# Future Waste Disposal Options Study


Kawartha Lakes Jump In

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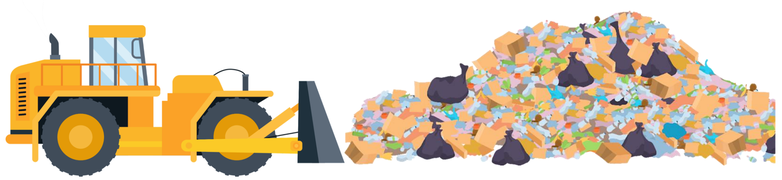
# Scope of the Future Waste Disposal Options Study

## Study Objective

Review potential options for future waste disposal capacity once the City exhausts existing landfill capacity

## Study Process

1. Review background information
2. Understand future residual waste quantities
3. Review alternative technologies
4. Review landfill related options
5. Develop evaluation criteria
6. Evaluate options
7. Identify preferred option and implementation considerations
8. Reporting
9. Consult on the process and preferred option



# Project Purpose

## Decreasing Landfill Capacity

The City generates 39,000 tonnes of garbage each year, with 1% annual increase projected.

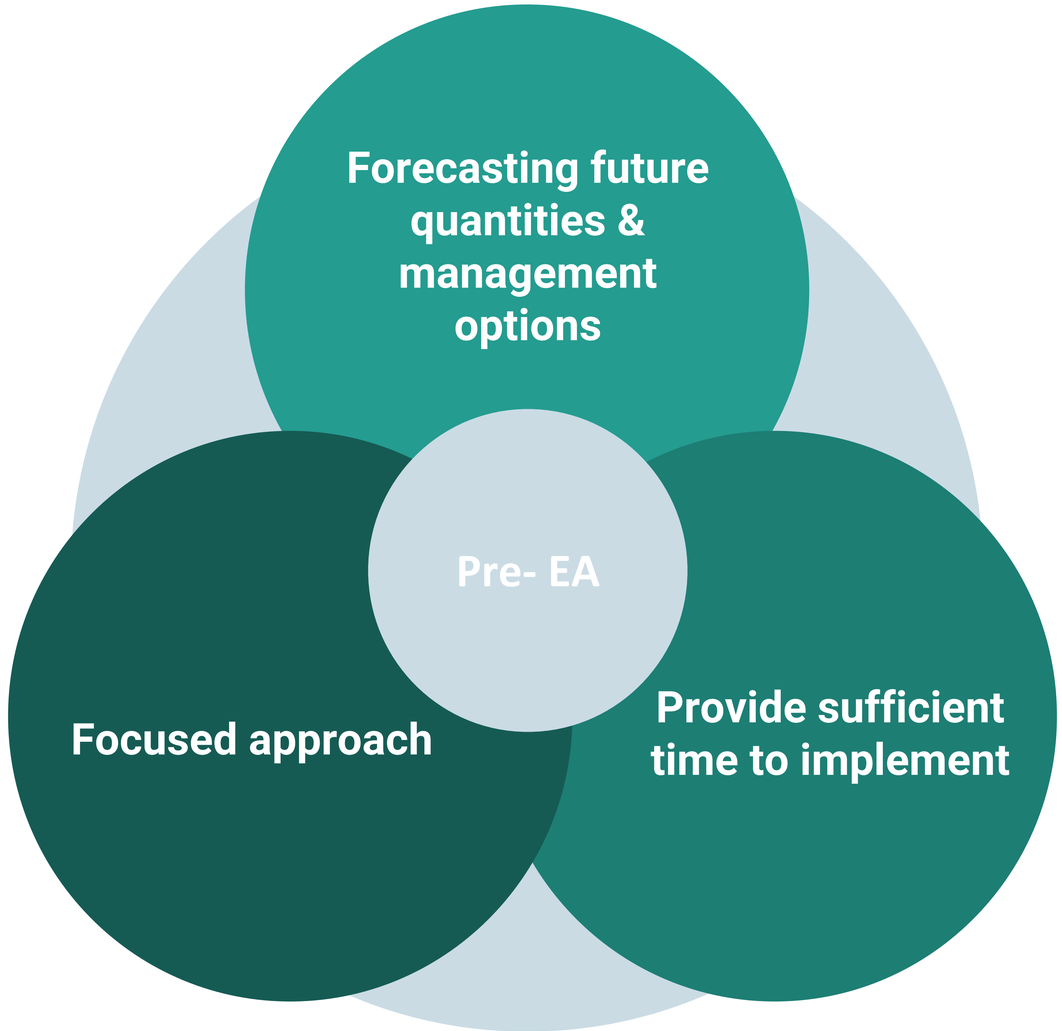
- Lindsay Ops Landfill is anticipated to reach capacity between 2030 and 2037 (accepts 70% of City's garbage)

