



MEMO / NOTE DE SERVICE

To / Destinataire	Mayor and Members of Council	File/N° de fichier:
From / Expéditeur	General Manager Public Works Department	
Subject / Objet	Trail Waste Facility Landfill Lifespan	Date: June 12, 2023

As requested at the May 24th, 2023 Council meeting, the purpose of this memo is to provide background on the chronology of the estimated remaining life of the Trail Waste Facility Landfill.

The City owns and operates the Trail Waste Facility Landfill (TWFL). When the facility opened in May 1980, it had an initial estimated life of 20 years. Through expansions, operational efficiencies and material diversion, the City has continued to extend the life of the facility.

Estimating landfill site life is always subject to significant uncertainty and only the remaining airspace is known with reasonable certainty. The rate at which that air space is consumed in the future is dependent on the quantities of future waste received for landfilling, and the efficiency of landfilling. The efficiency of landfilling varies based the types of waste received and several operational variables. For example, completing landfill final cover projects on a more expedited basis to mitigate regulatory concerns may result in lower landfilling efficiency as airspace settlement cannot be utilized. Alternatively, future waste quantities received could vary significantly from the average values seen previously (e.g., if greater waste diversion were to be achieved).

Landfills are dynamic environments and how the life is consumed is highly dependent on population growth, waste management practices and policies, resident waste disposal behaviors, changes in products and packaging, changes in lifestyles that influence waste generation, new technologies, emergency events, changes in regulations, mitigation of environmental issues to ensure compliance and even evolving calculation methodologies. The TWFL is in its 43rd year of operation, and the City still has the ability to extend its life and preserve this valuable asset.

Outlined below is an overview of the TWFL lifespan estimation:

- When the Trail Waste Facility Landfill opened in 1980, it was estimated that Trail would reach capacity in 2000.
- When the process to develop the City of Ottawa's first Solid Waste Master Plan (known as the [Integrated Waste Management Master Plan](#) (IWMMP) began in 2002, staff estimated, based on the remaining capacity at the landfill, that the Trail Waste Facility would reach its capacity by 2009.
- In 2005, an Environmental Assessment for the Trail Road Landfill Expansion was approved for a vertical and horizontal expansion within the existing property boundary, which was estimated to provide between an additional 10 and 40 years of landfill life. 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. This would translate to a date range of 2019 to 2049. 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.
- When the City launched the Green Bin Program in 2010 and moved to bi-weekly garbage collection in 2012, it was estimated we would gain landfill capacity for those efforts, however, landfill lifespan was not re-estimated.
- In the [2011 Solid Waste Collection Service Level Review](#) report, it was estimated that the program changes outlined in that report, including the move to dual stream waste collection trucks, would result in up to a 9% increase in waste diversion, moving the residential curbside diversion rate to between 48 and 53 per cent. Stantec conducted modelling on landfill life span at that time, and estimated the recommendation of Service Level Review, if implemented, would result in approximately 2 years additional landfill life.
- In 2017, the State of the Asset Report listed 2043 as the year that the landfill would reach capacity, which is based on calculations performed by the environmental consultant responsible for producing the City's Annual Monitoring Report.
- In 2019, staff began the process to develop the City's second Solid Waste Master Plan. The report shared with Council indicated that based on the increased diversion rate of 12% since the development of the IWMMP, the landfill was estimated to reach capacity in 2042, which was based on calculations in the 2018 Annual Monitoring Report.
- In the [Solid Waste Master Plan – Phase 2](#) report tabled for Council's consideration in 2021, staff reported to Council that the landfill was estimated to reach capacity between 2036 and 2038. This was the date range provided in the 2020 Annual Monitoring Report.

Dillon Consulting, the environmental consultant retained by the City, is responsible for producing Annual Monitoring Reports and corresponding site life estimates. The 2018 AMR was calculated using a new methodology which used the average volume consumed from the preceding 5 years to estimate site life to smooth out annual variability, which resulted in a corrected site life estimate than previously communicated. This method provides a representative measure of long-term

typical air space consumption as this approach prevents site life from dramatically shifting based on data from a single unusual year with high or low volumes. In 2020, however, the airspace consumed was considerably higher due to the COVID-19 global pandemic, and the temporary soil loading operation that was implemented to stabilize the waste in Stage 3, prior to final cover installation. These two factors, in addition to the new methodology used for landfill life calculations introduced in 2018, collectively resulted in the perceived fluctuation of life expectancy from 2019 and 2021.

Estimating Landfill Life

In order to estimate remaining landfill life, the City has relied on the Annual Monitoring Report (AMR), a compliance methodology calculated by Dillon Consulting and used for annual reporting to the Ministry of Environment, Conservation and Parks (MECP). While this methodology is appropriate for compliance purposes and provides an accurate estimate of landfill lifespan at a point in time, staff determined through the gap analysis for the [Solid Waste Master Plan](#) that using AMR methodology may not be a best practice for long-term waste planning. AMR methodology is based on a lagging 5-year average and does not consider various factors, such as evolving landfill operational practices (compaction, shredding), population growth, extreme weather events resulting in increased waste tonnages (global pandemic, ice or windstorms), expansion of diversion programs, increased diversion or changing consumption habits, all of which should be considered in order to provide a more accurate estimate of landfill life.

As part of the [Residual Waste Management Strategy](#), which was approved by Council in October 2021, Council directed staff to develop a Landfill Life Calculation Methodology to use more predictive indicators in an effort to more accurately assess the remaining life of the Trail Waste Facility Landfill for use in long term planning for Solid Waste Services. Work to develop this tool is underway and staff will report back to Council on this as part of the draft Solid Waste Master Plan which will be tabled for Council consideration this fall.

If you have any questions about the Trail Waste Facility Landfill or the Solid Waste Master Plan, please contact Shelley McDonald, Director, Solid Waste Services at shelley.mcdonald@ottawa.ca or by phone at extension 20992.

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