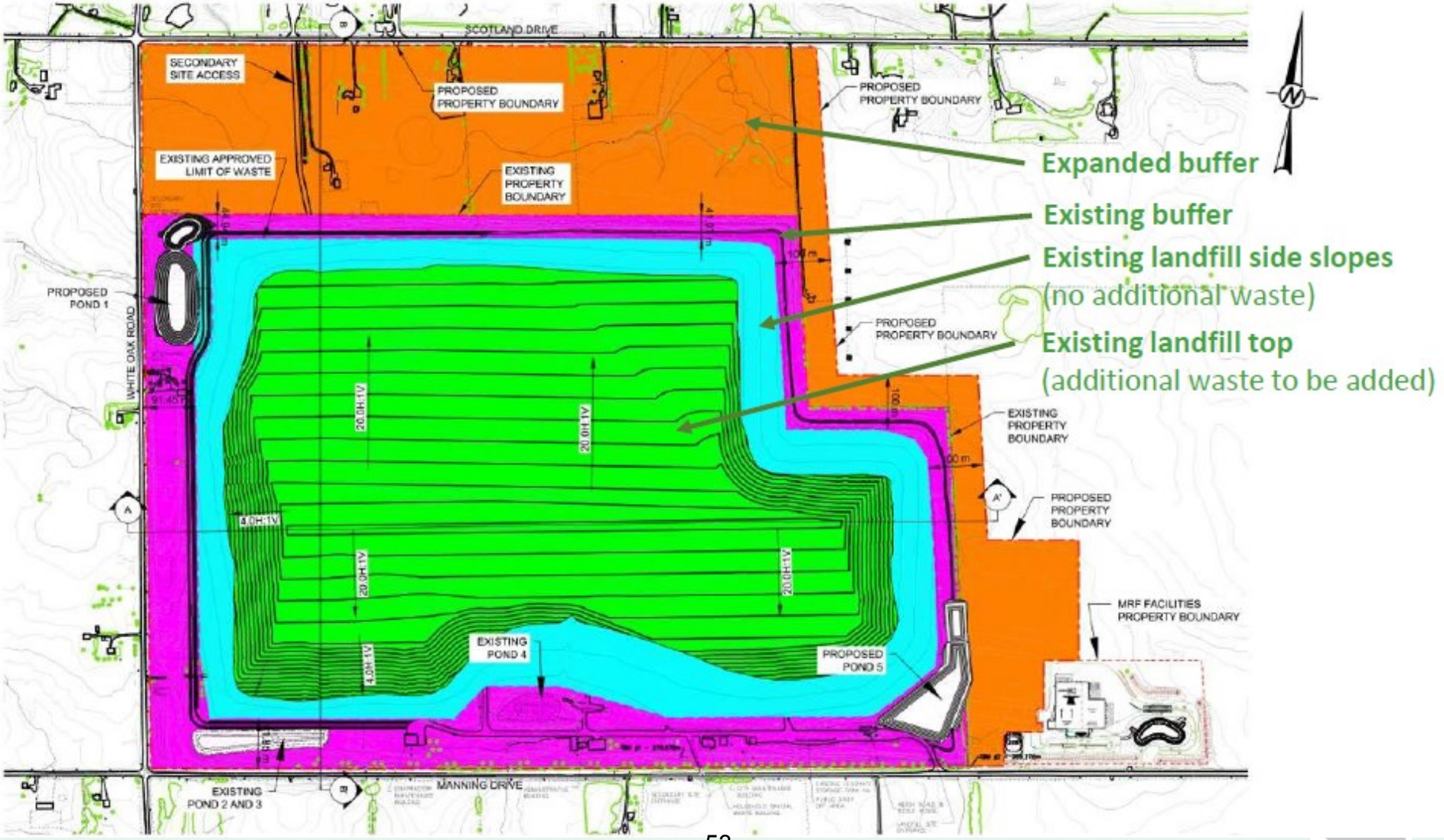
Include the possibility of increased leachate generation from climate change into:

- the design of the proposed replacement perimeter leachate collection system
- the design of the replacement for the main leachate pump station on the W12A Landfill site





Layout of Proposed Expansion (no changes since summer 2020)



Key Features of Proposed Expansion (no changes since summer)

- Placement of garbage to maximize screening
- Additional groundwater protection measures
- Additional leachate storage (addresses First Nation concern)
- Gas collection system improvements
- Stormwater management pond upgrades
- Replace/upgrade buildings
- Enhanced public drop-off area

- **Preliminary cost estimate for landfill is $55 million to $90 million ($5.5 to $9 per tonne)**

Tentative Schedule

Time Frame	Task
April 13, 2021	• Council approval of Draft EASR
April 20 to May 19, 2021	• Circulate Draft EASR to GRT and other stakeholders
Late June/ early July 2021	• Review of EASR by WMWG
July 27, 2021	• Public Participation Meeting at CWC • Review of EASR by WMWG
Aug. 10, 2021	• Approval by Council
Aug. 19, 2021	• Formal Submission of EASR
August 2021 to March 2022	• MECP Approval process (often takes longer than prescribe in Timelines Regulation)

Advisory Committee on the Environment

Report

2nd Meeting of the Advisory Committee on the Environment
March 3, 2021
Advisory Committee Virtual Meeting - during the COVID-19 Emergency

Attendance

PRESENT: M.T. Ross (Acting Chair), N. Beauregard, M. Bloxam, J. Howell, M.D. Ross, D. Szoller, A. Tipping and B. Vogel and J. Bunn (Committee Clerk)

ABSENT: K. May, R. Sirois, R. Pate, J. Santarelli and A. Thompson

ALSO PRESENT: T. Arnos, M. Fabro, A. Pascual, K. Scherr, C. Smith, J. Stanford and B. Westlake-Power

The meeting was called to order at 12:18 PM.

1. Call to Order

1.1 Disclosures of Pecuniary Interest

That it BE NOTED that no pecuniary interests were disclosed.

2. Scheduled Items

None.

3. Consent

3.1 1st Report of the Advisory Committee on the Environment

That it BE NOTED that the 1st Report of the Advisory Committee on the Environment, from its meeting held on February 3, 2021, was received.

3.2 Notice of Planning Application - Draft Plan of Subdivision Official Plan and Zoning By-law Amendment - 14 Gideon Drive and 2012 Oxford Street West

That it BE NOTED that the Notice of Planning Application, dated February 10, 2021, from S. Meksula, Senior Planner, with respect to a Draft Plan of Subdivision Official Plan and Zoning By-law Amendment, related to the properties located at 14 Gideon Drive and 2012 Oxford Street West, was received.

3.3 Sustainability: Transdisciplinary Theory, Practice, and Action Conference

That it BE NOTED that the document, as appended to the agenda, from D. Szoller, with respect to the Sustainability: Transdisciplinary Theory, Practice and Action conference that was held on October 16-18, 2019 in Toronto, was received.

4. Sub-Committees and Working Groups

4.1 Waste Sub-Committee Report - ACE's Response to the Green Bin Program

That it BE NOTED that the Waste Sub-Committee Report, as appended to the agenda, from J. Howell, was received.

5. Items for Discussion

5.1 Climate Emergency Action Plan

That the revised ~~attached~~ Discussion Primer for the Climate Emergency Action Plan - 2020 document, as approved by the members of the Advisory Committee on the Environment, BE FORWARDED to the Civic Administration for review.

5.2 Advisory Committee on the Environment Meeting Date and Time

That it BE NOTED that the Advisory Committee on the Environment (ACE) held a general discussion with respect to the meeting day and time of future meetings of the ACE.

6. Adjournment

The meeting adjourned at 1:06 PM.

Report to Civic Works Committee

To: **Chair and Members**
Civic Works Committee
From: **Kelly Scherr, P.Eng., MBA, FEC**
Managing Director, Environmental & Engineering Services, City Engineer
Subject: **Green Bin Program Design - Community Engagement Feedback**
Date: **March 30, 2021**

Recommendation

That, on the recommendation of the Managing Director, Environmental & Engineering and City Engineer the following actions **BE TAKEN:**

a) this report **BE RECEIVED** for information;

b) the Civic Administration **BE AUTHORIZED** to undertake a Request for Proposals procurement process to:

i) select a company or companies to supply a kitchen container for indoor use to recover organics;

ii) select a company or companies to supply and deliver to London homes a Green Bin curbside container (approximate size 45 litres); and

iii) select a company or companies to supply and deliver a larger Green Bin curbside container (approximate size 80 litres or 120 litres) potentially for use in some townhome complexes where a smaller Green Bin is not practical;

c) the Civic Administration **BE AUTHORIZED** to undertake the Request for Proposals procurement process for a Green Bin material processor(s) that can compost and/or anaerobically digest:

i) Mix #1 - Food waste, non-recyclable/soiled paper, cooking oils and grease, and household plants; and/or

ii) Mix #2 - Food waste, non-recyclable/soiled paper, cooking oils and grease, household plants; and pet waste (e.g., dog, cat, other);

it being noted that processors will have to clearly state what types of products will be created (e.g., compost categories AA, A, B, digestate, renewable natural gas, electricity, etc.) as well as describe the final end uses for these products.

d) the Civic Administration **BE AUTHORIZED** to design a Green Bin program that permits the use of the following liners, if a liner is deemed necessary by the household:

i) Newsprint/household paper;

ii) Purchased paper liners/bags; and

iii) Purchased certified compostable bag liners;

it being noted that should Mix #2 be selected all pet waste must contained inside a purchased certified compostable bag (leak free and tied tightly) to be an eligible item for the Green Bin.

e) the Civic Administration **BE DIRECTED** to report back on the outcome of the procurement processes and provide details on the preferred mix of materials to collect in the Green Bin and any final design adjustments based on new information; and

f) the Civic Administration **BE DIRECTED** to report back by September 2021 on municipal programs options, advantages, disadvantages and estimated costs to address bi-weekly garbage concerns.

Executive Summary

The Green Bin Community Engagement process was conducted to engage the community and solicit feedback in designing London's Green Bin program. The community engagement focused on five key decision areas for overall program design which influence one another: types of materials accepted, size of curbside container, type of kitchen container and type of bin liners permitted. The engagement process also asked Londoners what concerns they may have with bi-weekly garbage collection.

The City's community engagement online platform, GetInvolved.ca, was used to provide information, and collect feedback on each of the key decision areas. Feedback was collected over an 8-week period from January 11, 2021 to March 5, 2021. The online feedback form received 3,777 responses, the webpage had 9,180 unique visitors and about 54,000 total page views. Key highlights of the resident feedback are:

- a large majority supported a Green Bin material mix that includes food waste (99%), soiled paper (79%), cooking oils and grease (63%) and household plants (73%). 45% of respondents wanted to also include pet waste, and 21% wanted to also include diapers/sanitary products (includes adult incontinence products and feminine hygiene products);

- the 'medium' curbside container size (80 litres) was preferred over the 'small' bin (45 litres) by 57% to 35% (with others undecided, etc.);

- a tight-fitting lid to reduce odours/fruit flies was the most important kitchen container feature (80%), followed by a handle (64%). Only about 20% did not need or want a kitchen container;

- almost 70% indicated that purchased certified compostable liners should be permitted, and about 45% indicated paper liners (purchased, or household paper) be permitted. Only 7% thought that plastic bags should be permitted;

- the most common concern (48%) for bi-weekly garbage collection was that it would be four weeks between collection if they missed a collection. About 25% indicated concerns about holding on to diapers and about 25% indicated concerns about holding on to pet waste over a longer collection cycle.

