Subject: Environmental Assessment Process for the Expansion of the Trail Waste Facility Landfill

File Number: ACS2023-PWD-SWS-0006

Report to Environment and Climate Change Committee on 21 November 2023

and Council 6 December 2023

Submitted on October 30, 2023 by Shelley McDonald, Director, Solid Waste Services, Public Works Department

Contact Person: Andrea Gay Farley, Program Manager, Program Planning, Solid Waste Services, Public Works Department

613-250-2424 x28121 / Andrea.GayFarley@ottawa.ca

Ward: Citywide

Objet : Processus d'évaluation environnementale pour l'agrandissement de la décharge du chemin Trail

Numéro de dossier : ACS2023-PWD-SWS-0006

Rapport présenté au Comité de l'environnement du changement climatique

Rapport soumis le 21 novembre 2023

et au Conseil le 6 décembre 2023

Soumis le 30 octobre 2023 par Shelley McDonald, directrice, Services des déchets solides, Direction générale des travaux publics

Personne ressource : Andrea Gay Farley, Gestionnaire de programme, Planification de programmes, Services des déchets solides, Direction générale des travaux publics 613-250-2424 x28121 / Andrea.GayFarley@ottawa.ca

Quartier : À l'échelle de la ville

REPORT RECOMMENDATION

That the Environment and Climate Change Committee recommend that Council direct staff to begin the Individual Environmental Assessment process with the Ministry of the Environment, Conservation and Parks for the expansion of the Trail Waste Facility Landfill, within the existing landfill footprint, as described in this report.

RECOMMANDATION DU RAPPORT

Que le Comité de l'environnement et du changement climatique recommande que le Conseil municipal demande au personnel de la Ville de lancer le processus de l'évaluation environnementale individuelle avec le ministère de l'Environnement, de la Protection de la nature et des Parcs pour l'agrandissement de la décharge du chemin Trail dans le périmètre d'enfouissement existant, selon les modalités décrites dans ce rapport.

BACKGROUND

The City owns and operates the Trail Waste Facility Landfill which began receiving waste in May 1980 and was initially expected to receive waste for 20 years – until 2000, and has since been extended through a previous Environmental Assessment process. The Trail Waste Facility Landfill is a key City asset with an approved capacity of 16.9 million cubic metres. While the Trail Waste Facility Landfill primarily accepts curbside residential waste, it also accepts some waste from the general public, farms, the Construction and Demolition sector, and the Industrial, Commercial and Institutional (IC&I) sector. The Trail Waste Facility Landfill is located in the southwest end of the City on 153 hectares, with 85 hectares for landfilling and 68 hectares serving as buffer land and operational space in support of the landfill.

The Trail Waste Facility Landfill has 5 Stages (also known as waste cells) capable of accepting waste. Stages 1 and 2 were capped and closed in 2016 and 2020, respectively. Stage 3A was capped and closed in 2021 and Stage 3B is scheduled to be capped in 2024. Stage 4 is actively accepting waste. Preparations for Stage 5A to accept waste began in 2022 and will start accepting waste in the latter portion of 2023. When Stage 5A and 5B have reached the approved capacity, all of the Trail Waste Facility Landfill airspace will be exhausted. It was estimated that the Trail Waste Facility Landfill could reach capacity between 2034 – 2035. This estimate is based on the most recent landfilling projections and status quo disposal and diversion efforts.

Figure 1: Trail Waste Facility Landfill Waste Cells

Previous Efforts to Extend the Trail Waste Facility Landfill Lifespan

The Trail Waste Facility Landfill is a significant asset for the City and its residents. The cost of establishing a new landfill could be in the range of $350 - $400 million and could take up to 15 years before becoming fully operational.

The Trail Waste Facility Landfill was originally expected to close in 2000, however that date was extended to 2009 through various successful waste diversion initiatives leading up to 2002, as reported in the 2001 Annual Monitoring Report for the Trail Road and former Nepean landfills.

In May 2002, the City officially initiated an Environmental Assessment (EA) for the expansion of the Trail Waste Facility Landfill with the goal of extending the lifespan of the landfill. Concurrently, staff developed the Integrated Waste Management Master

Plan (IWMMP), to address the reality that the landfill could reach capacity within 10 years. The IWMMP was adopted by Council on September 3, 2003.

In 2005, the Ministry of the Environment approved the City's 2002 EA for the expansion of the Trail Waste Facility Landfill. The expansion of the landfill included the vertical expansion of Stages 1, 2, 3 and 4 and the approval of a new waste cell, Stage 5, increasing the capacity of the landfill by 8,206,000 m3. Construction of Stage 5 commenced in 2022 and is expected to start receiving waste by the end of Q4 2023.

