

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.

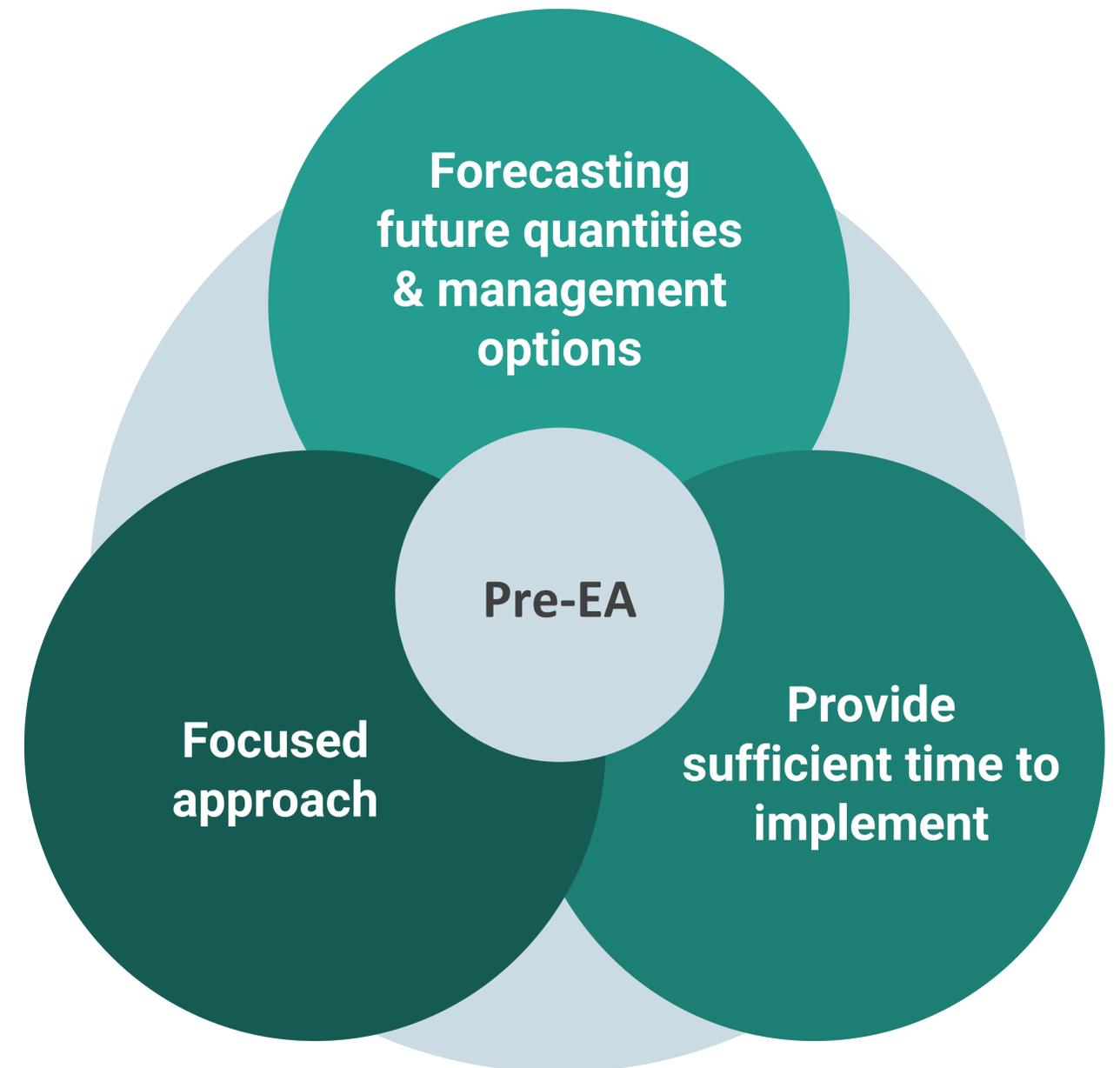
- Lindsay Ops Landfill is anticipated to reach capacity between 2030 and 2037 (accepts 70% of City's garbage)

Provides Focus for Next Steps

Project is essentially a pre-Environmental Assessment (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.