Staff recommendations for all five decisions are provided in the Recommendation section of this report and are based on details from:

- review and discussions with municipalities delivering a Green Bin program;
- experience from the Green Bin Pilot Project conducted in London between October 2011 and November 2012;
- feedback received from online engagement and previous engagement opportunities and comments received; and
- City staff experience from viewing Green Bin programs in operation and similar programs and/or program parameters offered in London.

Funding for the Green Bin program as part of the 60% Waste Diversion Action Plan was approved on March 2, 2020 and with budget amendments made and approved on January 12, 2021. The estimated amount allocated for the Green Bin program and related matters is $5 million annually with a capital cost estimated between $12 million and $15 million. These estimates were prepared in 2018.

Linkage to the Corporate Strategic Plan

Municipal Council continues to recognize the importance of solid waste management and the need for a more sustainable and resilient city in the development of its 2019-2023 Strategic Plan for the City of London. Specifically, London's efforts in solid waste management address the three following areas of focus: Building a Sustainable City; Growing our Economy; and Leading in Public Service.

On April 23, 2019, the following was approved by Municipal Council with respect to climate change:

> *Therefore, a climate emergency be declared by the City of London for the purposes of naming, framing, and deepening our commitment to protecting our economy, our eco systems, and our community from climate change.*

The 60% Waste Diversion Action Plan, including the Green Bin program, addresses various aspects of climate change mitigation within the waste management services area including greenhouse gas (GHG) reduction.

Analysis

1.0 Background Information

1.1 Previous Reports Related to this Matter

Some relevant reports that can be found at www.london.ca under Council and Committees meetings include:

- Community Engagement on Green Bin Program Design (November 17, 2020 meeting of the Civic Works Committee (CWC), Item #2.3)
- Business Case 1 – 60% Waste Diversion Action Plan – 2020-2023 Multi -Year Budget (January 30, 2020 meeting of the Strategic Priorities & Policy Committee (SPPC), Item #4.12a)
- 60% Waste Diversion Action Plan – Updated Community Feedback (September 25, 2018 meeting of the CWC, Item #3.2)
- Public Participation Meeting 60% Waste Diversion Action Plan – Additional Information (September 25, 2018 meeting of the CWC, Item #3.2)
- 60% Waste Diversion Action Plan (July 17, 2018 meeting of the CWC, Item #3.1)

2.0 Discussion and Considerations

2.1 Overview of Green Bin Community Engagement and Results

The Green Bin Community Engagement process was conducted to engage the community and solicit feedback in designing London's program. The City's community engagement online platform, Get Involved, was used to provide information and collect feedback on each of these five key decision areas for the overall Green Bin program design:

1. What materials should be placed inside the Green Bin?
2. What size of curbside container should be used?
3. What type of kitchen (indoor) container should be provided?
4. What type of container liners should be permitted?
5. What are the concerns about bi-weekly garbage collection (pickup)?

A communications campaign promoted the community engagement opportunities to Londoners. The campaign included social and traditional media such as newspaper ads, radio ads, City Newsletter e-News, Social Media (Instagram, Facebook, Twitter) and digital billboards.

The Green Bin community engagement overview details and summary is available in Appendix A. The community engagement process was conducted over an eight-week period from January 11 to March 5, 2021 using the City's community engagement online platform, Get Involved:

- 3,777 responses were received;

- 1,325 general comments regarding support for the Green Bin program, waste diversion programs, ideas for program design and environmental benefits were provided;

- 9,180 unique visitors (number of individual devices – such as a phone, iPad, or computer - visiting the Get Involved page and viewed at least one page) were recorded; and

- 54,000 total page views (number of total pages viewed on the Green Bin Get Involved page. This includes all clicks on the home page, photos, videos, and background information) were recorded.

The one-night Green in the City series event presented an overview of London's Green Bin program development. A portion of the presentation included municipal staff from the Region of Waterloo and City of Hamilton to share their Green Bin program experiences. This event had 105 attendees.

Each of the five key decision areas for the Green Bin Program design are described and evaluated in the Appendices B through F. Each key decision area is presented with the following sections: overview, summary of the choices, Green Bin municipalities, London's experience with similar and existing programs, resident feedback results, operational and technical considerations, and staff recommendations.

2.2 Key Decision #1 – What Materials Should Be Placed Inside the Green Bin?

Choices
A decision about the type of material permitted in the Green Bin is perhaps the most critical decision because it will impact other operational decisions. Seven types of materials can be grouped into three categories:

- 'Clean' organics typically include food waste, non-recyclable/soiled paper, cooking oils and grease, and household plants;

- 'Dirty' organics typically include pet waste (e.g., dog waste, cat waste/litter, other pet waste/litter) and diapers and sanitary products (includes adult incontinence products and feminine hygiene products); and

- Yard waste (including grass clippings, trimmings, etc.).

Green Bin Municipalities
A review of 15 Ontario municipalities and three Canadian programs found that all municipalities have a material mix that includes food waste, soiled paper, cooking oils and grease and household plants. About half of municipalities allow pet waste and only two municipalities (York Region and Toronto) allow diapers/sanitary products.

Resident Feedback
Online Feedback Form Question: What Materials Should Be Placed Inside the Green Bin?

Material Type (check all that apply)	Responses (%)	Number of Responses
Food waste	99%	3,691
Soiled paper	79%	2,941
Cooking oils and grease	63%	2,335
Household plants	73%	2,738
Pet waste (dog and cat feces and kitty litter)	45%	1,679
Diapers/sanitary products[1]	21%	778
Yard waste	53%	1,990
Total Responses		**3,734**

[1]Diapers includes adult incontinence products and sanitary products refers to feminine hygiene products.

These results are consistent with in-person feedback received from 260 participants at the January 2020 Lifestyle Home Show where approximately 50% selected a 'clean-only' material mix only. Approximately 50% also selected pet waste and about 30% also selected diapers/sanitary products.

Staff Recommendation

1. Obtain pricing from the marketplace on two mixes of Green Bin materials to be processed:
    - Mix #1 - Food waste, non-recyclable/soiled paper, cooking oils and grease, and household plants; and
    - Mix #2 - Food waste, non-recyclable/soiled paper, cooking oils and grease, household plants; and pet waste (e.g., dog, cat, other).

Rationale for Recommendation

Mix #1 contains materials that are:

- the most commonly collected materials in other municipalities;
- generally ranked higher from resident feedback;
- easiest materials to compost or digest;
- likely to have lower processing costs;
- likely to create the cleanest possible end-product; and
- represent more than 65% of available organics.

Mix #2 also includes pet waste (e.g., dog waste, cat waste and litter, other pet waste) which is found in approximately half the homes in London. This will:

- add to challenges for compost or digest and likely increase processing costs;
- may require a change in handling practices if plastic bags are currently being used for 'poop and scoop' practices;
- be an extra cost to households if they are switching to certified compostable bags, from plastic pet waste bags (which cost less) or reusing retail plastic bags;
- increase the Green Bin 'yuk factor' and may discourage general use of the Green Bin if it becomes soiled with pet waste, and particularly over the winter when cleaning with an outdoor hose may not be possible;
- may have an impact on end-product quality; and
- targets an additional 20% of available organics to increase total target to 85% of available organics.

Diapers/sanitary products should be excluded from both mixes because:

- diapers/sanitary products are not really composted or digested; therefore, they still end up in the landfill, and their presence in the mix will negatively impact the ability to produce a higher quality end-product;
- most households with diapers use them for a transition period and although managing them for this period is a challenge, there are other preferred options that can be explored to assist those households (e.g., permitting no-charge depot drop-off, permitting an extra bag at the curbside, etc.); and

Yard waste should not be added to the Green Bin program because:

- the cost of processing yard waste with Green Bin materials is approximately double that of processing yard waste collected in a separate collection;
- it may discourage the use of the Green Bin for kitchen organics if householders fill their bin with yard waste, leaving less room for food scraps;
- the current Green Week collection program that includes trimmings, plant materials, brush, branches, leaves is still required; and
- yard waste will continue to be permitted at the EnviroDepots.

Next Steps

1. Prepare details for a Request for Proposals for processing London's Green Bin Materials that includes pricing options for Mix #1 and Mix #2 materials.

2. Undertake further research on how municipalities work with residents regarding pet waste, diapers/sanitary products and related matters.

2.3 Key Decision #2 – What Size of Curbside Container Should Be Used?

Choices
The curbside container is used to store organic materials and will be set out to the curbside on collection day. Staff have narrowed the Green Bin container choice to two size options (based on previous public feedback and research including what is most used in other municipalities):

- 'small' size Green Bin typically about 45 litres; and
- 'medium' size Green Bin typically 80 litres.

Green Bin Municipalities
A review of 15 Ontario municipalities found that ten programs use the small Green Bin, four programs use a medium Green Bin ranging from 80 to 100 litres and one municipality that collected the Green Bin bi-weekly uses a large (240 litre) Green Bin. Those using the medium or large containers (carts) also use semi or automated collection vehicles to assist crews with collection of the heavier bins.

Resident Feedback
Online Feedback Form Question: What size of curbside Green Bin would you like?

Green Bin Size (check one)	Responses (%)	Number of Responses
Small (40 to 50 litres in size)	35%	1,336
Medium (70 to 80 litres in size)	57%	2,155
Undecided	5%	170
I do not wish to receive a Green Bin	3%	107
Total Responses		**3,768**

These results are consistent with in-person feedback received at the January 2020 Lifestyle Home Show where approximately 60% of the 260 respondents selected the medium bin and 40% selected the small bin.

Staff Recommendation
1. Design London's Green Bin program to use the small size (approximately 45 litres) Green Bin container.

Rationale for Recommendation
- the small Green Bin will hold 20 to 30 kilograms of organics;
- the average quantity of organics generated in London households is:
  - about 4 kilograms per week of Mix #1 materials (and potentially up to 4 times that amount in peak periods)
  - about 5 kilograms per week of Mix #2 materials (and potentially up to 4 times that amount in peak periods)
- for health and safety reasons London's weight limit for collectors manually lifting garbage is 20 kilograms. It will be the same for Green Bins;
- if a larger Green Bin container is used, all collection vehicles would require a mechanical lift assist and this feature would increase vehicle costs by as much as $12,000 to $15,000 per vehicle;
- the small Green Bins (45 litres) cost between $35 and $40 and the 80 litres containers cost between $70 and $75 (i.e., more than double the price between containers sizes or potentially about $5 million difference in price if it were one or the other being offered); and
- the medium 80 litre bin may result in more yard waste being placed in the bin because there will be extra capacity, which will mean higher fees for managing yard waste.

It is important to note that resident feedback favoured the medium-sized Green Bin. However, based on waste audit data the small Green Bin will be large enough to handle the average quantities of organics from most London households. A solution is needed for households that find that the small bin is not adequate as they generate large quantities of organic waste (e.g., the provision of a second Green Bin, or of a larger bin in some instances). There will be no limit to the quantity of Green Bin materials that will be collected from households, as is the case with Blue Box recyclables, as long as the materials are from the household participating in the program.

Next Steps

1. Prepare details for a Request for Proposals for purchase and distribution of the small Green Bin.

2. Undertake research of advantages and disadvantages of registering/tracking Green Bins and the associated costs to determine if this feature should be included in the Green Bin RFP specification.

3. To accommodate households and townhome complexes that require more capacity the option of providing a second Green Bin or other alternatives will be reviewed.