The expansion anticipates extending the lifespan of the landfill by 10 to 40 years. The actual number of additional years to be gained was dependent on the amount of waste diverted from the landfill through waste diversion efforts and/or use of private sector landfills. At the time, the lower end of the estimate assumed no change in diversion and no use of private landfills, and the upper end assumed significant improvements to diversion and the use of private landfills.

Solid Waste Master Plan

In July 2019, Council approved the Solid Waste Master Plan Roadmap report (ACS2019-PWE-GEN-0007), officially starting the development of the City's next 30-year plan for managing waste within the current social, economic and environmental context. Council received the Solid Waste Master Plan Phase 2 report (ACS2021-PWE-SWS-0003) in July 2021 and approved the vision statement, guiding principles and goals for the Waste Plan which included "Extend the life of the Trail Waste Facility Landfill significantly beyond its existing anticipated end of life to eliminate the need for a new residential landfill."

Recognizing that the Trail Waste Facility Landfill is filling up more quickly than previously expected, the Draft Solid Waste Master Plan (ACS2023-PWD-SWS-0005) identifies the opportunity to expand the Trail Waste Facility Landfill within existing property boundaries, as part of the suite of options needed to meet the approved goal of extending the life of the landfill beyond the 30-year term of the Plan.

Residual Waste Management Strategy

In October 2021, through the Residual Waste Management Strategy (ACS2021-PWE-SWS-0005), staff reminded Council that the landfill was nearing capacity within the next 15 years and that significant action would be required to reach the goal of extending its life for another 30-years to align with the Solid Waste Master Plan (Waste Plan). In addition, it highlighted the fact that overall landfill capacity available across the province

is diminishing, with most recent estimates highlighting that province-wide landfill capacity could be depleted in the next 15 years.

The approved Residual Waste Management Strategy directed staff, through recommendation 3 of the report, to investigate and report on the feasibility, cost, and timeframe to increase landfilling capacity within the Trail Waste Facility Landfill property.

Landfill Expansion Approval Process

The Ministry of Environment, Conservation and Parks regulates the environmental standards and requirements for managing hazardous and non-hazardous waste to ensure that human health and the environment are protected. Waste facilities, landfills and waste transportation systems are required to get environmental permission(s) prior to operation. Environmental permissions set out specific operating, monitoring and reporting requirements with which owners and operators must comply. Establishing or expanding a new landfill requires an environmental assessment prior to obtaining an environmental permission to operate.

In Ontario, the Environmental Assessment process, under the *Environmental Assessment Act*, is a comprehensive review of all project activities which could impact communities, air, water, and other aspects of the natural environment. The robust and thorough Environmental Assessment process ensures community and stakeholder expectations are appropriately protected in the undertaking of any project and requires considerable time to complete. Key components of an environmental assessment include consultation with government agencies and the public, consideration and evaluation of alternatives, and the mitigation and management of potential negative environmental effects. Conducting an environmental assessment promotes good environmental planning before decisions are made about proceeding with a proposal.

Under Ontario Regulation 101/07: *Waste Management Projects*, the Ministry of the Environment, Conservation and Parks has classified waste management projects based on the type of waste to be managed, the size, the ability of the planned facility to recover energy from the waste in relation to environmental assessment requirements. There are three process streams for waste management projects based on their size and scope. The expansion of the Trail Waste Facility Landfill is considered a major project and will require the preparation of a Terms of Reference and an Individual Environmental Assessment.

Individual Environmental Assessment Process

The first phase of the Individual Environmental Assessment process, used for large-scale projects like landfill sites, is the development and approval of the Terms of Reference by the Minister of Environment, Conservation and Parks. The Terms of Reference becomes the framework for the preparation and review of the Individual Environmental Assessment. The Terms of Reference allows the proponent (in this case the City) to produce an Environmental Assessment that is more direct and easier to be reviewed by interested persons. The process begins with drafting the Draft Terms of Reference (TOR) which are then sent for consultation before being finalized. The finalized TOR then is reviewed by upper levels of government and the public before going to the Ministry for approval. The proponent then completes the Environmental Assessment in accordance with the approved Terms of Reference.

