Waste Management Master Plan

The Municipality of Central Manitoulin

Outline

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Introduction/Background

Goals and Objectives

Short-Term:

Develop plans to shift from landfill to transfer station operations at the Providence Bay WDS once the landfill closes in June 2023.

1. Find cost effective solutions for temporary export of garbage
2. Implement circular waste management initiatives and policies to reduce garbage quantities

Introduction/Background

Goals and Objectives

Long-Term:

Develop plans for managing waste in the Municipality including consideration for implementing circular waste management initiatives, as well as options for garbage disposal.

1. Review options for service delivery including providing in house or contracted garbage collection services
2. Assess continued improvement and diversion initiatives to encourage a sustainable waste management program
3. Provide recommendations on disposal options for garbage

Introduction/Background

Key Considerations:

- Providence Bay WDS – June 2023 Transfer Station only (Landfill Closing)
- Blue Box regulatory changes
- Pilot thermal treatment technology proposal

Existing System

Waste Estimates

The following annual rates have been estimated:

- 1900 tonnes of waste (commercial and residential)
- 210 tonnes of diversion Blue Box (commercial and residential)
- 2,500 m^3 of landfill space required

Existing System

1. Curbside collection of garbage and recycling and transfer
2. Municipal operation of one landfill (Providence Bay) and two transfer stations (Providence Bay and Big Lake)
3. Export of waste off Island as part of pilot
4. Hazardous waste events
5. Food Cycler pilot project for residential kitchen organics

Consultation

- Letters sent to 13 neighbouring communities
- Meetings with staff from Espanola, NEMI, and Billings
- Meetings with private landfill owner, waste hauler, and waste technology owners (Gagnon Renewables and Eco-Growth Environmental)

Consultation

Survey Summary

August 9 to August 31, 2022 - 152 people (7% of residents) responded

Based on responses in the survey, goals were adjusted to clarify that:

- Providence Bay Transfer Station was not closing (just shifting from landfill to transfer of waste – as required by the Ministry of Environment Conservation and Parks)
- Place more emphasis on circular economy and waste reduction/recycling initiatives

Consultation

Survey Summary

The following waste reduction and recycling programs received support from survey respondents:

- Composting options (> 55%)
- Reuse centres (>75%),
- C&D diversion program (>65%),
- Mattress recycling program (>55%)

Consultation

Survey Summary

The following waste disposal options were supported:

- Establishing an alternative recycling technology facility (>75%)
- Establishing a new landfill (>60%)
- It was clear from comments provided by survey respondents that a local solution was preferred to exporting garbage.

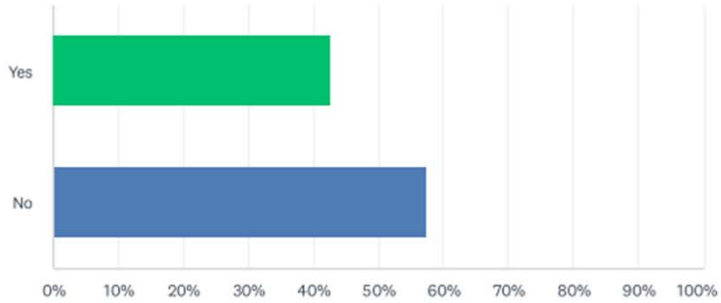
Consultation

Survey Summary

- Survey respondents were opposed to fees and user pay systems (>55%)
- Supported more strict enforcement (>55%)

Q16 Do you support implementing user pay programs (fee for service) as a way to offset waste management program costs and minimize potential mill rate increases?