4. A small percent of respondents indicated they do not wish to be supplied with a Green Bin. Experience with other communities suggest some householders do not wish to participate because they compost/digest their organics or do not wish the added work. Staff will explore means of potentially allowing Londoners to opt out of the delivery, returning the unwanted Green Bin, exchanging the unwanted Green Bin, etc. to determine practicality and cost savings potential.

2.4 Key Decision #3 – What Type of Kitchen Container Should Be Provided?

Choices

Generally, a kitchen container is supplied to households at the same time as the curbside container. The kitchen container helps to make the routine of collecting kitchen organics convenient and thus increase participation in the program to increase chances of success.

There are different types of kitchen containers, with some differences in the features they provide (e.g., handle, carbon filter, size). Other considerations include:

- would residents prefer to be given a retail coupon to purchase a container of their choice; and
- would residents prefer not to receive a kitchen container.

Green Bin Municipalities

The general practice is the provision of a kitchen container with each Green Bin at the start of the program. An opt-out option or retail discount coupon was not found in other municipalities.

Resident Feedback

Online Feedback Form Question: Kitchen Containers: What features are important to you?

Kitchen Container Features (check all that apply)	Responses (%)	Number of Responses
Smaller size bin (approximately 7 litres)	39%	1,476
Larger size bin (approximately 9 litres)	35%	1,335
A handle	64%	2,411
A carbon filter to reduce odours (filters are optional and will need to be purchased)	42%	1,584

Kitchen Container Features (check all that apply)	Responses (%)	Number of Responses
A tight-fitting lid to reduce odours and fruit flies	80%	3,015
I prefer to use my own container (e.g., plastic ice cream tub, coffee can)	7%	256
I already have a container and do not need another	13%	490
I prefer to be provided a coupon towards the purchase of a container of my choice from a local retailer	18%	662
I have no preference	3%	105
I am undecided	2%	75
Other (please specify)	2%	91
Total Responses		**3,769**

Staff Recommendation
- Provide a kitchen container with a tight-fitting lid with each Green Bin (curbside).

Rationale for Recommendation
- a kitchen container helps to increase chances of success by providing a convenient way to collect kitchen organics;
- a system to conveniently collect and store kitchen scraps is an important step towards creating new habits in the household, which are important to establish at the onset of a new program;
- distribution of discount retail coupon would not ensure that each household that wishes to participate will have a kitchen container when the program starts; and
- aligns with a large majority of resident feedback indicating they do want to be provided with a kitchen bin;

Next Steps
1. Prepare details for a Request for Proposals for the purchase of a kitchen container with the distribution of the Green Bin.

2.5 Key Decision #4 – What Type of Container Liners Should Be Permitted?

Choices
Households may wish to line their kitchen container and/or Green Bin. Lining kitchen container or the Green Bin protects helps the material to slide out of the bin, keeps the bin cleaner, reducing odours and insects, and will reduce liquids that can splash on collectors or the street. Liner choices include:

- Newsprint/household paper;
- Purchased paper liners/bags;
- Purchased certified compostable bag liners;
- Plastic bags (non-degradable); and
- No liner.

Green Bin Municipalities
The liner material permitted is contingent on which materials are permitted in the Green Bin; for example, municipalities that accept diapers/sanitary products also permit the use of plastic bag liners. Most municipalities do not require liner use, but some municipalities that accepted pet waste in the Green Bin require it to be placed in an acceptable liner for collection. Due to Covid-19 a few municipalities do require the use of plastic bag liners.

Experience has shown that there is an evolution in the types of liners being used, the cost and availability of these liners, the public reaction to liner use and how collectors react to different types of liners.

Additional information on this matter continues to be compiled by City staff.

Resident Feedback
Online Feedback Form Question: What type of liners should be used?

Bin Liner Type (check all that apply)	Responses (%)	Number of Responses
Newsprint or other household paper	43%	1,599
Purchased paper bags	45%	1,687
Purchased compostable liners (i.e., certified compostable bags)	67%	2,530
Non-degradable plastic liners (e.g., plastic grocery bags)	7%	269
No liner	25%	948
I have no preference	9%	343
I am undecided	6%	221
Total Responses		**3,759**

Staff Recommendation
1. [If London's Green Program is based on Mix #1] Allow residents the choice of no-liner, paper, or certified compostable liners, and not allow the use of regular plastic bag liners.

2. [If London's Green Program is based on Mix #2 (Mix #1 plus pet waste] Allow residents the choice of no-liner, paper, or certified compostable liners, and not allow the use of plastic bag liners. Pet waste would need to be bagged in a certified compostable bag, that is leak free and tied tightly for the safety of the collector. It could still go in the garbage if it were in a regular plastic bag.

Rationale for Recommendation
- allowing households the choice of liner options will accommodate varying household routines and budgets, and encourage program participation;
- offers choice for residents including no-cost options and aligns with resident feedback – only 7% would like to use plastic bags;
- permitting the use of paper and certified compostable liners, and not permitting plastic bags, is consistent with the recommendation to not include diapers/sanitary in the material mix; and
- requiring the use of certified compostable bags when pet waste is placed in the Green Bin is consistent with the desire to keep normal plastic out of the Green Bin. Letting just one item contained in plastic be placed in the Green Bin opens the door for other plastic bags. Residents could place pet waste in plastic bags directly into the garbage as per the current system.

Next Steps
1. Notify liner suppliers/retailers to advise them of permitted liner choices so that they may ensure that product is available for purchase by Londoners in sufficient time prior to the launch of the Green Bin program.

2.7 Key Decision #5 – What are the Concerns About Bi-weekly Garbage Collection?

General Comments
The 60% Waste Diversion Action Plan (approved by Municipal Council in 2018) identified that a switch to bi-weekly, same-day garbage collection and weekly recycling and Green Bin collection (on the same day) would be less costly than weekly garbage collection. Bi-weekly garbage collection was also considered as key to encouraging greater participation of the Green Bin program.

Green Bin Municipalities
Garbage collection frequency is summarized in the table below.

Garbage Collection Frequency for Large Municipalities with Green Bin Collection

Garage Collection Frequency	Municipality
Weekly	Dufferin County, Hamilton[1], Kingston
Weekly	St. Thomas[2]
Bi-weekly	Barrie, Durham, Guelph, Halton, Niagara[3], Ottawa, Peel, Simcoe County[4], Toronto, Waterloo, York (Other Canadian: Calgary, Halifax, Vancouver)

Table Notes:
[1] Reviewing bi-weekly garbage collection
[2] Weekly garbage, bi-weekly green bin and recycling
[3] Changed to bi-weekly garbage collection in October 2020
[4] Changed to bi-weekly garbage collection in February 2020

Resident Feedback
Online Feedback Form Question: What concerns might you have about bi-weekly garbage collection?

Bi-Weekly Garbage Concerns (check all that apply)	Responses (%)	Number of Responses
Too long to hold diapers/sanitary products	24%	902
Too long to hold pet waste	24%	906
Too much garbage will be accumulated over a two-week period	33%	1,250
Missing a pickup will mean four weeks between collection days	48%	1,813
I have some concerns, but I support the decision of bi-weekly garbage collection and weekly recycling and Green Bin pickup	38%	1,425
I do not have concerns about bi-weekly garbage collection	26%	982
I am undecided	2%	70
Other (please specify)	4%	149
Total Responses		**3,760**

Staff Recommendation
1. Prepare a report on how municipalities work with residents to address bi-weekly garbage collection concerns (e.g., managing diapers and related matters) including advantages, disadvantages and estimated costs.

Rationale for Recommendation
- reduced garbage collection frequency relative to Green Bin collection will encourage increased participation in the Green Bin program;
- the Green Bin will manage wet organic and smelly household waste weekly (except for diaper waste) leaving mostly dry waste to be placed in the garbage;
- municipalities with Green Bin programs have found that the amount of organic material collected in the Green Bin increases by 50% to 100% with the introduction of bi-weekly garbage collection. Blue Box recycling rates also increased; and
- resident feedback indicates some specific concerns about reduced garbage collection frequency, however almost 40% noted that they still supported bi-weekly garbage, and about 25% had no concerns.

Managing diapers/sanitary products
Holding diapers/sanitary products for a two-week period may be a challenge for some households. Other municipalities offer programs to assist with diapers/sanitary products. These include a special collection for registered households, an exception to the curbside limit, and no-charge drop-off at depots. Generally, these programs require registered users to place garbage in clear plastic bags so the contents can be checked.

Next Steps
1. Design an information campaign to prepare for collection schedule changes and Green Bin program implementation.

2. Undertake further research on how municipalities work with residents regarding pet waste, diapers/sanitary products and related matters.

3.0 Financial Impact/Considerations

Funding for the Green Bin program as part of the 60% Waste Diversion Action Plan was approved on March 2, 2020 and with budget amendments made and approved on January 12, 2021. The estimated amount allocated for the Green Bin program and related matters is $5 million annually with a capital cost estimated between $12 million and $15 million. These estimates were prepared in 2018.

All items to be purchased through competitive procurement will be provided to Committee and Council for approval and include final decisions on the selection of:

- a company or companies to supply a kitchen container for indoor use to recover organics;

- a company or companies to manufacture and deliver to London homes a Green Bin curbside container (approximate size 45 litres;

- a company or companies to supply and deliver a larger Green Bin curbside container (approximate size 80 litres or 120 litres) potentially for use in some townhome complexes where a smaller Green Bin is not practical; and

- a Green Bin material processor(s) that can compost and/or anaerobically digest Mix #1 and/or Mix #2 materials.

Conclusion

The eight-week Green Bin community engagement program attracted a lot of attention and feedback was received from many Londoners. This information was fairly consistent with experience from other Ontario municipalities and a few communities in other parts of Canada. Previous and related experience with London pilot projects has contributed to staff analysis.

It must be noted that like the Blue Box program, there are innovations, new ideas and new learnings on a regular basis with Green Bin programs. City staff will ensure that, where possible, these kinds of opportunities can be introduced to improve program design and implementation for the purpose of containing/reducing cost, increasing customer experience and satisfaction, and maintaining customer and worker health and safety.

All next steps associated with this report have been identified in the Recommendation section on the first page.

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Appendix A Summary of Green Bin Community Engagement

Appendix B Key Decision #1 – What Materials Should Be Placed Inside the Green Bin?

Appendix C Key Decision #2 – What Size Bin Should London's Green Bin Be?

Appendix D Key Decision #3 – What Type of Kitchen Container Should Be Provided?

Appendix E Key Decision #4 – What Type of Container Liners Should Be Used?

Appendix F Key Decision #5 – What Are the Concerns About Bi-weekly Garbage Collection?

Appendix A – Summary of Green Bin Community Engagement

Online Engagement and Resident Feedback

The Green Bin Community Engagement process was conducted to engage and solicit resident feedback in designing London's Green Bin Program.

Resident feedback was collected over an eight-week period from January 11 to March 5, 2021. The City of London's community engagement online platform, Get Involved getinvolved.london.ca/greenbin, was used to provide information and collect resident feedback on each of the five key decision areas for the overall Green Bin program design:

1) what materials should be placed inside the Green Bin?
2) what type of kitchen container should be provided?
3) what type of bin liner should be permitted?
4) what size of bin should London's Green Bin be? Small or medium?
5) what concerns could there be with bi-weekly garbage collection?

In addition to the five key decision questions, four general questions were asked:

- The City of London is adapting its community engagement to follow event restrictions and physical distancing guidelines to help slow the spread of Covid-19. How would you prefer to engage with London's Green Bin program in the future?
- Would you like to be contacted in the future about London's Green Bin program? Please include your email.
- What is your postal code?
- Do you have any additional comments or feedback?

