

# Residual Waste Management Work Plan

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Public Event

June 10, 2025



# Need for Residual Waste Management

- Toronto's landfill, Green Lane Landfill, is expected to run out of space as early as 2035, so we need to start planning now.
- City of Toronto is committed to the reduction and diversion of waste through its policies and programs. By reducing, reusing and recycling, Toronto residents and businesses can divert more waste from landfills.
- We need a long-term solution for Toronto's waste that cannot be recycled or processed as organics.



Even if we achieve 80% waste diversion we still need to manage about

**60 kg**

of garbage per person per year<sup>1</sup>



**That's about  
25,000 waste  
collection trucks  
per year**

1. Based on 2021 population from the Resource Productivity and Recovery Authority (RPPA). Residential waste generation only. Does not consider non-residential information. Assumes no change in waste generation.

# Toronto's Options

City Council approved the Residual Waste Management Work Plan to address our growing population's needs while reducing environmental, financial and social impacts.

Options the City is investigating for feasibility:

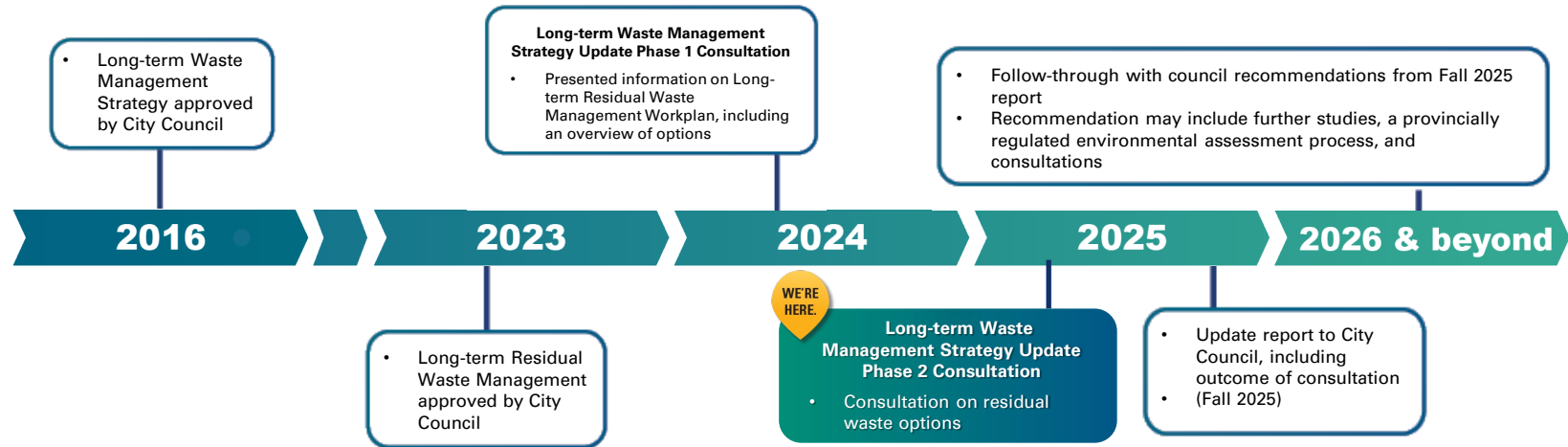
- Partner with another municipality to purchase an existing public landfill, host a new landfill, or expand an existing public landfill
- Negotiate with private landfill owners for the purchase of an existing private landfill
- Expand Green Lane Landfill
- Energy-from-waste technologies (e.g., incineration)



Toronto's Green Lane Landfill is expected to reach capacity by 2035.

# Residual Waste Management Planning Process

Consultation in this phase will help the City understand the level of public support for energy-from waste (incineration). Recommendations will be brought forward to City Council for approval.



# Consultation During Phase 2

**Objective:** Gain an understanding of the perceptions of energy-from-waste (incineration) technology compared to landfilling and the values that influence these perceptions.