Current Waste Management System in Kawartha Lakes



Demographics

- Services provided to approximately 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

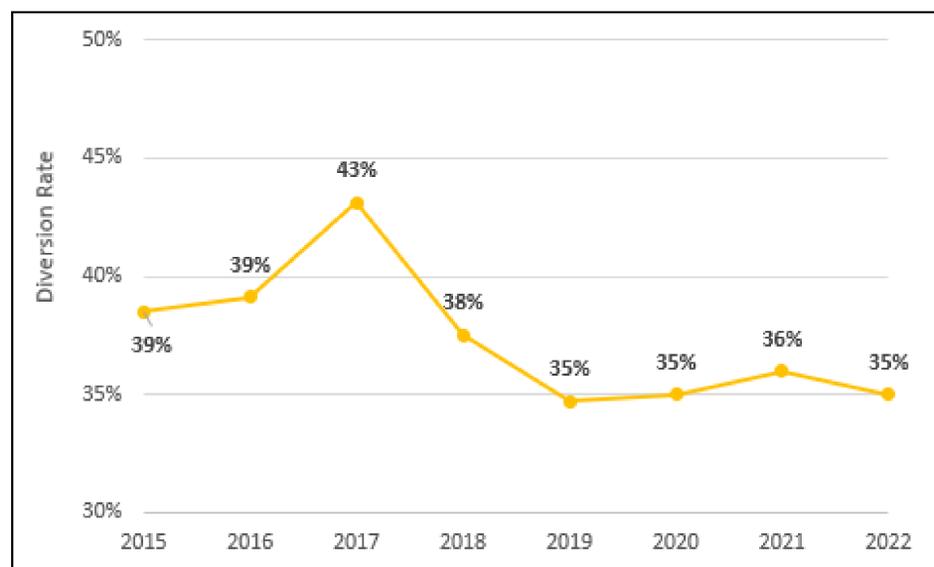


Depots & Drop Offs

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

Making Waste Matter

Goal: Divert 70% by 2048



Increasing Diversion in Kawartha Lakes

2020	2021	2022
<ul style="list-style-type: none"> 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. Improve public space recycling 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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

Note: The 2022 waste diversion rate is being verified.

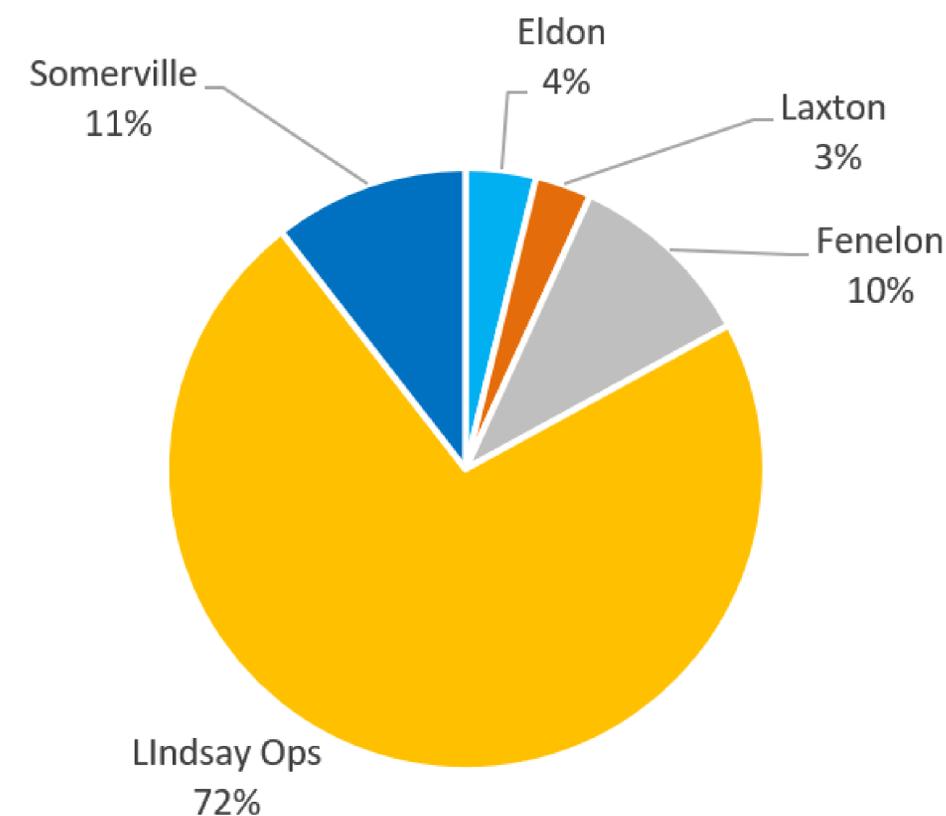
Current Waste Management System in Kawartha Lakes