Londoners were made aware of this engagement and feedback opportunity through a communications campaign that included the following communication methods:

- newspaper ads;
- radio ads;
- City website information including Our City e-news;
- social media; and
- digital billboards.

A promotional digital billboard was displayed on rotation for approximately three weeks (January 20 to February 12, 2021) at the four following locations:

- Wellington Street at Front Street;
- Wellington Street at Bathurst Street;
- Richmond Street at Horton Street; and
- Wharncliffe Road at Baseline Road.

The communication campaign details are provided in Table A1. The newspaper advertisements were provided at no cost through the Resource Recovery and Recovery Authority (RPRA) in-kind advertising program.

Table A1 – Community Engagement Communications Campaign

Communication Type	Date(s) of advertisement
Newspapers	January 23, 2021 – London Free Press January 27 and January 28, 2021 – Londoner
Radio advertising (Jack FM, AM 980, Fresh FM, Classic Rock 98.1)	January 18 to February 7, 2021
Social media (Twitter, Facebook, Instagram)	January 11 to March 3, 2021 (26 posts)

Communication Type	Date(s) of advertisement
Green in the City virtual event	106 attended, 172 registered
Digital Billboards	January 20 to February 12, 2021 (4 locations)
Other digital media	February 4, 2021 – Our City (9,330 emails)

It is important to note that this feedback method (online resident feedback) is non-random sampling, meaning it is not clear what the odds or probability that the data represents the total population (i.e., statistical validity cannot be determined). Online feedback methods are often referred to as unrestricted, self-selected surveys. They are a form of convenience sampling. Care must be used in interpreting the results.

The key highlights of the resident feedback received through the Get Involved feedback form are:

- 3,777 completed feedback forms (75% who started completed it);
- 54,140 total page views (number of total pages viewed on the Green Bin Get Involved page. This includes all clicks on the home page, photos, videos and background information);
- 9,180 unique visitors (number of individual devices – such as phone, iPad or computer - visiting the Get Involved page and viewed at least one page);
- 1,335 provided additional general comments on the feedback form; and
- 2,210 requested to be contacted for future engagement and provided their email addresses.

Overall, of the 3,777 respondents, 38% (1,418) provided a method on how they would like to engage and receive information regarding London's Green Bin program in the future. Some respondents provided multiple methods for communication and others had no preference. The methods of communication listed by residents can be summarized into the following categories:

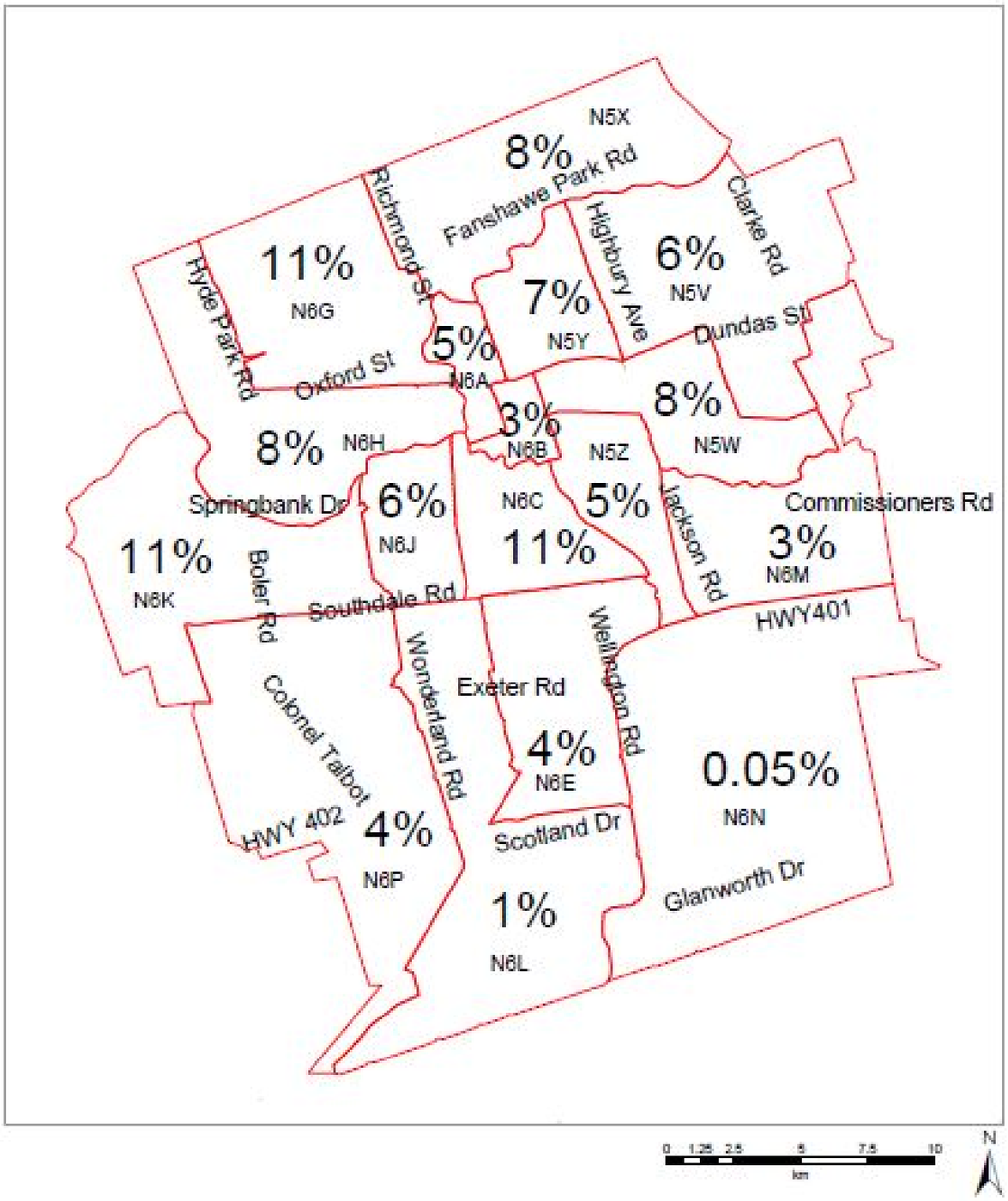
- online (City website, Get Involved website) – 42%
- email – 48%
- virtual presentations (Zoom, webinar) – 13%
- social media (Facebook, Twitter, Instagram) – 11%
- other (print, radio, community groups) – 2%
- no preference – 6%

Of the 3,777 respondents, 2,781 (74%) provided a postal code. Of these 7 respondents indicated that they were non-London residents. The resident feedback received represented all areas of the city. To summarize the distribution, examples of City Planning Districts with the corresponding Canada Post FSA (Forward Sortation Area, first three letters of postal code) are as follows:

- Huron Heights, Uplands, Stoney Creek (N5V, N5X, N5Y) – 21%
- Central London, Highland (N6A, N6B, N6C) – 19%
- Sunningdale, Hyde Park, Oakridge (N6G, N6H) – 19%
- Byron, Southcrest, Bostwick (N6J, N6K) – 17%
- Crumlin, Hamilton Rd, Glen Cairn (N6M, N5W) – 15%
- Lambeth, Tempo (N6P, N6L) – 5%
- Glanworth, White Oak (N6E, N6N) – 4%

A detailed city-wide distribution of the proportion of feedback forms completed is displayed in Figure 1.

Figure 1: Online Feedback Form – Postal Code Distribution of Respondents



Overall, there was a range of general additional comments received. Of the 3,777 respondents, 35% (1,335) provided one or more comments at the end of the feedback form, with most of the comments received being positive. The most common comment received (72%) expressed support of a Green Bin program for London. The other common comments received expressed views on:

- waste diversion programs such as backyard composting or recycling;
- apartments and businesses participating in the Green Bin program;
- ideas for Green Bin program design – promotion and education, bin design for pest control;
- Green Bin program operations – processing, marketing of end products, costs; and;
- environmental benefits of the Green Bin program.

Based on staff's review of the general comments, approximately 70% of the written feedback was related to the Green Bin program and is addressed by this staff report. Approximately 25% of the written feedback was related to other waste management

programs and the remaining 5% was tied to other items dealing with the environment. The general comments were tallied by categories; therefore, residents may have provided more than one general comment, the proportion of comments was determined from all tallied comments not by the number of residents who provided a general comment.

Green in the City event – Developing London's Green Bin Program

A virtual Green in the City event included City staff presentations and presentations from municipal staff of the Region of Waterloo and City of Hamilton who shared information about their mature Green Bin programs.

The event had 106 residents attend and 172 registered. At the end of the presentation there was a question-and-answer period where residents had the opportunity to find out more about London's Green Bin program design. Some examples of the questions asked were regarding the differences in the environmental impacts of processing pet waste and diapers/sanitary products materials and where London will be shipping the Green Bin materials for processing.

Additional Green Bin Resident Feedback Received in 2020

In early 2020 Londoners were solicited for feedback to assist with narrowing down some of the program design options.

An interactive display was featured at the January 2020 Lifestyle Homeshow, Western Fair District Agriplex (January 31 – February 2, 2020) where 260 people provided in-person feedback. The overall results were:

- 90% of participants plan to use the Green Bin;
- the vast majority would put food waste and soiled paper products in the Green Bin (95% and 80% respectively);
- 60% would put pet waste in the Green Bin;
- 30% would put diaper/sanitary products in the Green Bin; and
- 60% say the medium size (80 litre) Green Bin is best for them.

Resident feedback was also collected at four smaller community events in 2020:

- January 10, 2020 at the London Knights House of Green Goes Green event;
- February 26, 2020 at the Lambeth Legion during the W12A Landfill Expansion Environmental Assessment Open House;
- February 27, 2020 at the Earl Nichols Arena during the W12A Landfill Expansion Environmental Assessment Open House;
- March 7, 2020 at the Carling Heights Optimist Centre for Seedy Saturday; and
- Other planned events were cancelled due to the COVID-19 pandemic.

Overall, from these four events approximately 60 residents completed an in-person feedback form and the results were consistent with the in-person feedback received at the January 2020 Lifestyle Homeshow.

Appendix B – Key Decision #1 – What Materials Should Be Placed Inside the Green Bin?

Overview

The type of materials permitted in the Green Bin is the most critical decision as it will impact other aspects of the program, including processing costs, availability of processing operations, user participation and convenience, waste diversion rate, landfill costs, and greenhouse gas emissions.

Choices

Food waste, including cooking oil and grease, and non-recyclable/soiled paper are the most common materials collected in Green Bin programs. A key decision is required on the types of materials permitted. Seven types of materials can be grouped into three categories:

- 'Clean' organics typically include food waste, non-recyclable/soiled paper, cooking oils and grease, and household plants;
- 'Dirty' organics typically include pet waste (e.g., dog waste, cat waste and litter and other pet waste) and diapers/sanitary products (includes adult incontinence products and feminine hygiene products); and
- Yard waste (including grass clippings, trimmings, etc.).

The online resident feedback form listed all seven material choices and asked Londoners to check any they want to include in London's Green Bin program.

Green Bin Municipalities

A review of 15 Ontario and three Canadian municipal Green Bin programs found that all municipalities have a material mix that includes food waste, soiled paper, cooking oils and grease and houseplants (note: Hamilton stopped accepting houseplants and yard waste in April 2019). Half of the 18 programs accept 'clean' organics; seven allow pet waste but do not allow diapers/sanitary products; and two municipalities (York Region and Toronto) allow pet waste and diapers/sanitary products. Table B1 provides details on Green Bin materials collected in the 18 municipalities.