The goal of this consultation is to gather balanced and comprehensive feedback on energy-from-waste (incineration) technology.

- At this stage we are exploring options to manage our garbage.
- Feedback from this consultation will be presented to City Council for further direction.

## Interest Groups:

We will be engaging with the public as well as various interested parties, including:

- Residential Groups
- Urban Indigenous Organizations
- Non-Governmental Organizations
- Environmental Organizations
- Public Health Groups
- Waste Industry Sector



# Policy Pressures on Landfill Development in Ontario



No new landfills can be built within the City of Toronto due to space constraints.



Ontario legislation makes it challenging to build new landfills in other communities. A new landfill has not been built in Ontario in approximately 25 years.



Waste to Resources  
Ontario forecasts provincial landfill capacity will be depleted by 2034.



A significant amount of commercial waste is exported to Michigan and New York.

If US policy changes and commercial waste needs to be disposed of in Ontario, there could be less landfill space for municipal waste.

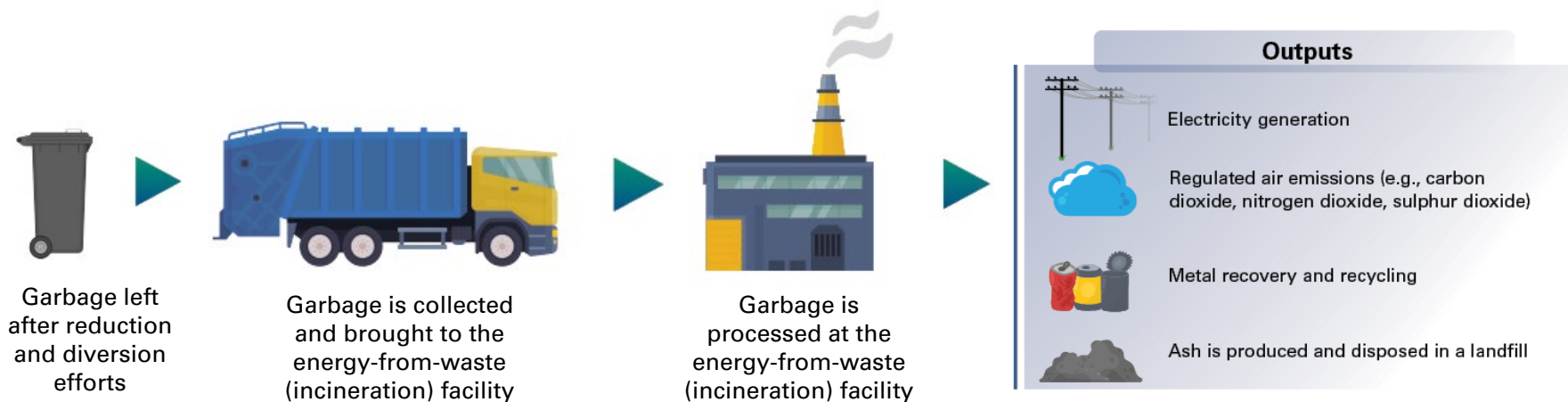


Several local, provincial, and international policy pressures need to be considered when siting new landfills.