## Provides Focus for Next Steps

Project is essentially a pre-EA study which can potentially help to focus an Individual EA.

## Implementation Timelines

Should an EA be required, several years are needed to complete that process.

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# Current Waste Management System in Kawartha Lakes

### Demographics

- Services provided to ~75,000 residents
  - 31,000 seasonal
  - 44,000 permanent

### Curbside Collection Programs

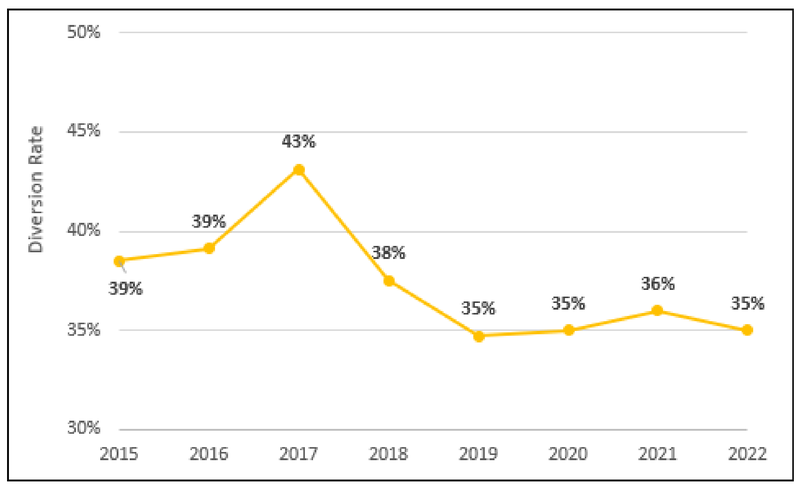
- Residential recycling & garbage
- Commercial waste
- Leaf & yard waste
- Batteries
- Large items, mattresses and appliances

### Depots & Drop Offs

- Electronics
- Scrap metal
- Mattresses
- Construction & Demolition Waste
- Textiles
- Household Hazardous Waste
- Batteries

## MAKING WASTE MATTER

### Goal: Divert 70% by 2048




*Note: The 2022 waste diversion rate is being verified.*


## INCREASING DIVERSION IN KAWARTHA LAKES

**2020**

- Decrease amount of recycling in clear garbage bag from 20% to 10%
- Created Jump In interactive platform and encouraging organizations, businesses and residents to share ideas and ways to reduce waste.
- Improved public space recycling

**2021**

- Textile reuse/recycling pilot program
- C&D recycling program turned from pilot to permanent program
- City gave away 500 free composters to encourage composting at home

**2022**

- All mattresses to be recycled
- Bulky plastic pilot program
- Green Bin program request for information after reviewing options in 2021
- Resumed 2-bag weekly garbage limit after allowing 3-bags weekly during the pandemic
- Developed Corporate Waste Reduction Vision for City facilities