Table B1 - Summary of Materials included in Other Green Bin Programs

Municipality	Food	Soiled paper	Cooking oils and grease	House-hold plants	Pet waste	Diapers/ Sanitary Products	Yard waste
City of Toronto	x	x	x	x	x	x	
Region of York	x	x	x	x	x	x	
City of Guelph	x	x	x	x	x		
Region of Niagara	x	x	x	x	x		
City of Ottawa	x	x	x	x	x		x
Simcoe County	x	x	x	x	x		
City of St Thomas	x	x	x	x	x		x
Region of Waterloo	x	x	x	x	x		
City of Barrie	x	x	x	x			
Dufferin County	x	x	x	x			
Region of Durham	x	x	x	x			

Municipality	Food	Soiled paper	Cooking oils and grease	House -hold plants	Pet waste	Diapers/ Sanitary Products	Yard waste
City of Hamilton	x	x	x				
Region of Halton	x	x	x	x			
City of Kingston	x	x	x	x			x
Region of Peel	x	x	x	x			
Other Canadian							
City of Vancouver	x	x	x	x			x
City of Calgary	x	x	x	x	x		x
City of Halifax	x	x	x	x			x

Many of the Ontario Green Bin programs are mature and have been in place for several years. Municipal staff from these municipalities were asked about any changes they have made to material mixes since the beginning of the program. These changes are listed in Table B2 and provide some insight about which materials have become problematic for their programs. Municipal staff were also asked for their comments on materials they consider to be problematic and should not be included in the Green Bin program (Table B3).

Table B2 – Changes to Green Bin Material Mixes Since Program Inception

Changes to Material Mix	Municipality
Removed disposable paper cups	Niagara, Halton
Removed dirt/vacuum sweepings	Waterloo
Removed leaf and yard waste	Hamilton (2019)
Added grease and cooking oils	Kingston
Added pet waste and kitty litter	Simcoe County (2019), Ottawa (2019)

Table B3 – Materials to Avoid in Municipal Green Bin Programs

Materials to Avoid	Municipality
Compostable plastics	Toronto, Guelph
Plastic bags	Niagara, Peel
Diapers/sanitary products	Niagara, Simcoe, Hamilton, Peel
Pet waste	Halton (in-vessel composting)
Others (dirt/vacuum sweepings, dryer lint, microwave popcorn bags)	Waterloo, Hamilton

London's Experience with Similar Existing Programs

The Green Bin Pilot Project that operated in London between October 2011 and November 2012 had a 'clean' program material mix including the option to 'top-up' with yard waste. The contamination rate (i.e., the percent of materials that do not belong) was measured twice during the pilot project and was approximately 3%. This is significantly "cleaner" than Green Bin programs that allow plastic materials such as diapers/sanitary products or plastic bags as liners.

London's curbside yard waste collection program allows for the use of paper bags, certified compostable bags, or reusable containers. However, prior to 2010 the program permitted the use of plastic bags, but it was changed to decrease the yard waste processing costs, reduce plastic bag use, and increase the quality of the compost end-

product as it would have less contaminants. A ‘cleaner’ processed end-product with less contaminants allows for more versality with end markets.

Resident Feedback Results

Results from the 2021 online resident feedback form on what type of materials should be placed inside the Green Bin can be found below in Table B4.

Table B4 – Online Feedback Form Question: What Materials Should Be Placed Inside the Green Bin?

Material Type (check all that apply)	Responses (%)	Number of Responses
Food waste	99%	3,691
Soiled paper	79%	2,941
Cooking oils and grease	63%	2,335
Household plants	73%	2,738
Pet waste (dog and cat feces and kitty litter)	45%	1,679
Diapers/sanitary products[1]	21%	778
Yard waste	53%	1,990
Total Responses		**3,734**

[1] Diapers includes adult incontinence products and sanitary products refers to feminine hygiene products

Noting that the question asked was somewhat different, these results are consistent with resident feedback received from 260 participants at the January 2020 Lifestyle Home Show, where approximately 50% selected a ‘clean only’ material mix, and approximately 50% selected pet waste and about 30% selected diapers/sanitary products.

Operational and Technical Considerations

In general, the ‘clean’ organics option would be a less costly choice for the City. Restricting the material mix to these materials means that a smaller and less costly curbside bin can be used (as extra capacity for items like diapers would not be required), and processing operations will be more available (as fewer processors are able to process ‘dirty’ organics), and the per tonne cost of processing will be less.

<u>Yard Waste</u>

Yard waste, such as grass clippings or plant trimmings can be a problem as it is not a cost-efficient way to manage this material and there is not sufficient capacity within the Green Bin to contain it. The cost of processing yard waste with Green Bin materials is approximately twice as much compared to yard waste collected on a separate collection. If yard waste is permitted in the Green Bin it could have the effect of discouraging the use of the Green Bin for kitchen organics if householders fill their bin with yard waste, leaving less room for food scraps.

<u>Pet Waste and Diapers/Sanitary Products</u>

Including pet waste or diapers/sanitary products in the material mix could have some advantages such as user convenience and increased waste diversion of these materials through the Green Bin. However, including these materials in the mix will increase processing costs and make the Green Bin materials more difficult to process.

Adding pet waste in the material mix could increase diversion through the Green Bin by 10% and 20% and including both pet waste and diapers/sanitary products could increase

diversion by 15% to 25%. It is important to note that the diapers/sanitary products are not really composted or digested; therefore, they still end up in the landfill. Depending on the type of pre-processing system used, many dog waste bags may not open to permit exposure of the contents for further processing. Including pet waste and diapers/sanitary products could increase the processing costs between 20% to 40%.

Not accepting pet waste and diapers/sanitary products in the Green Bin will mean that a large percentage of London households will need to store this material for a longer period between garbage collections. Approximately 50% of London homes have dogs or cats and approximately 10% of homes in London have diapers/sanitary products.

Pet waste in the Green Bin would need to be bagged in a certified compostable bag, leak free and tied tightly for the safety of the collector. This requirement may cause a change in household 'poop and scoop' handling practices and introduce extra costs if households are switching to certified compostable bags, from plastic pet waste bags or reusing retail plastic bags. Including pet waste may also increase the Green Bin 'yuk factor' and discourage general use of the Green Bin if it becomes soiled with pet waste, particularly in the winter months when cleaning with an outdoor hose may not be possible.

Currently the City sells a home digester unit that can be used to 'digest' dog waste. In 2020 a small pilot project was conducted with volunteer households to test the use of the digester. The results of this pilot were favourable and suggest this could be a potential solution to handle dog waste for some households. This will be investigated further as reducing the price of the digester (and home composters) is an action item that is to be implemented as part of the 60% Waste Diversion Action Plan.

As noted, both products make the Green Bin materials more difficult and costly to process. However, including these materials in the Green Bin will make it easier for residents to accept bi-weekly garbage collection; provide minor landfill cost savings; and further reduce greenhouse gas emissions.

Between these two materials types, pet waste would be considered the higher priority as it involves for more households in London.

Staff Recommendations and Next Steps

It is recommended that staff obtain pricing from the marketplace on two mixes of Green Bin materials to be processed and prepare the details for a Request for Proposals for:

- Mix #1 - Food waste, non-recyclable/soiled paper, cooking oils and grease, and household plants; and

- Mix #2 - Food waste, non-recyclable/soiled paper, cooking oils and grease, household plants; and pet waste (e.g., dog, cat, other).

Staff will also undertake further research on how municipalities work with residents regarding diapers/sanitary products and related matters.

Appendix C – Key Decision #2 – What Size Bin Should London's Green Bin Be?

Overview

Residents will be supplied with a curbside bin to store Green Bin materials and place at the curbside on collection day. The mix of materials permitted and needing capacity in the Green Bin will be a factor in the size selection of the curbside bin used.

Choices

To help respondents make a choice, the Get Involved site included information and photographs on two size options. Through preliminary research and initial public feedback, City staff had narrowed the curbside container choice to two options:

- 'small' size Green Bin typically 45 litres; and
- 'medium' size Green Bin typically 80 litres.

Green Bin Municipalities

These sizes are common in other Ontario municipalities (Table C1). For comparison, the larger Blue Box used in London is 90 litres and the maximum size of garbage can permitted is 125 litres.

Table C1 – Green Bin Sizes

Municipality	Green Bin Sizes in Use (litres)	Number of Material Categories Collected (Table B-1 out of 7)	Kg/year Single Family Households	Percentage Diversion of Total Residential Waste
City of Toronto	97[1]	6	340	20%
Region of York	45	6	310	26%
City of Guelph	80	5	340	18%
Region of Niagara	46	5	70	6%
City of Ottawa	46, 80	6	260	22%
Simcoe County	46	5	90	9%
City of St Thomas	240	6	300	23%
Region of Waterloo	46	5	170	13%
City of Barrie	46	4	110	8%
Dufferin County	46	4	140	15%
Region of Durham	46	4	130	11%
City of Hamilton	46, 120	3	80	6%
Region of Halton	46	4	160	14%
City of Kingston	80	5	80	9%
Region of Peel	100	4	180	12%

Notes:
[1] City of Toronto changed from 46 litre size when automatic/semi-automated was implemented. Smaller bin is still used in area where automatic collection is not possible due to space restrictions.

London's Experience with Similar Existing Programs

The Green Bin pilot project had residents choose from a 45 litre, 80 litre or 120 litre bin based on their needs and storage space. The residents who participated had requested a specific Green Bin size as follows:

- 45 litre – 150 (40%)
- 80 litre – 186 (50%)
- 120 litre – 41 (10%)

Resident Feedback Results

Results from the 2021 online resident feedback form on the size of curbside Green Bin can be found below in Table C2.

Table C2 – Online Feedback Form Question: What size of curbside Green Bin would you like?

Green Bin Size (check one)	Responses (%)	Number of Responses
Small (40 to 50 litres in size)	35%	1,336
Medium (70 to 80 litres in size)	57%	2,155
Undecided	5%	170
I do not wish to receive a Green Bin	3%	107
Total Responses		**3,768**

Operational and Technical Considerations

Larger Green Bin sizes (100 to 120 litres) are not being considered for London at this time. The larger bin would require a semi or fully automated lift mechanism style collection truck, which would increase collection costs. The larger bin size is also more likely to be used by residents for yard waste because there will be extra capacity, which will increase Green Bin processing costs.

The estimated cost of the bins is $35 to $40 for the small bin (45 litres) and $70 to $75 for the medium bin (80 litres); a difference of approximately $5 million in capital costs. Bin size will be a factor in collection operations planning; a small bin can be lifted manually, but a larger Green Bin container will require a mechanical lift to assist on all collection vehicles and this feature would increase vehicle costs by as much as $12,000 to $15,000 per vehicle.

The small Green Bin will hold 20 to 30 kilograms of organics. Waste audits indicate that the average weight of organics generated in London households is:

- about 4 kilograms per household per week of 'clean' or Mix #1 materials (and potentially up to 4 times that amount in peak periods); and

- about 5 kilograms per household per week of Mix #2 (Mix #1 plus pet waste) (and potentially up to 4 times that amount in peak periods).

If either Mix #1 or Mix #2 is selected, then 4 or 5 kg/household/week on average is available in the waste stream for diversion through the Green Bin. The small bin size would have sufficient capacity to manage this quantity of weekly organic material, and the extra quantities on weeks when more than average quantities are generated in the household. It is important to note that this estimate assumes that 100% of the organic mix will be diverted from the garbage into the Green Bin. However, based on other municipal programs and London's pilot project, reaching 100% diversion of organics is not expected, and even with enforcement measures in place, 100% capture of the material mix would not be typical.