# Energy-from-Waste (Incineration) Overview

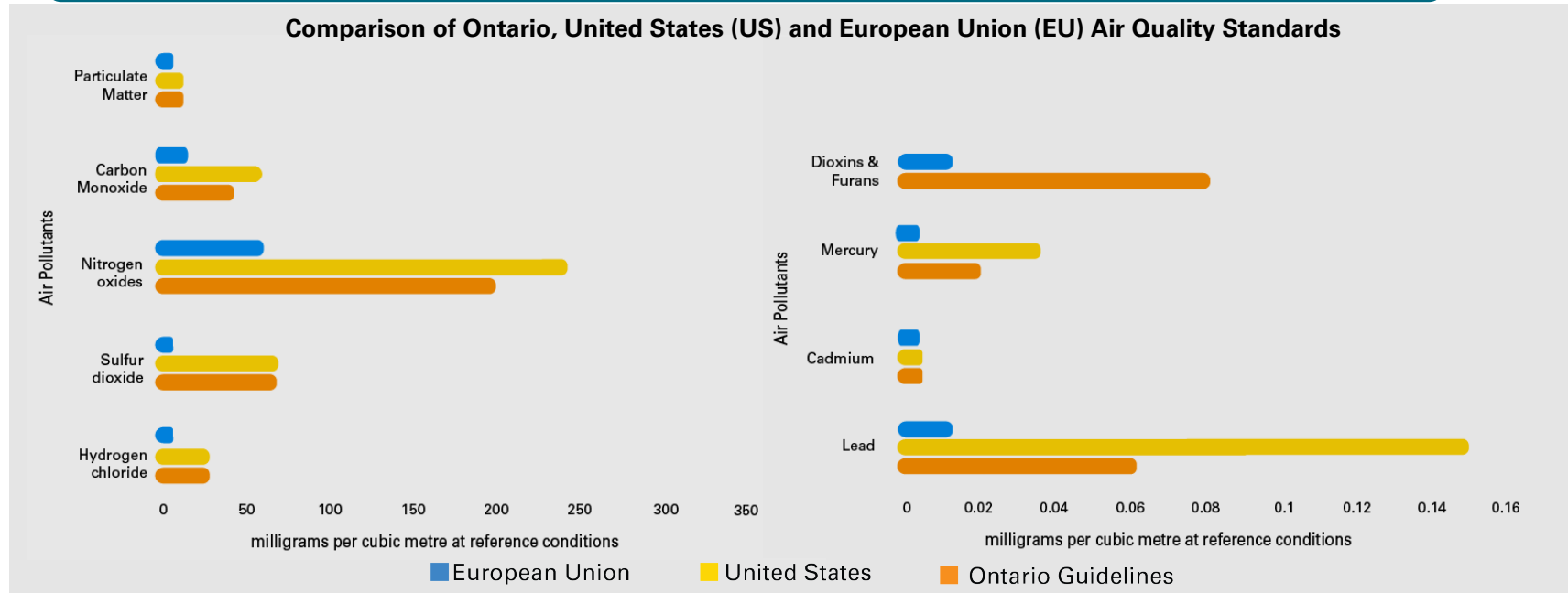
## How Energy-from-Waste (incineration) Works

Energy-from-waste involves converting garbage to usable forms of energy, typically electricity or heat. Energy-from-waste can include burning garbage at high temperatures, called incineration.



# Energy-from-Waste (Incineration) Environmental Standards

Energy-from-waste (incineration) facilities in Ontario must meet air quality guidelines. Other jurisdictions are included for comparison. For example, European Union guidelines are stricter than Ontario's guidelines for most pollutants.



Based on applicable guidelines and/or directives from Ontario (Ontario Guideline A-7 for Municipal Waste, 2016), the European Union (Waste Incineration Directive, 2019/75), and the United States (EPA Large Municipal Waste Combustors (Final Rule) - 40 CFR Part 60 Subpart Cb and Eb, 2006).

# Benefits and Challenges of Energy-from-Waste (Incineration)

## Benefits

- Recovers energy from residual waste.
- Less greenhouse gas emissions compared to landfilling.
- Less land required compared to landfilling.
- Reduces the volume of waste that needs to be landfilled.
- Allows for garbage to be managed within close proximity to where it is generated, reducing emissions and cost associated with transporting waste.