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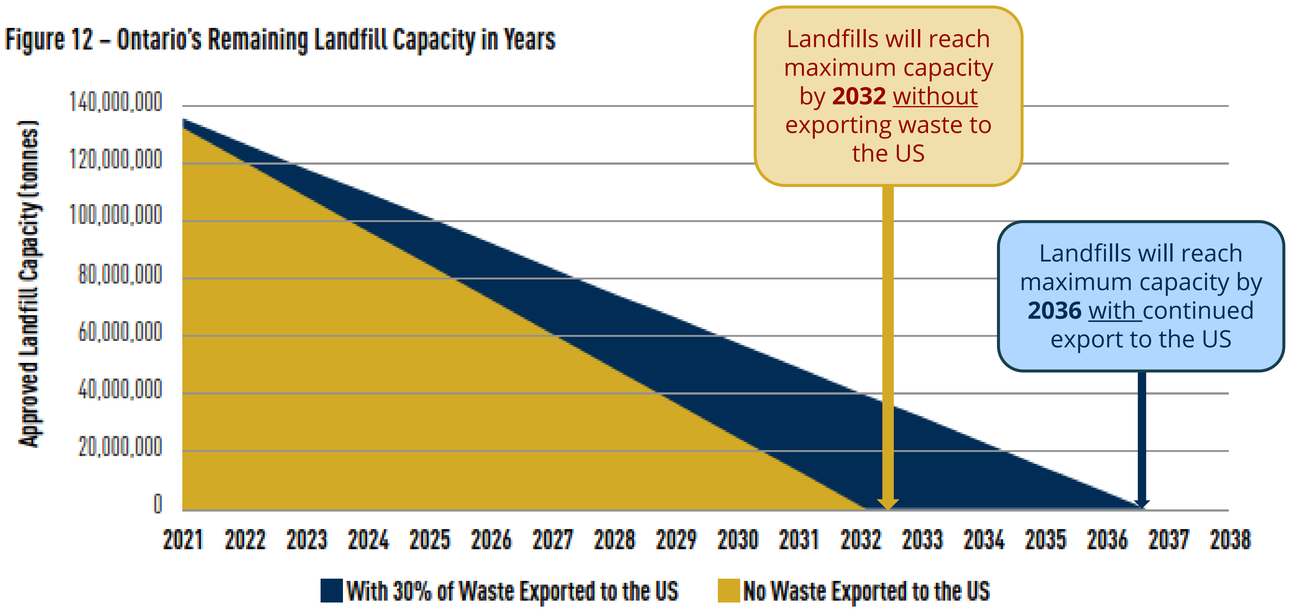
# Current Waste Management System in Kawartha Lakes

## Landfill Information

| Landfill | Garbage Received in 2022 (tonnes) | Expected Closure Date* |
|---|---|---|
| Lindsay Ops | 30,700 | 2030 to 2037 |
| Fenelon Falls | 4,300 | 2023 to 2024 |
| Laxton | 1,300 | 2023 to 2024 |
| Eldon | 1,600 | 2046 |
| Somerville | 4,500 | 2084 |

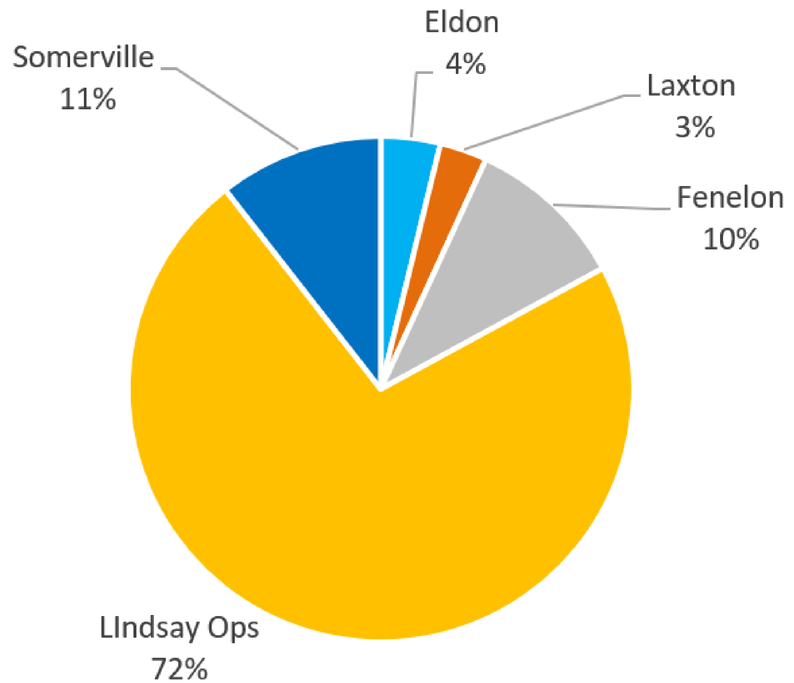
*Closure date based on 2015 Making Waste Matters and ongoing separate City study and subject to change based on diversion rates and new programs, closure of other landfills and redirection to remaining sites, etc.