Based on density of food waste in the range of 0.50 kg/litre to 0.70 kg/ litre it is estimated that the small Green Bin (45 litre) could hold approximately 20 to 30 kilograms of food waste and the medium Green Bin (80 litres) would hold approximately 40 to 60 kilogram of food waste (Source: *Residential GAP – Manual on Generally Accepted Principles for Calculating Municipal Solid Waste System Flow*, CSR, 2003).

As noted, the small bin will be sufficient for both average household quantities and peak generation times. Noting the maximum container weight (set in the by-law) for curbside garbage collection is 20 kilograms, the smaller bin option also ensures that bins are less likely to be overweight. There will be no limit on the quantity of Green Bin materials collected from households. To accommodate households that require more capacity, and to avoid Green Bins becoming overweight, a second small Green Bin may be provided to household that require it. This option will be reviewed.

Green Bin manufactures may provide an option of embedding containers with Radio Frequency Identification (RFID) tags to register Green Bins by address. As Green Bins are distributed city-wide each Green Bin becomes assigned to a municipal address and input into a tracking system. The advantages of RFID technology are assisting with managing carts as a municipal asset and tracking weekly usage (scanning) in real time. RFID technology also allows confirmation of delivery when the cart is delivered to a household and throughout the lifecycle of the cart. RFID technology is an added cost in the cost of the Green Bin production and the on-going program. Staff will undertake research on the need and benefits of the RFID technology.

Staff Recommendations and Next Steps

Staff recommend that London's Green Bin program be designed to use the smaller (45 litre) curbside container, and for staff to prepare the details for a Request for Proposal for the purchase and distribution of the small Green Bin.

Staff will undertake research of the advantages and disadvantages of registering/ tracking Green Bins and the associated costs to determine if this feature should be included in the Green Bin RFP specification.

To accommodate households that require more capacity the option of providing a second Green Bin will be reviewed.

There may be some locations (e.g., bulk collection areas in townhome complexes) where an 80 litre or larger Green Bin may provide certain advantages for users. This option or other alternatives will be reviewed.

A small percentage of respondents indicated they do not wish to be supplied with a Green Bin. Experience with other communities suggest some householders do not wish to participate because they compost/digest their organics or do not wish the added work. Staff will explore means of potentially allowing Londoners to opt out of the delivery, returning the unwanted Green Bin, exchanging the unwanted Green Bin, etc. to determine the practically and cost savings potential.

Appendix D – Key Decision #3 – What Type of Kitchen Container Should Be Provided?

Overview

Generally, a kitchen container is supplied to households at the same time as the curbside container. To make the collection of organics more convenient in the kitchen, a container is used to store materials (e.g., under the sink, in a cupboard, or on the counter). Depending on how much food waste is generated in a household, it is emptied into the Green Bin daily or 2 to 3 times per week. Kitchen containers have a snap lid and may have a charcoal filter to trap and reduce odours.

During door-to-door delivery a how-to guide would be placed inside the kitchen container and then inside the Green Bin. The kitchen container helps to make the routine of collecting kitchen organics convenient and thus increase participation in the program to ensure success. Establishing a convenient way to collect kitchen organic waste in each household is critical to a successful Green Bin program.

Choices

There are different types of kitchen containers, with some differences in the features they provide (e.g., handle, carbon filter, size). Other considerations include:

- would residents prefer to be given a retail coupon to purchase a container of their choice; and
- would residents prefer not to receive a kitchen container and use their own repurposed container or a 'do-it-yourself' (DIY) version.

Green Bin Municipalities

There are many different kitchen container options available for purchase in other Ontario municipalities. An opt-out option or retail discount coupon was not found in other municipalities. Various sizes designed to fit under the sink or on the kitchen counter should be considered.

London's Experience with Similar Existing Programs

The Green Bin Pilot Project that operated in London between October 2011 and November 2012 included 762 households and had residents choose from three types of kitchen containers. Approximately half of the households requested a specific model (Table D1). The other households were randomly distributed kitchen containers from the three types listed below. At that time the standard manufactured kitchen container from Orbis and a similar sized model from Sure-Close was the most popular with 90% of those residents who requested a specific model choosing them and 10% selecting the smaller model by Busch.

Table D1 – 2011-2012 Green Bin Pilot Project Kitchen Container Selection

Kitchen Container Selection	Responses (%)	Number of Responses
Orbis (7 litre standard size)	30%	115
Sure-Close (with air holes, about 7 litres)	60%	217
Busch (small, about 5 litres)	10%	45
Total Responses		377

There are also learnings from households that successfully compost food scraps using a backyard composter. These households keep a kitchen container within easy reach to collect food scraps as meals are being prepared and during meal clean-up. The size of

the kitchen container is an important factor. It needs to be small enough for placement on the counter and stored when not in use and large enough to contain food scraps for a day or more. Other features include a lid that controls odours and fruit flies, a handle for easy carrying, and an opening that facilitates receiving food scraps off plates and easily tipping the food scraps into the Green Bin. If a liner is used with the kitchen container, then the size and shape may also be a factor to ensure that the liners fit the container. Some models also include charcoal filters to help with odours.

Resident Feedback Results

Details from the 2021 online resident feedback form on kitchen containers and what features are important to Londoner's can be found in Table D2.

Table D2 – Online Feedback Form Question: Kitchen Containers: What features are important to you?

Kitchen Container Features (check all that apply)	Responses (%)	Number of Responses
Smaller size bin (approximately 7 litre)	39%	1,476
Larger size bin (approximately 9 litre)	35%	1,335
A handle	64%	2,411
A carbon filter to reduce odours (filters are optional and will need to be purchased)	42%	1,584
A tight-fitting lid to reduce odours and fruit flies	80%	3,015
I prefer to use my own container (e.g., plastic ice cream tub, coffee can)	7%	256
I already have a container and do not need another	13%	490
I prefer to be provided a coupon towards the purchase of a container of my choice from a local retailer	18%	662
I have no preference	3%	105
I am undecided	2%	75
Other (please specify)	2%	91
Total Responses		**3,769**

Operational and Technical Considerations

Resident feedback on low and no-cost options was included on the Get Involved feedback form, including no-cost DIY bin such as a large metal coffee can or plastic ice cream tub, or lower-cost option of a retail discount coupon.

There are many different kitchen container options available for purchase, and many London households currently use repurposed containers for home composting, that work well for them. When planning the launch of a City-wide Green Bin program providing the same container to all households in London may be the most cost-effective option.

Green Bin manufacturers generally also supply kitchen containers. Purchasing both containers from the same supplier may be a preferred option based on cost.

Staff Recommendations and Next Steps

It is recommended that staff obtain pricing from the marketplace and prepare the details for the Request for Proposals for the purchase and distribution of a kitchen container with each Green Bin (curbside).

Appendix E – Key Decision #4 – What Type of Container Liners Should Be Used?

Overview

Residents may wish to line their kitchen container and/or Green Bin. Lining kitchen containers or the Green Bin helps keep containers clean, reduce odours and fruit flies, and helps empty the material out and prevent food scraps from sticking to the bottom of the bins. If wet food scraps freeze and stick to the bottom of the bins, not all the contents will be emptied during collection. It will also reduce liquids that can splash on collectors or the street.

Choices

Typically, a liner of some type is often used to line the kitchen container and/or Green Bin. Liner types include:

- newsprint/household paper;
- purchased paper liners/bags;
- purchased certified compostable liners; and
- plastic bags (non-degradable).

No liners is an acceptable choice in most municipalities.

Green Bin Municipalities

Table E1 provides details on Green Bin liners used in Ontario and some other Canadian municipalities. In 2019 Ottawa began to allow plastic bags as a convenience. The liner material permitted is contingent on which materials are permitted in the Green Bin; for example, municipalities that accept diapers/sanitary products also permit the use of plastic bag liners.

Most Ontario municipalities do not make liner use mandatory; however, some municipalities require the use of an approved liner when pet waste is placed in the Green Bin. Before the pandemic only Durham and Halton Regions required the use of liners, and due to Covid-19 a few other municipalities now require the use of plastic bag liners.

Table E1 – Summary of Acceptable Green Bin Liners

Municipality	Paper	Certified Compost-able	Non-degradable plastic	Are liners manda-tory?	Kg/year Single Family Households
City of Toronto	x		x	partially[1]	340
Region of York	x	x	x	yes/no[2]	310
City of Guelph	x	x		no	340
Region of Niagara	x	x		partially[1]	70
City of Ottawa	x	x	x	partially[1]	260
Simcoe County	x	x	during Covid-19[3]	partially[1]	90
City of St. Thomas	x	x		no	300
Region of Waterloo	x	x	during Covid-19[3]	yes[3]	170
City of Barrie	x	x		no	110
Dufferin County	x	x		no	140

Municipality	Paper	Certified Compost-able	Non-degradable plastic	Are liners manda-tory?	Kg/year Single Family Households
Region of Durham	x	x		yes/no[2]	140
City of Hamilton	x	x		no	80
Region of Halton	x	x		yes[4]	160
City of Kingston	x	x		no	80
Region of Peel	x	x		no	180
Other Canadian					
City of Vancouver	x			no	-
City of Calgary	x	x		partially[1]	-
City of Halifax	x			no	-

Notes:
[1] Pet waste must be contained in one of the approved liners for collection.
[2] Variations exist in Region of Durham and Region of York as lower tier municipalities have most of the responsibility for collection. Some municipalities make liners mandatory.
[3] Green Bin materials must be bagged during Covid-19.
[4] This was enacted during Covid-19, but the plan is to make this permanent.

London's Experience with Similar Existing Programs

By way of a London example, reusable containers can be used for yard waste collection. However, most Londoners choose to pay between 35 and 50 cents per bag to purchase paper yard waste bags.

In the 2011-2012 London Green Bin Pilot Project paper liners and certified compostable liners were permitted. Plastic bags liners were not allowed.

Resident Feedback Results

Details from the 2021 online resident feedback form on what type of bin liners should be allowed can be found below in Table E2.

Table E2 – Online Feedback Form Question: What type of bin liners should be allowed if the household wishes to purchase them?

Bin Liner Type (check all that apply)	Responses (%)	Number of Responses
Newsprint or other household paper	43%	1,599
Purchased paper bags	45%	1,687
Purchased compostable liners (i.e., certified compostable bags)	67%	2,530
Non-degradable plastic liners (e.g., plastic grocery bags)	7%	269
No liner	25%	948
I have no preference	9%	343
I am undecided	6%	221
Total Responses		**3,759**

Operational and Technical Considerations

The type of liner permitted will depend on which materials are permitted in the Green Bin. It is not recommended that diapers/sanitary products be an acceptable material. Prohibiting the use of plastic bag liners would be consistent with this recommendation.

Liners can be purchased from hardware and grocery stores, as well as online. The approximate cost per bag varies depending on the product, the amount purchased, and where it is purchased. Some examples on the price ranges:

- Small Green Bin liners: Between $0.40 to $1.50 per bag;
- Medium Green Bin liners: Between $0.80 to $1.50 per bag; and
- Kitchen container liners: Between $0.15 to $0.70 per bag.

Purchasing liners will be a new expense for many households. The average annual cost could range from about $35 to $115 depending on how often liners are used and the type of liners. Households can avoid a cost by using no-cost options such as household paper and paper bags (e.g., newsprint, paper grocery bags, etc.). No-cost options may be less convenient, but they will be a preferred option for some. Paper retail bags are becoming more common as many stores move away from plastic bags. Municipalities promote creative origami methods of reusing household paper to wrap food waste.