The second phase of the Individual Environmental Assessment process is the completion and approval of the Environmental Assessment. Once the Terms of Reference are approved, the draft Individual Environmental Assessment is prepared and consulted on before finalized and reviewed by upper levels of government and the public. Next, the Director of the Ministry reviews the Environmental Assessment and identifies deficiencies, if applicable. Any identified deficiencies must then be remediated to receive a Notice of Completion of Ministry Review from the Ministry. The public then has the opportunity to inspect and comment on the final Ministry Review before it advances to the Minister for final decision. This thorough process is explained in further detail within Supporting Document 2. Also included in Supporting Document 2 are the targeted timelines for the review, as documented by the Ministry, for the Environmental Assessment Process.

Despite the timelines provided by the Ministry as targets, it is common for waste projects to span 10-years from initial application to final approval, and many have taken as long as 15-years to reach final approval. For example, the City of London began its expansion approvals process in 2018 and is still awaiting a final decision from the Ministry. This highlights the urgent requirement to initiate the process for this EA approval now. Without provincial approval, waste processing facilities cannot legally operate or expand.

DISCUSSION

As directed in the Residual Waste Management Strategy (ACS2021-PWE-SWS-0005), staff undertook an investigation to determine the feasibility, cost, and timeframe to

expand the capacity of the Trail Waste Facility Landfill within the property boundaries. Under the guidance of Solid Waste Services staff, Dillon Consulting Limited reviewed the opportunities to develop or extend new and/or existing waste cells within the Trail Waste Facility Landfill site. Additional capacity is critical in supporting the success of the Solid Waste Master Plan, as it will allow for the implementation of diversion options and time to be able to implement longer term waste management solutions.

Potential Expansion Options

In 2021, Dillon Consulting was commissioned to undertake a feasibility review of onsite expansion options at Trail Waste Facility Landfill (Supporting Document 1). The report reviewed four expansion options as follows:

- Option 1 – Filling between Stages 3, 4 and 5 (“Filling the Valley”)
- Option 2 – Building a new Cell to the north of existing Stage 1 and 2 Cells
- Option 3 – Filling in the corner southwest of Stage 5
- Option 4 – Combining Options 1 and 3

Note: Having undergone vertical expansion in Stages 1 through 4 following the 2005 EA, further vertical expansion is not a technically feasible option. The base underlying the existing landfill as well as the liner and leachate collection infrastructure have limitations restricting the total load that can safely be placed on them. Per the EA, *The landfill height would be restricted to 130 masl due to aquifer impacts at Stages 1 and 2, due to loading constraints on the geomembrane in Stage 3 and leachate pipe loading in Stage 4.* There are a number of other hydrogeological considerations outlined in the EA which were factored into the ultimate vertical expansion designs as well. Additionally, with Stages 1 through 3A capped, and further capping anticipated in 2024, the cost of removing and replacing the cap to support a vertical expansion would be prohibitive given the airspace gained even if it was feasible.

The options were evaluated taking the following into consideration:

- The volume of additional airspace provided by the proposed option, as well as the expected additional landfill lifespan.
- Any approvals required as part of the proposed option.
- An estimated timeframe and cost estimate for the design, approval, and construction processes associated with each option.

- Any risks identified in the Environmental Assessment (EA), and/or newly introduced risks from each option.
- Impact(s) to any of the existing Trail Waste Facility Landfill infrastructure or other site features; and
- Whether each individual option is dependent on other on-site activities or infrastructure, or if it is a standalone option.

The following table provides a summary comparison of the four options:

	Option 1 (filling the 'valley')	**Option 2 (new cell north of Stages 1 and 2)**	**Option 3 (adding to SW corner of Stage 5)**	**Option 4 (combination of 1 and 3)**
Additional Volume achieved (m^3)	~ 2.0M	~ 0.5M	~ 0.3M	~ 2.3M
Additional site life	~ 7.3 years	~ 1.9 years	~ 1 year	~ 8.3 years
Cost per m^3 of capacity gained in 2021 dollars	$36/$m^3$	$129/$m^3$	$55/$m^3$	$38/$m^3$
Engineering challenges and complexity of design	High	High	Moderate	High
Distance from urban area[1]	~ 750m	~ 200m	~ 1.7km	~750m
1 – Distance from new development on east side of Borrisokane Road (any option would detail any potential impacts through the EA process)				

All these options would involve completing a new Individual Environmental Assessment process and obtaining associated approvals.

The most economically viable option was Option 4 which was the combination of both Options 1 and 3. That is both filling in the valley between Stage 5 and Stages 3 & 4 and adding an additional waste cell to the west of Stage 5. Of the options considered on their own merit, Option 1 would produce the greatest amount of airspace of approximately 7 years. Due to the higher airspace relative to the waste footprint it is also the most cost-effective expansion option at $36 per cubic metre of airspace.