**Figure 12 – Ontario's Remaining Landfill Capacity in Years**




Jan 2021, OWMA Annual Landfill Report

## Breakdown of waste landfilled at each site (2022)

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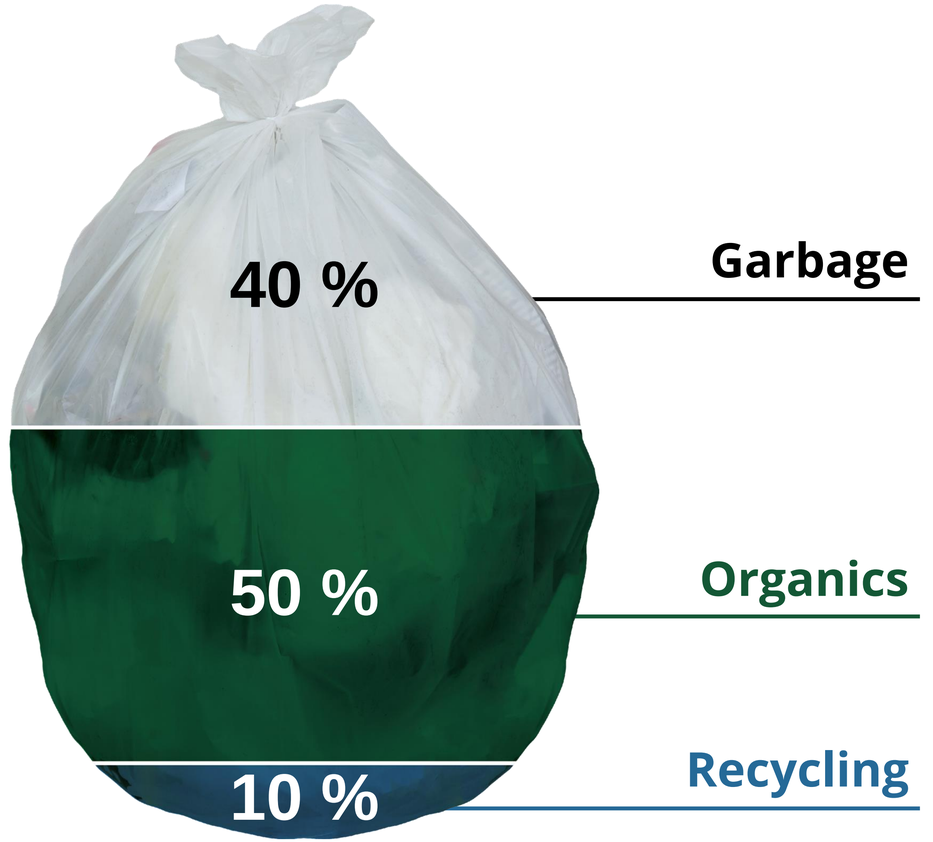
# Future Residual Waste Quantities
## in Kawartha Lakes

| Year | Status Quo | 35% Diversion Achieved | 53% Diversion Achieved | 70% Diversion Achieved |
|---|---|---|---|---|
| **2021** | 47,000 | 47,000 | 47,000 | **47,000** |
| **2035** | 60,000 | 55,800 | 51,100 | **46,400** |
| **2048** | 91,500 | 75,300 | 55,000 | **34,700** |