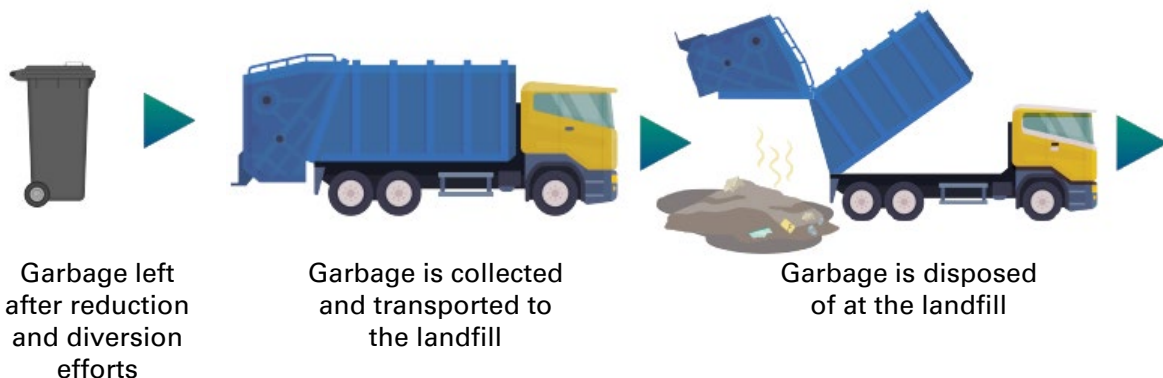
## Challenges

- More costly to construct and operate than landfills.
- There is a concern that individuals may be less likely to reduce, reuse and recycle if they know their waste is being sent to an energy-from-waste (incineration) facility.
- Air emissions, including carbon dioxide and dioxins, can have negative impacts. Proper management is essential, as not all emissions are captured and some are released into the environment.
- The location of energy-from-waste (incineration) facilities is important, as proximity to residential areas can potentially exacerbate health impacts and increase traffic.
- Ash, a by-product that remains after burning garbage, still requires disposal in a landfill.

# Landfilling Overview

## How Landfilling Works

Landfilling is a process where garbage is transported, compacted and buried at an approved site.



### Outputs



Emissions can be captured to become renewable natural gas for heating or fueling vehicles



Decomposing waste produces regulated air emissions (e.g., methane)



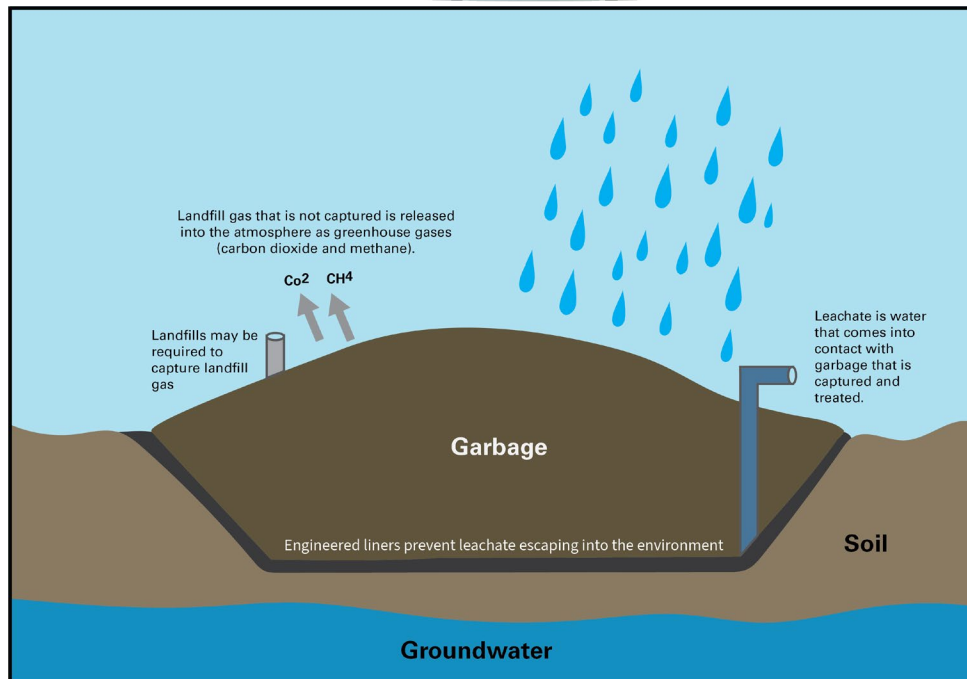
Landfills require regulated treatment of leachate

# Landfill Standards

Ontario's landfill design standards, monitoring, and contingency plan requirements are comparable to other jurisdictions across Canada (Quebec, British Columbia, Alberta) and the US (Ohio, Wisconsin, New York), placing emphasis on environmental protection.