Staff Recommendations and Next Steps

There are two options depending upon the material mix of London's Green Bin program:

3. If London's Green Program is based on Mix #1, that residents be allowed the choice of no-liner, paper, or certified compostable liners, and not allowed the use of plastic bag liners.

4. If London's Green Program is based on Mix #2 (Mix #1 plus pet waste), the same liner choices be permitted as above. Most important, if pet waste is placed in the Green Bin it would be required to be bagged in certified compostable bag, that is leak free and tied tightly for the safety of the collector. If residents wish to use plastic bags for pet waste it would be required to be placed in the garbage as per the current system.

It is recommended that not permitting plastic liners would also allow for a range of compositing or anaerobic digestion processors which could result in a production of high quality and readily marketable materials.

Staff will notify liner suppliers and retailers to advise them of the permitted liner choices in sufficient time to have liner product options available in London prior to the launch of the Green Bin program.

Additional work will be undertaken to determine if other suitable liners and/or bags become available to assist with pet waste recovery solutions thought the Green Bin or other opportunities.

Appendix F – Key Decision #5 – What Are the Concerns About Bi-weekly Garbage Collection

Overview

During the development of the 60% Waste Diversion Action Plan (approved by Municipal Council in 2018), it was identified that a switch to bi-weekly, same day garbage collection and weekly recycling and Green Bin collection (same day) would be less costly than weekly garbage pickup. Bi-weekly garbage collection was also viewed as key to higher use of the Green Bin. It is expected that this change to the collection schedule will occur at the same time as Green Bin collection begins.

Through the engagement process City staff did endeavor to understand the concerns and challenges of a reduced garbage collection schedule for London households. These challenges and concerns are described below under Operational and Technical Considerations and include waiting four weeks between collections, if a collection is missed; holding onto diapers/sanitary products; and pet waste and/or accumulating garbage over a two-week period.

Green Bin Municipalities

Bi-weekly garbage collection is the common service level in large Ontario municipalities. Municipalities with Green Bin programs that did not initially have bi-weekly collection found that the amount of organic material collected increased by 50% to 100% with the introduction of bi-weekly garbage collection. Collection of Blue Box recyclables also increased with the introduction of bi-weekly garbage collection. Twelve of the fifteen largest Ontario municipalities with a Green Bin program have bi-weekly garbage collection (Table F1), and two of the other programs are reviewing the option or in transition to go to bi-weekly collection.

Table F1 – Garbage Collection Frequency for Large Municipalities with Green Bin Collection

Garage Collection Frequency	Municipality
Weekly	Dufferin County, Hamilton[1], Kingston
Weekly	St. Thomas[2]
Bi-weekly	Barrie, Durham, Guelph, Halton, Niagara[3], Ottawa, Peel, Simcoe County[4], Toronto, Waterloo, York Other Canadian: Calgary, Halifax, Vancouver

Notes:
[1] Reviewing bi-weekly garbage collection
[2] Weekly garbage, bi-weekly green bin and recycling
[3] Changed to bi-weekly garbage collection in October 2020
[4] Changed to bi-weekly garbage collection in February 2020

London's Experience with Similar Existing Programs

The 2011 to 2012 Green Bin Pilot Project tested a modified garbage collection schedule. The modified garbage collection schedule consisted of weekly garbage collection during the summer (April to September) and bi-weekly collection during the winter (October to March). Testing the modified collection schedule helped to determine public acceptance and the cost savings/increases with this type of collection schedule. This schedule was accepted by pilot project participants.

Resident Feedback Results

Details from the 2021 online resident feedback form on the concerns of bi-weekly garbage collection can be found below in Table F2.

Table F2 – Online Feedback Form Question: What concerns might you have about bi-weekly garbage collection?

Bi-Weekly Garbage Concerns (check all that apply)	Responses (%)	Number of Responses
Too long to hold diapers/sanitary products	24%	902
Too long to hold pet waste	24%	906
Too much garbage will be accumulated over a two-week period	33%	1,250
Missing a pickup will mean four weeks between collection days	48%	1,813
I have some concerns, but I support the decision of bi-weekly garbage collection and weekly recycling and Green Bin pickup	38%	1,425
I do not have concerns about bi-weekly garbage collection	26%	982
I am undecided	2%	70
Other (please specify)	4%	149
Total Responses		**3,760**

Residents also provided additional comments about bi-weekly garbage collection. Of the 3,760 who answered the feedback form, 28% provided one or more additional comments. Based on staff's review of the comments, over 95% of the comments are addressed by this staff report:

- 55% are related to accumulating garbage/too long to hold garbage;
- 25% are concerning nuisance factors such as pests and odours; and
- 15% were about holding diapers/sanitary products and pet waste.

The other 5% were regarding illegal dumping of garbage. The bi-weekly garbage comments were tallied by categories; therefore, residents may have provided more than one general comment, the proportion of comments was determined from all tallied comments not by the number of residents who provided a general comment.

Operational and Technical Considerations

Managing garbage over a two-week period will vary for each household, with potentially a greater impact on large households and those using diapers/sanitary products. The number of containers that will be permitted at the curb every two weeks will be the subject of a future report to Committee and Council as the number is tied into other waste diversion initiatives as well. The key concerns regarding bi-weekly garbage collection are:

<u>Missing a pickup</u>

The most frequently noted concern of respondents was about those occasions when collection was missed and there would be a wait of four weeks between collections. For most households this may not be a common occurrence but could happen if they were away from home or failed to set garbage out to the curb on collection day.

While this is recognized as a challenge for some residents, there are options in place to manage these instances. Like all new programs there will be an adjustment phase that includes changing behaviour to adjust to the new program. Adjustments could also include relying on a neighbour to place garbage at the curb.

Bagged garbage is accepted at EnviroDepots for $1.50 per bag, and tags can be purchased ($1.50 per bag tag) for curbside pick-up of extra garbage.

Larger volume of garbage created over a two-week period

Less frequent garbage collection means that more garbage will accumulate, and households will have to store it for a longer period. Making full use of the City's waste diversion programs could make a significant reduction in the amount of waste needing to be stored. For example, using the Green Bin for as much food waste as possible will reduce the quantity of wet and smelly garbage that needs to be held for up to two weeks.

Waste audit data identifies that some households could improve their recycling efforts. The audits show that some households continue to place Blue Box and other recyclables (e.g., electronics, scrap metal, batteries, etc.) in the garbage. The City will provide reminder information about the recycling programs that are available to help ensure that these materials are not being put in the garbage.

Garbage tags for curbside pickup ($1.50/ tag) and EnviroDepot drop-off ($1.50/bag) will continue to be available for households that have garbage above the collection limit.

Diapers and Sanitary Products

Not permitting diapers/sanitary products in the Green Bin and storing them for a two-week period may be the hardest challenge of the bi-weekly schedule, and especially when storage in a garage or shed is not an option.

Some other Ontario municipalities offer programs to assist with diapers/sanitary products. These include a special collection for registered households, an exception to the curbside limit, and no-charge drop-off at depots. Generally, these programs require registered users to place garbage in clear plastic bags so the contents can be checked by staff. Table F3 below lists some options that have been used in other Ontario municipalities.

Table F3 – Municipal special programs to deal with diapers/sanitary products

Municipality	Special Programs to Deal with Diapers/Sanitary Products
Niagara Region	A diaper exemption program where eligible residents can apply for an exemption to their bi-weekly waste collection on weeks when garbage is not collected.
City of Ottawa	A sign-up program for the collection of diapers/sanitary products, on weeks when garbage is not collected.
Waterloo Region	Free diaper drop-off at depots (see-through plastic bags are mandatory), and a Medical Exemptions program.
City of Barrie	From May 1 – October 31, residents can dispose of a maximum of 2 clear bags of diapers/sanitary products (only) per week at the landfill at no charge.
Halton Region	A diaper bag tag program where households may receive diaper bag tags that allow them to exceed the three-bag limit without having to purchase a $2 bag tag. The diaper bag tag also allows households to drop-off their diaper waste free of charge at the Halton landfill.
Peel Region	Initially allowed residents that wanted an option to dispose diapers/sanitary products on a weekly basis to register for an exemption that would allow them to bring diapers/sanitary products to drop off depots, but uptake was very low.

Smelly Food Waste

Currently in London food waste is collected with garbage on a six-day collection schedule. When Green Bin collection begins, food waste (in the Green Bin) will be collected more frequently than it is currently. A weekly collection of the Green Bin will be an encouragement for households to participate in the Green Bin program, ensuring food waste goes into the Green Bin and not the garbage.

Pet Waste

If pet waste is not permitted in the Green Bin, storing it for a two-week period will be more of a challenge. Some households have found that dog waste is easily managed using a backyard digester (sold at the EnviroDepots). However, digesters cannot manage kitty litter, and may not be practical for some households.

Staff Recommendations and Next Steps

Staff will undertake further research and prepare a report on how municipalities work with residents to address bi-weekly garbage collection concerns (e.g., managing diapers/sanitary products) including advantages, disadvantages, and estimated costs. To help with making residents aware of this collection schedule change staff will design and implement a communications campaign to prepare for collection schedule changes and Green Bin program implementation.

The Film 2040 is sponsored and licensed by the Circular Economy Club.

The film 2040 imagines what the year 2040 might look like for the Director's young daughter Velvet if we start adopting some of the low carbon technologies we have already invented.

Register to receive a free link to watch the movie 2040 from Tues April 6 - Mon April 12. Then join one of the following zoom calls for a moderated discussion of how we could move some of these ideas forward in London. Discussion panelists include city councillors and city staff including Jay Stanford, Director, Environment, Fleet & Solid Waste.

- Wed April 7, 2021 - Hosted by the London Environmental Network and featuring panelists TBD
- Thurs April 8, 2021 - Hosted by Climate Action London and featuring panelists TBD
- Sun April 11, 2021 - Hosted by Climate Action London and featuring panelists TBD
- Mon April 12, 2021 - Hosted by Climate Action London and featuring panelists TBD

Ideas gathered from the four sessions will be submitted to the Circular Economy Club's national dialogue happening on April 16, 2021.

All registrants will receive:

- the link to the film on April 5th
- a discussion primer to focus discussion in the zoom call
- the link to the zoom call.


Please join us for a special screening of
2040
From Director Damon Gameau (That Sugar Film) comes a hybrid feature documentary that looks to the future, but is vitally important NOW!
National Earth Day Event
Hosted by the Circular Economy Club Chapters in Canada
Film Screening: Tues, Apr 6 - Mon, Apr 12 | Discussion - Fri, Apr 16
Objective - to create a unified national commitment in advancing a circular economy vision for 2040
To join this event contact CEC London Chapter asha@ashahodura.com
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Discussion Questions

Discussion questions provided for post-film reflection about the future of the circular economy in Canada.