Landfill Information

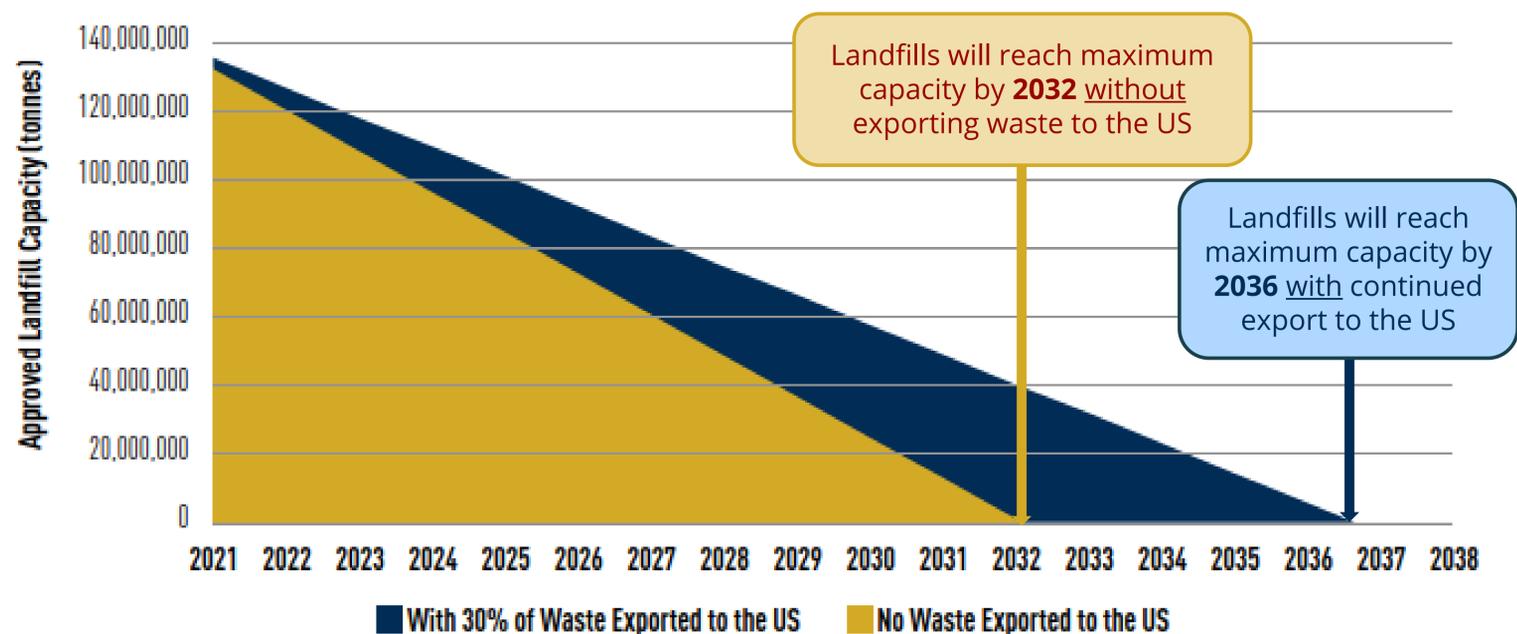
Landfill	Garbage Received in 2022 (tonnes)	Expected Closure Date*
Lindsay Ops	30,700	2030 to 2037
Fenelon Falls	4,300	2023 to 2024
Laxton	1,300	2023 to 2024
Eldon	1,600	2046
Somerville	4,500	2084

*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.

Breakdown of waste landfilled at each site (2022)