If both above expansion options are developed in conjunction (Option 4) it would net an estimated 2,283,217 m^3 of airspace or approximately 8 years of landfill life at current diversion rates. Note that the timing of approvals will play a key role in reducing overall costs. If the City can receive approval ahead of the anticipated timeline, the costs to tie into already approved waste cells will be considerably less. Detailed engineering and design may yield opportunities to further reduce the anticipated costs.

Now that the potential for expansion has been identified, the City will need to start an Individual Environmental Assessment Process.

Individual Environmental Assessment Process

To ensure waste can be managed without interruption for Ottawa residents, the Individual Environmental Assessment process to increase the landfill capacity within the existing site should proceed as soon as possible. Conservatively, the timeframe for a waste specific project Individual Environmental Assessment in Ontario is typically six years, then an additional two years for approvals and design and construction of the project, a further three years, for an estimated 11-year total.

As detailed above, the first step in the process is for the City to draft and submit the Terms of Reference for the potential expansion. The Terms of Reference will identify the purpose of the proposal, provides a general description of both the proposal and the environment that may be potentially affected by the landfill expansion and activities, outlines alternatives that will be considered in the EA and identifies the broad issues that need to be assessed. The Terms of Reference is not intended to examine or develop any or all mitigation requirements. Rather, the Individual Environmental Assessment process is intended to examine and assess all aspects of expansion as identified in the Terms of Reference. The Terms of Reference will also include a description of the public consultation that will take place during the preparation of the Individual Environmental Assessment.

Upon approval by the Minister, the Terms of Reference will represent an agreement between the City and the Minister about the work that is required during the Individual Environmental Assessment to determine the potential impacts of the landfill expansion proposal on the environment and mitigation measures. An approved Terms of Reference will play a significant role in the Minister's decision on the approval or rejection of the Individual Environmental Assessment. If an Individual Environmental Assessment document does not meet the commitments made in the approved Terms of Reference, the Minister may choose to deny the application to proceed.

In addition to engineering and construction costs, the Individual Environmental Assessment process is expected to cost approximately $500,000 per year in consulting costs above and beyond City staff time and resources. The significant investment in the Individual Environmental Assessment process is due to stringent environmental regulations and high levels of public involvement with technically complex public consultation and stakeholder engagement. In addition to consultation and engagement costs, studies such as hydrogeological, archaeological, noise and air dispersion will also form part of the costs of the Individual Environmental Assessment process.

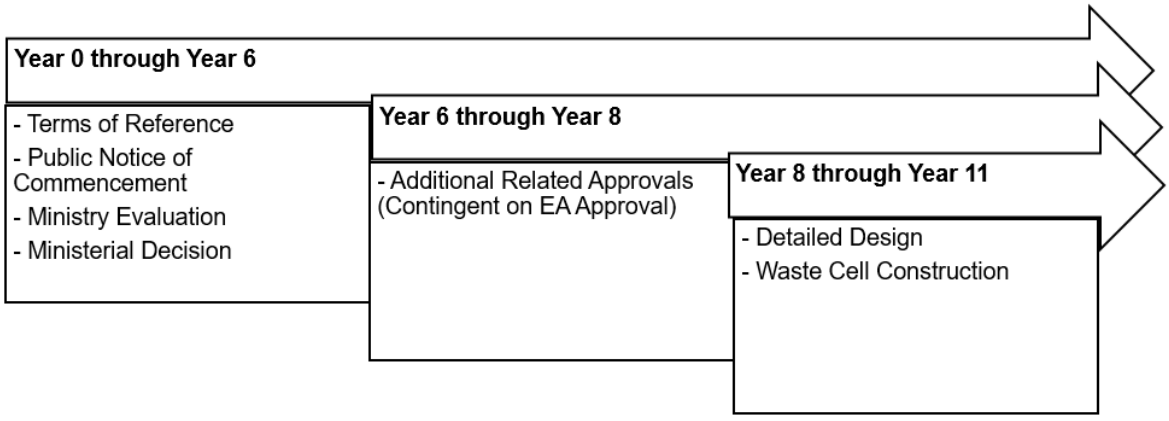
The estimated costs for the Individual Environmental Assessment process have been captured in the engineering and construction estimates provided by Dillon in Supporting Document 1. The complex and detailed nature of waste expansion Individual Environmental Assessments can have a direct impact on project scope and often results in a protracted process. Though both Environmental Assessment process and the construction of the expansion comes with a cost, utilizing the space within our landfill to the maximum extent possible is the most cost effective option when compared to siting and developing a new landfill.