Potential (Regional) Solutions inspired by the film	**Which of the climate solutions presented in the film are you most excited about and how can it be implemented in your community, city or region?**
Regional Focuses + Topics	**What are the top three SDG's your group/region is working towards?** 
Regional Challenges	**What do you think are the top 2 barriers/challenges that are faced by your group when it comes to environmental action?**
City based Circular Economy plan	**Does your city have a Circular Economy Municipal Plan? If so, what stage is your city currently at?**
Organizational Accountability	**Has your organization set any goals when it comes to climate and environmental action? If not, what targets would you like your organization to set?** (Carbon neutral goals, circular economy goals, waste/carbon reduction goals)
Community-Based action	**How do you imagine forming partnerships to drive transition to a circular economy and why form these partnerships?**
Business action	**What business models do you know of locally that are setting the example for how businesses should function in a future focused way?**
Group Call to Action	**Has watching 2040 changed your group's perspective of where you would like to focus your future climate action?**
Group Call to Action	**What are the most important actions that your group can take to drive environmental action and make a difference in your community?**
Additional Feedback	**Was there anything in the film that surprised you?**
Group/Audience Type Specific Questions	**Additional Question according to group type:** **Schools / Universities / Colleges:** What changes could happen at a campus level to ensure our university is operating within planetary boundaries? **Family:** What can you change around the home and in your daily lives to reduce your impact on the planet, or inspire collective action together as a family? **Youth-based:** There are so many solutions to climate change that are possible, I'm so excited to grow up in a world where they've been implemented and scaled, which ones are you most excited about? **Business Network:** How does your organization see CE impacting job creation overall? **Local Council:** What role can local councils play in championing the solutions to climate change? **Faith-based:** What does your faith teach you about care for the planet?
Open Question	**Are there any other thoughts or insights you would like to share?**

ADVISORY COMMITTEE ON THE ENVIRONMENT - 2020 WORK PLAN

(Updated February 5, 2020 – The status column reflects the actions of the renewed committee, established in Sept. 2019) ACE looks forward to reaching its full complement of members in March/April 2020.

Project / Initiative & Background	Lead/ Responsible	Proposed Timeline	Proposed Budget	Actual Expenditure	Link to Strategic Plan	Status
<u>Waste</u> **Managing organic waste** 1. Review & prioritize leading edge waste management systems that focus on waste as a resource technology (biogas, anaerobic digester, landfill gas recovery – e.g. Edmonton Waste Management Centre of Excellence) 2. Follow the progress of City regarding development of a Resource Recovery Centre for London (invite staff members speak to ACE) 3. Continue research into organic waste diversion and bring successful models to attention of the City **Resource Recovery** 4. Monitor & review on-going resource recovery initiatives with a particular focus on diversion of textiles, plastics and small appliances. **Landfill Expansion** 5. Monitor & review landfill expansion, including plan to get to 60% diversion.	Waste sub-committee	On-going	$0		Building a Sustainable City -Robust Infrastructure -Increase resource recovery/ long-term disposal capacity/ reducing community impacts Building a Sustainable City -Strong and Healthy Environment -Support resident/community driven initiatives Growing Our Economy -Local, Regional and Global Innovation -Lead development of new ways to resource/energy recovery	Detailed review of Additional Investment Business Case #1 – 60% Waste Diversion Action Plan –ratified at Feb 5 ACE meeting. The review will form part of the ACE feedback on the 2020-2023 multi-year budget. .
<u>Sustainability</u> 6. Support actions in regards to sustainability & resiliency. 6 a) Plan to establish a resiliency sub-committee when ACE achieves a full complement of members (four seats to be filled in the coming months).	ACE	Ongoing in 2020	$0		Building a Sustainable City -Strong and Healthy Environment	Submitted to PEC a climate action and renewable energy recommendation pertaining to the City-wide Urban Design Guidelines (Dec. 2019). Participation in start-up Bird-Friendly Development Working Group – D. Szoller (ongoing) Participation in the development of the EEPAC Environmental Management Guidelines – D. Szoller (ongoing)

Project / Initiative & Background	Lead/ Responsible	Proposed Timeline	Proposed Budget	Actual Expenditure	Link to Strategic Plan	Status
6 b) Act as a resource group to London citizens and organizations engaged in sustainability initiatives.						London Chapter of the Council of Canadians has requested delegation status at March/2020 ACE meeting regarding the Blue Community Project. City staff will be invited in order to provide update on City actions.
Community Education 7. Support community events to increase awareness of environmental issues and that help to mobilize citizens to consider their carbon footprint.	ACE	Ongoing in 2020	Up to $750		Strengthening Our Community Building a Sustainable City	ACE sits on planning committee for London's Premier Zero Waste Festival & Conference, June 13, 2020 - R. Sirois (ongoing) Participation in various events such as Go Wild Grow Wild Green Expo, April 18, 2020 (TBD) Set-aside of funds (see proposed budget) to collaborate with community ENGOs on events that advance city commitments related to environmental resilience, sustainability and the city climate change action plan. Reprinted *Pollinator Friendly Gardens* brochure for use at public events. ($350 – 2019 budget) Supported Green in the City lecture series, Fall 2019 ($500 – 2019 budget)
Corporate Energy Management Program 8. Provide feedback on Corporate Energy Management Program as part of the City's annual review.	Energy sub-committee	2020	$0		Building a Sustainable City -Robust Infrastructure -Strong & healthy environment	
Climate Emergency Action Plan 9. Monitor and provide input to the development of the new London Climate Emergency Action Plan. 9 a) Act as a resource group to London citizens and organizations engaged in climate change	Energy Sub-Committee and ACE	2020	$0		Building a Sustainable City -Robust Infrastructure -Strong & healthy environment	In the context of reducing greenhouse gas emissions through active transportation, reviewed the Cycle Advisory Committee's Input to Cycling Master Plan – submitted comments and recommendations to PEC (February 2020) Delegation from graduate students in the Centre for Environment and Sustainability, UWO – April 2020 meeting. Will learn their research findings related to climate change mitigation and adaptation. City Staff invited.

Project / Initiative & Background	Lead/ Responsible	Proposed Timeline	Proposed Budget	Actual Expenditure	Link to Strategic Plan	Status
City Budget 10. Review and provide feedback on 2020-2023 multi-year budget	ACE	February 2020	$0		Leading in Public Service	Participation at February 13, 2020 Public Participation Meeting
Committee Member Education & Development 11. Assist ACE members with registration fees for conferences pertaining to ACE mandate		2020	Maximum of $750		ALL	R. Sirois attended Zero Waste Conference October 2019 – presentation delivered to ACE with City officials in attendance, January 2020. ($250 ACE subsidy – 2019 budget) D. Szoller attended Trans-Disciplinary Theory, Action and Practice Conference - October 2019 – Presentation to ACE in March 2020 ($300 ACE subsidy – 2019 budget).

NOTICE OF PLANNING APPLICATION

Official Plan and Zoning By-law Amendments

Encouraging the Growing of Food in Urban Areas – City-wide

File: OZ-9332/City of London
What is Proposed?

Amendments to the London Plan and Zoning By-law to make it easier to grow food in the urban area in accordance with the Urban Agriculture Strategy, which was adopted by Council in November 2017. This project focuses on the "Growing" component of the Strategy and is being considered under the Strategy's guiding principle to develop supportive municipal policies, regulations, and bylaws, and remove policy barriers to urban agriculture. The intent of the changes is to expand the permissions for urban greenhouses, consider policies and regulations to permit growing of food in most place types and zones, and review application process requirements for urban agriculture. Other City Departments, interested agencies, urban agriculture interest groups and the general public will be consulted before changes are made.

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LEARN MORE & PROVIDE INPUT

Please provide any comments by **April 30, 2021**
Chuck Parker
cparker@london.ca
519-661-CITY (2489) ext. 4648
City Planning, City of London, 206 Dundas St., London ON N6A 1G7
File: OZ-9332
london.ca/planapps

You may also discuss any concerns you have with your Ward Councillor:

If you are a landlord, please post a copy of this notice where your tenants can see it. We want to make sure they have a chance to take part.

Date of Notice: March 31, 2021

Application Details

Planning Policies

Any change to the Zoning By-law must conform to the policies of the London Plan and the 1989 Official Plan, London's long-range planning documents. There are a number of policies in the London Plan which support urban agriculture, particularly the Food System policies (Policy 648-686). The 1989 Official Plan contains general references to agriculture and horticulture which support those uses in specific designations and zones.

How Can You Participate in the Planning Process?

You have received this Notice because you have been identified as someone who may have an interest in any proposed amendments. The City reviews and makes decisions on such planning applications in accordance with the requirements of the Planning Act. The ways you can participate in the City's planning review and decision making process are summarized below.

See More Information

You can review additional information and material about this application by:

- Contacting the City's Planner listed on the first page of this Notice; or
- Viewing the application-specific page at london.ca/planapps
- Opportunities to view any file materials in-person by appointment can be arranged through the file Planner.

Reply to this Notice of Application

We are inviting your comments on the requested changes at this time so that we can consider them as we review the application and prepare a report that will include City Planning staff's recommendation to the City's Planning and Environment Committee. Planning considerations usually include such matters as land use, development intensity, and form of development.

Attend a Future Public Participation Meeting

The Planning and Environment Committee will consider the requested Official Plan and zoning changes on a date that has not yet been scheduled. The City will send you another notice inviting you to attend this meeting, which is required by the Planning Act. You will also be invited to provide your comments at this public participation meeting. A neighbourhood or community association may exist in your area. If it reflects your views on this application, you may wish to select a representative of the association to speak on your behalf at the public participation meeting. Neighbourhood Associations are listed on the Neighbourgood website. The Planning and Environment Committee will make a recommendation to Council, which will make its decision at a future Council meeting.

What Are Your Legal Rights?

Notification of Council Decision

If you wish to be notified of the decision of the City of London on the proposed official plan amendment and zoning by-law amendment, you must make a written request to the City Clerk, 300 Dufferin Ave., P.O. Box 5035, London, ON, N6A 4L9, or at docservices@london.ca. You will also be notified if you speak to the Planning and Environment Committee at the public meeting about this application and leave your name and address with the Secretary of the Committee.

Right to Appeal to the Local Planning Appeal Tribunal

If a person or public body would otherwise have an ability to appeal the decision of the Council of the Corporation of the City of London to the Local Planning Appeal Tribunal but the person or public body does not make oral submissions at a public meeting or make written submissions to the City of London before the proposed official plan amendment is adopted, the person or public body is not entitled to appeal the decision.

If a person or public body does not make oral submissions at a public meeting or make written submissions to the City of London before the proposed official plan amendment is adopted, the person or public body may not be added as a party to the hearing of an appeal before the Local Planning Appeal Tribunal unless, in the opinion of the Tribunal, there are reasonable grounds to add the person or public body as a party.

If a person or public body would otherwise have an ability to appeal the decision of the Council of the Corporation of the City of London to the Local Planning Appeal Tribunal but the person or public body does not make oral submissions at a public meeting or make written submissions to the City of London before the by-law is passed, the person or public body is not entitled to appeal the decision.

If a person or public body does not make oral submissions at a public meeting or make written submissions to the City of London before the by-law is passed, the person or public body may not be added as a party to the hearing of an appeal before the Local Planning Appeal Tribunal unless, in the opinion of the Tribunal, there are reasonable grounds to do so.

For more information go to https://olt.gov.on.ca/contact/local-planning-appeal-tribunal/.

Notice of Collection of Personal Information

Personal information collected and recorded at the Public Participation Meeting, or through written submissions on this subject, is collected under the authority of the Municipal Act, 2001, as amended, and the Planning Act, 1990 R.S.O. 1990, c.P.13 and will be used by Members of Council and City of London staff in their consideration of this matter. The written submissions, including names and contact information and the associated reports arising from the public participation process, will be made available to the public, including publishing on the City's website. Video recordings of the Public Participation Meeting may also be posted to the City of London's website. Questions about this collection should be referred to Cathy Saunders, City Clerk, 519-661-CITY(2489) ext. 4937.

Accessibility

Alternative accessible formats or communication supports are available upon request. Please contact planning@london.ca or 519-661-4980 for more information.