Ontario's Remaining Landfill Capacity in Years



Future Residual Waste Quantities in Kawartha Lakes

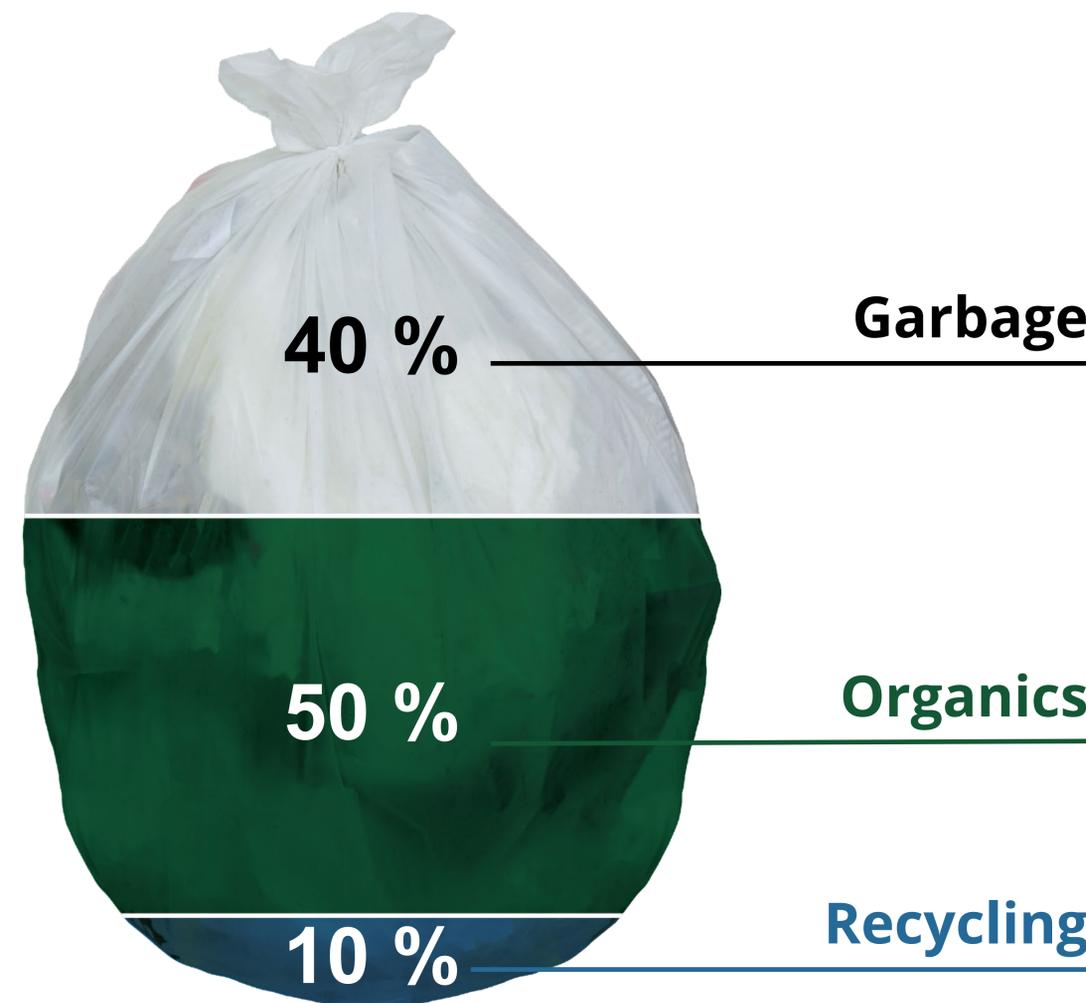
Diversion Scenarios

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



Composition of the Garbage Stream



Evaluation Criteria and Indicators

Economic Feasibility

- Capital costs
- Operational costs
- Level of risk

Social Impacts

- Public acceptance
- Collaboration potential
- Proven/unproven
- Level of effort

Environmental Impacts

- Climate change impacts
- Energy
- Nuisance impacts
- Air quality impacts
- Land requirements
- Impacts to ground/surface water
- Diversion potential

Considerations

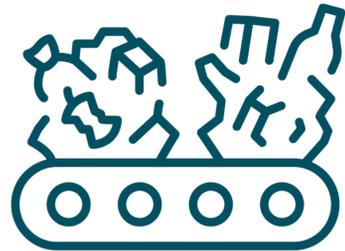
- Process description
- Operational experience
- Target material
- Outputs
- Operations & capital costs
- Advantages & disadvantages
- Technology status (proven, unproven, pilot)
- Applicability to the City

Key Evaluation Assumptions

- Able to manage 44,000 to 67,000 tonnes annually
- Process and manage only residual waste generated within the municipality
- Facility is located within Kawartha Lakes
- Will require an Environmental Compliance Approval (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.

Cons

Effort, Capital & Operating Costs



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.

Cons

Capital Costs, Effort



Gasification

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

Cons

Operating & Capital Costs, Risk, Unproven, Effort



Pyrolysis

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

Cons

Capital & Operating Costs, Risk, Effort



Pros

Proven, Diversion

Pros

Proven, Climate Impacts, Energy, Diversion

Pros

Climate Change Impacts, Energy, Diversion

Pros

Climate Impacts, Energy, Diversion

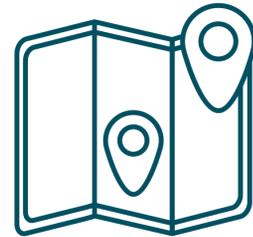


Landfill Related Disposal Options



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.