These standards include:

- Collection and control of landfill gas
- Collection and treatment of leachate
- Use of engineered liners to prevent leachate escaping into the surrounding soil and groundwater
- Management of air emissions and odour



# Benefits and Challenges of Landfilling

## Benefits

- Lower cost to construct and maintain compared to building and operating an energy-from-waste (incineration) facility.
- Landfills can generate energy by capturing large amounts of methane gas produced during waste decomposition.
- Landfills have a long history of being operated in North America and Canada which brings with it experience and understanding of how best to design and operate them to meet strict and rigorous environmental standards.

## Challenges

- Higher greenhouse gas emissions compared to energy-from-waste (incineration) due to the generation of methane, a potent greenhouse gas.
- Air emissions need to be managed to minimize impacts, including methane and particulates.
- Leachate, a liquid produced by landfills, needs to be collected and managed to ensure it does not contaminate nearby water sources and soil.
- Must be managed and monitored well beyond when they are closed and no longer accepting garbage, often for generations.
- Impact to surrounding community, including odour, debris and traffic.
- Requires larger physical space to operate compared to energy-from-waste (incineration).

# Comparing Residual Waste Management Methods

Given Toronto's waste composition, the City is exploring two viable energy-from-waste (incineration) technologies—mass burn and gasification—in addition to traditional landfilling

	Mass Burn	Gasification	Landfilling
	<b>Incinerates waste at high temperatures to produce steam and electricity.</b>	<b>Converts waste into synthetic gas in a low-oxygen environment.</b>	<b>Depositing waste in a designated area constructed with an engineered liner.</b>
<b>Energy Generation Potential</b>	High (Electricity, Steam)	High (Electricity, Synthetic gas)	Low (Landfill Gas)
<b>By-Products</b>	Ash (landfilled) Metals (landfilled or recycled)	Ash and slag (landfilled) Metals (landfilled or recycled) Biochar (beneficial soil amendment)	Leachate (treated and discharged to sewer or watercourse)
<b>GHG Emissions</b>	Low	Low	Medium
<b>Regulated Air Emissions</b>	Particulate matter, Odour, Dioxins and Furans, Nitrogen Oxide, Cadmium, Lead, Mercury, Hydrochloric Acid, Sulphur Dioxide, Organic matter, Carbon Monoxide	Particulate matter, Odour, Dioxins and Furans, Nitrogen Oxide, Cadmium, Lead, Mercury, Hydrochloric Acid, Sulphur Dioxide, Organic matter, Carbon Monoxide	Methane, Carbon Dioxide, Odour, Particulate matter
<b>Cost</b>	\$\$	\$\$\$	\$
<b>Land Requirements</b>	Low	Low	High

1. Air emissions from energy from waste (incineration) facilities are regulated under Ontario Regulation 419/05 and Guideline A-7. Air emissions from landfills are regulated under Ontario Regulation 232/98.



# Have Your Say



Provide feedback by June 29, 2025



**Learn more and take the survey:**

[toronto.ca/WasteStrategy](https://toronto.ca/WasteStrategy)



**Email:**

[WasteStrategy@toronto.ca](mailto:WasteStrategy@toronto.ca)



**Mail:**

Public Consultation Unit  
Metro Hall, 55 John Street,  
19th Floor,  
Toronto, ON , M5V 3C6



**Phone:**

416-392-3760