**Making Waste Matter**
diversion target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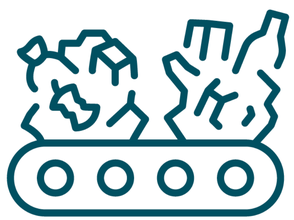
# Options Evaluation

| EVALUATION CRITERIA AND INDICATORS | CONSIDERATIONS | KEY EVALUATION ASSUMPTIONS |
|---|---|---|
| **Economic Feasibility**<br>• Capital costs<br>• Operational costs<br>• Level of risk<br><br>**Social Impacts**<br>• Public acceptance<br>• Collaboration potential<br>• Proven/unproven<br>• Level of effort<br><br>**Environmental Impacts**<br>• Climate change impacts<br>• Energy<br>• Nuisance impacts<br>• Air quality impacts<br>• Land requirements<br>• Impacts to ground/surface water<br>• Diversion potential | • Process description<br>• Operational experience<br>• Target material<br>• Outputs<br>• Operations & capital costs<br>• Advantages & disadvantages<br>• Technology status (proven, unproven, pilot)<br>• Applicability to the City | • Able to manage 44,000 to 67,000 tonnes annually<br>• Process and manage only residual waste generated within the municipality<br>• Facility is located within Kawartha Lakes<br>• Will require an ECA at minimum |

# **Alternative Technology**
# Disposal Options



## MIXED WASTE PROCESSING

A process which can recover recyclables, organics and/or reusable materials from garbage. Extracted materials are removed through manual sorting and/or the use of equipment.

## MASS BURN INCINERATION

Garbage is burned in a controlled facility and the heat that is created generates energy. Two types of ash are produced: bottom ash and fly ash.

## GASIFICATION

Heats municipal solid waste in an oxygen-free environment and produces a combustible gaseous or liquid product and a carbon char residue.

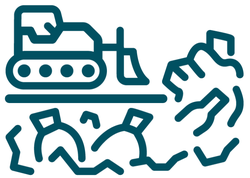
## PYROLYSIS

Involves heating garbage in an oxygen-free environment to produce a gas or liquid product and a carbon char residue.

Pros / Cons

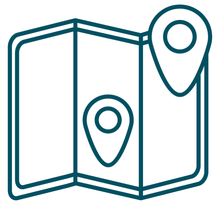
| | | | | |
|---|---|---|---|---|
| | **Effort, Capital & Operating Costs** | **Capital Costs, Effort** | **Operating & Capital Costs, Risk, Unproven, Effort** | **Capital & Operating Costs, Risk, Effort** |
| | **Proven, Diversion** | **Proven, Climate Impacts, Energy, Diversion** | **Climate Change Impacts, Energy, Diversion** | **Climate Impacts, Energy, Diversion** |

# **Landfill Related**
# Disposal Options



## LANDFILL EXPANSION

Expand an existing City landfill site(s) vertically and/or horizontally.



## NEW LANDFILL

City develops a new landfill site within Kawartha Lakes.

## LANDFILL MINING

Previously landfilled waste is excavated to recover valuable materials, increase space, and/or improve environmental conditions at City site(s).

## EXPORTING WASTE

Garbage is hauled to disposal facility outside of Kawartha Lakes.

## PRIVATIZATION

Options range from cooperative agreements with private firms to management contracts, asset sales or complete reliance on market for services.

Pros / Cons

| | | | | |
|---|---|---|---|---|
| **Diversion, Effort** | **Capital Costs, Risk, Effort** | **Climate Change Impacts, Diversion, Nuisances** | **Diversion, Climate Change Impacts** | **Diversion, Risk** |
| **Risk, Operating & Capital Costs, Energy Produced** | **Energy Produced, Operating Costs** | **Ground/Surface Water Impacts, Land Required, Capital Costs** | **Effort, Collaboration, Capital Costs** | **Land Required, Air Quality, Operating & Capital Costs** |

# Preliminary Preferred Waste Disposal Option
## Landfill Expansion

### Economic Feasibility

- Operating costs will be similar or less than existing operating costs
- Capital cost is in medium range compared to other options
- Low risk given familiarity