Cons

Diversion, Effort

Cons

Capital Costs, Risk, Effort

Cons

Climate Change Impacts, Diversion, Nuisances

Cons

Diversion, Climate Change Impacts

Cons

Diversion, Risk



Pros

Risk, Operating & Capital Costs, Energy Produced

Pros

Energy Produced, Operating Costs

Pros

Ground/Surface Water Impacts, Land Required, Capital Costs

Pros

Effort, Collaboration, Capital Costs

Pros

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

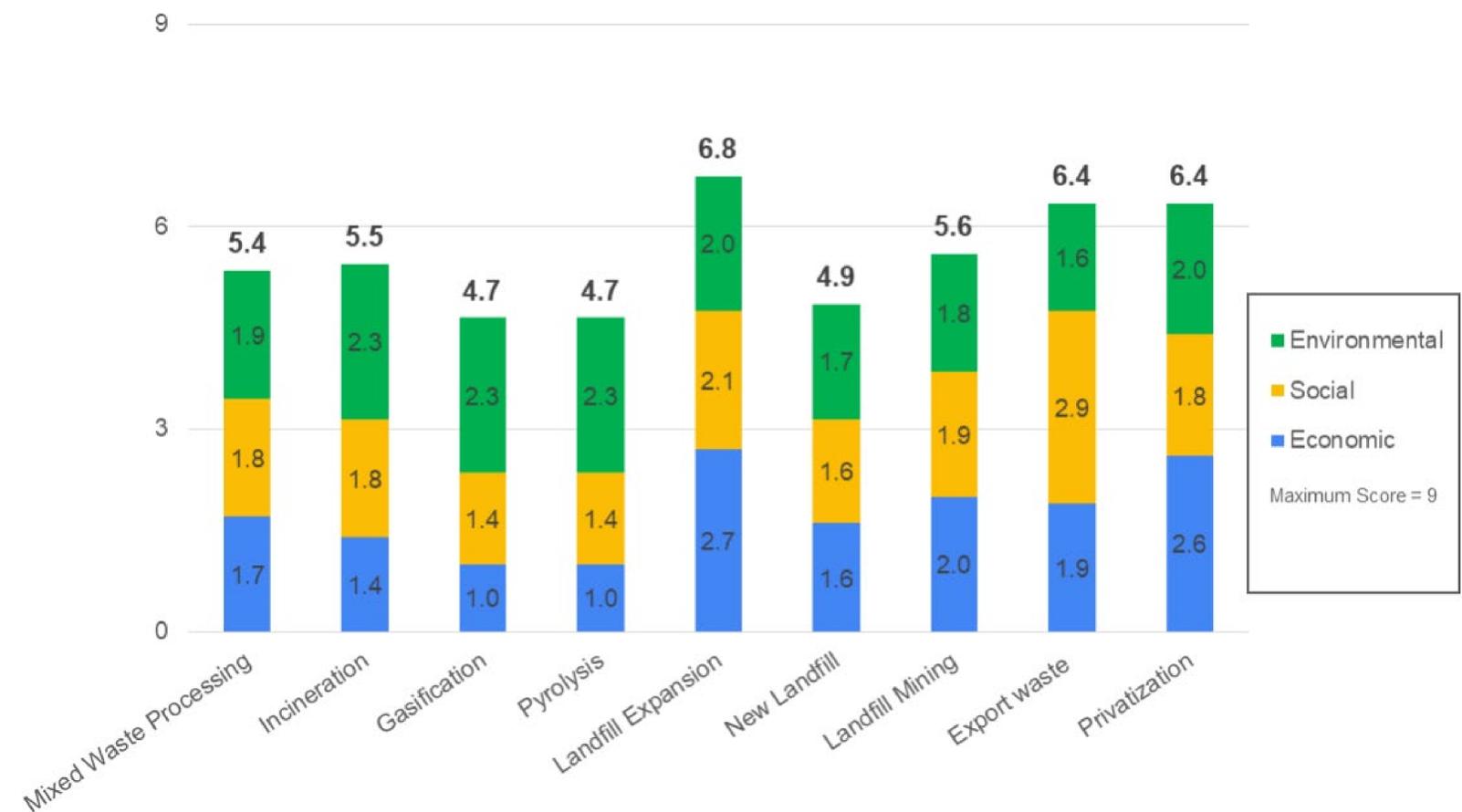
Social Impact

- 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

\$2 to \$5 million for an Environmental Assessment
 \$10 to 50 million for additional approvals, engineering, design & construction

Environmental

Horizontal expansion may require clearing of trees/vegetation
 Environmental investigations anticipated to determine suitability

Social

Consultation program may mitigate public concerns
 Minimal changes to noise/odour/traffic

Technical/Operational

Minimal changes to staffing needs
 Construction cannot begin until regulatory approvals secured (approximately 5 years)

Regulatory

Individual EA or amendment required
 Horizontal expansion can take 3 to 5 years for approval

2022 Engagement Activities Timeline



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