Next Steps

Pending approval from Council to proceed, Solid Waste Services would procure an experienced consulting firm to develop a comprehensive Terms of Reference and initiate discussions with the Ministry of the Environment, Conservation and Parks. This initial step can take up to two years to complete.

The following graphic outlines the estimated timelines from the start of the process to the completion of the additional cells and receiving waste:

Figure 2: Estimated Timelines to Add Cells to Receive Waste



A fulsome communications plan would be developed in parallel with the development of the Terms of Reference to ensure the community and stakeholders are informed and able to provide their input on the Individual Environmental Assessment process. In addition to partaking in consultation, Council would also be provided with updates at key junctures throughout the Environmental Assessment process.

Conclusion

The Trail Waste Facility Landfill is a significant City-owned and community asset and must be utilized to the greatest extent possible. Both short and long-term options need to be considered to preserve and extend its life. While improvements to operations are ongoing, further considerations are also required to extend and optimize this critical asset. To delay the requirement for the potential siting of a new City-owned landfill or alternative waste management technology, it is imperative to maximize the available airspace remaining and extend the landfill life for as long as possible.

The development of additional waste cells would have the highest impact on airspace with the potential to extend Trail Waste Facility Landfill life beyond 30-years when combined with ongoing and upcoming waste diversion and reduction strategies. Consistent with the Residual Waste Management Strategy and the Solid Waste Master Plan, extending the life of Trail Waste Facility Landfill will provide the City with an opportunity to implement landfill processes which will aid in the diversion of materials for beneficial reuse and the recovery of materials which can be circulated back into the economy. Under the development of additional waste cells, the airspace gained would be effectively managed through various strategies as identified in the Solid Waste Master Plan.

FINANCIAL IMPLICATIONS

The costs to draft and submit a Terms of Reference to start the Individual Environmental Assessment process will commence in 2024 and the funding is available within existing capital budgets. Any additional budget requirements for the preparation of the Individual Environmental Assessment and design and construction of the expansion in 2025 or subsequent years will be brought forward as part of that year's budget process.

LEGAL IMPLICATIONS

There are no legal impediments associated with the implementation of the recommendation of this report.

CONSULTATION

Consultation plans and methods on this matter are outlined within this report and will be executed in accordance with Ministry-set standards and by applying the City's Equity and Inclusion lens to ensure various groups that are at risk for exclusion are engaged.

ASSET MANAGEMENT IMPLICATIONS

The recommendations documented in this report are consistent with the City's Comprehensive Asset Management Program objectives. The implementation of the Comprehensive Asset Management Program enables the City to effectively manage existing and new infrastructure to maximize benefits, reduce risk, and provide safe and reliable levels of service to community users. This is done in a socially, culturally, environmentally and economically conscious manner. The proposed actions outlined in this report support extending the life of the Trail Waste Facility Landfill.

ENVIRONMENTAL IMPLICATIONS

The *Environmental Assessment Act* sets forth a broad planning framework to allow the implementation of major proposals, such as the expansion of the Trail Waste Facility Landfill as described in this report and in Supporting Document 1. Through the requirements of the *Environmental Assessment Act*, it is expected that an objective, reproducible, transparent and thorough process will be followed in consideration of the expansion and the impacts on the environment.

SUPPORTING DOCUMENTATION

Supporting Document 1: Feasibility Review of Onsite Expansion Options at Trail Waste

Facility Landfill

This document is available in English only and may be translated in whole or in part upon request. For more information, please contact Andrea Gay Farley at 613-580-2424, extension 28121.

Ce document n'existe qu'en anglais et pourrait être traduit en partie ou en totalité sur demande. Renseignements : Andrea Gay Farley, 613-580-2424, poste 28121.

Supporting Document 2: Process and Timelines for Individual Environmental Assessment Approvals

This document is available in English only and may be translated in whole or in part upon request. For more information, please contact Andrea Gay Farley at 613-580-2424, extension 28121.

Ce document n'existe qu'en anglais et pourrait être traduit en partie ou en totalité sur demande. Renseignements : Andrea Gay Farley, 613-580-2424, poste 28121.

DISPOSITION

Upon receipt of this report, staff will initiate the process for an Environmental Assessment approval for the potential expansion of the Trail Waste Facility Landfill within its current footprint.