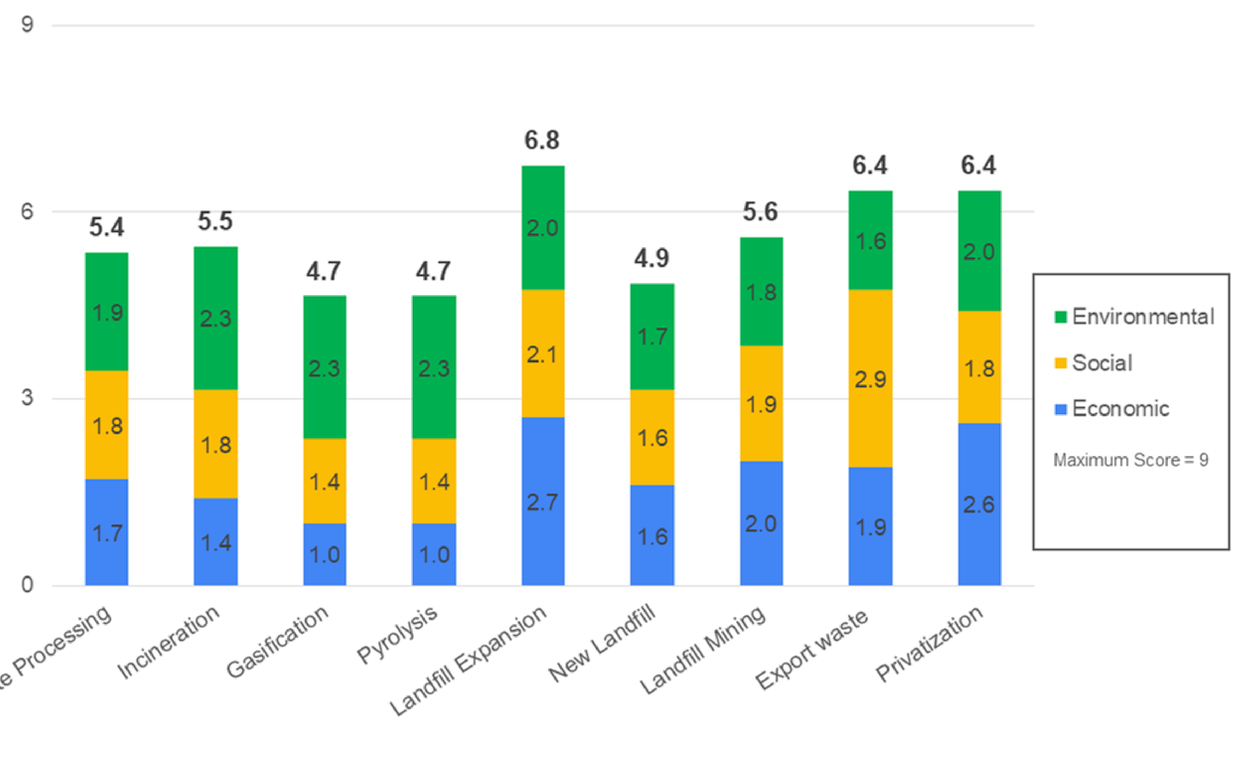
### Social Impact

- Proven approach in Ontario and at the City
- Requires lengthy EA process and consultation
- Public concerns anticipated through consultation and current methods

### Environmental Impact

- More landfill gas will be generated potentially allowing for energy to be captured
- Land requirements depend on the site(s) selected and expansion method
- Current environmental management and monitoring practices will continue

### EVALUATION RESULTS - WEIGHTED AVERAGES OF OPTIONS




| Financial | Environmental | Social | Technical/Operational | Regulatory |
|---|---|---|---|---|
| $2 - $5 million for an Environmental Assessment<br><br>$10 - 50 million for additional approvals, engineering, design & construction | Horizontal expansion may require clearing of trees/vegetation<br><br>Environmental investigations anticipated to determine suitability | Consultation program may mitigate public concerns<br><br>Minimal changes to noise/odour/traffic | Minimal changes to staffing needs<br><br>Construction cannot begin until regulatory approvals secured (~ 5 years) | Individual EA or amendment required<br><br>Horizontal expansion can take 3-5 years for approval |

# 2022 Engagement Activities Timeline

**March**
- **Jump In Page Launch**
- **Project Video Development**

**April**
- **Online Survey Launch**
- **Virtual Stakeholder Meeting**

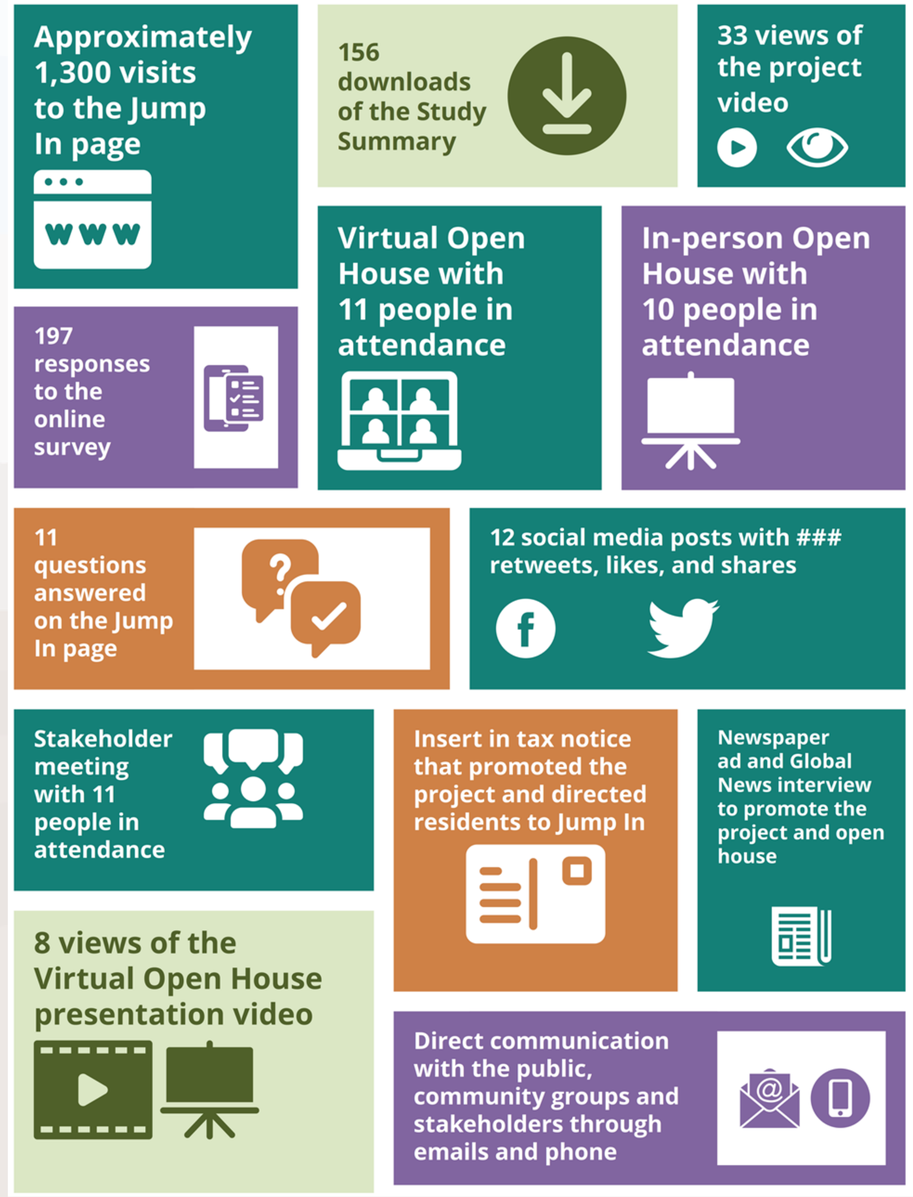
**May**
- **Virtual Open House**

**June**
- **In Person Open House**

**August**
- **Draft Report**

**October**
- **Meeting with Ministry**
- **Final Report**

Continuous social media engagement

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# What We Heard
## Survey Summary

- Almost 200 responses to the online survey

**Question: Overall, how supportive are you of landfill expansion? (197 responses)**

- Nearly 60% of survey respondents were supportive or very supportive

**Follow up question: Please tell us why. (165 responses)**

- Supportive: cost effective, proven & familiar approach
- Unsupportive: short term solution & concern of space requirements

**Question: Expanding a landfill will extend its life and allow the City to explore other alternatives. Are there other options you would like to see explored? (133 responses)**

- 56% supported mixed waste processing
- 53% supported mass burn incineration

# Next Steps

- Seek Council approval to move forward with the preferred option
- Develop terms of reference for Environmental Assessment study
- Complete Environmental Assessment study
- Implement capital works as required