Answered: 148 Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes	42.57%	63
No	57.43%	85
TOTAL		148

Short Term Plans

Garbage Transfer Location

Garbage Collection & Hauling

Waste Reduction

Waste Diversion

Implementation Considerations

Short Term Plans

-  costs $155,000 to $220,000 annually to transfer waste

Locations for transporting garbage:

- Local landfill (owned by adjacent municipality)– lower cost, requires community support and ECA amendment
- Off Island (Dodge Landfill) – higher cost, greater GHG impact, designed to import waste

Short Term Plans

Hauling Options to reduce export costs:

- Increase the use of curbside collection
- Front-end bin collection
- Managing construction & demolition waste
- Chipping and grinding waste before transport
- Waste compactor bins
- Purchasing roll-off bins and truck

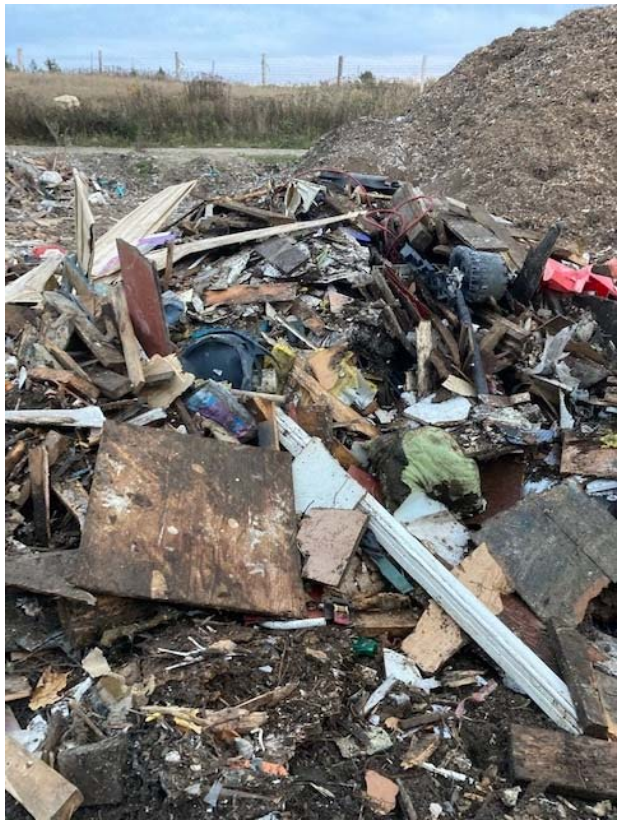
Short Term Plans

Summary of Hauling Options

1. Increase participation in curbside collection program

2. Suspend receipt of large loads of C&D

3. Contract hauling services in the short term



Up to $17,000 revenue ($1/bag fee at TS)
⬇ 500m³/year at TS
$15,000-$20,000 savings for C&D
⬇ 1,500m³/year at TS

Short Term Plans

Waste Reduction:

1. Reuse Centre:  waste exported
2. Reuse Events

Circular Moment – Share, Reuse, and Repair initiatives are gaining traction in many municipalities. They are often organized by community organizations and promoted and supported by the host municipality. The result is that product remain useful products and avoid the landfill.

Cost: $6,600 (2 to 3 year pay back)

Diversion: 140m^3/year

Short Term Plans

Circular Moment – recovering mattresses and recycling them puts their materials back into the economy – thus supporting transition to circularity.

Waste Diversion:

1. Food Cycler: $6,000 ↑ diversion 80m^3/year
2. Separate Clean Wood and Brush: $5,000/year ↓ waste for export by 500m^3/year
3. Blue Box Transition: >$30,000 ↑ revenue 2025, long term cost savings not providing service
4. Mattress Recycling: $11,000 make cost neutral, $40/mattress fee
   ↓ waste for export by 190m^3/year

Short Term Plans

Implementation

1. Data Management
2. Staff Training
3. Public Education

To facilitate long term options

1. Prioritize non-monetary support for pilot project
2. Tender for garbage truck

Long Term Plans

Service Delivery	Reduce, Reuse, & Recycling Opportunities	Organics Diversion	Garbage Disposal

Long Term Plans – Service Delivery

Curbside Garbage Collection

- In-house delivery depends on ability to get a garbage truck and cost

Transfer Station Garbage Collection and Hauling

- Reconsider once a long-term disposal option is in place

Long Term Plans – Reduce, Reuse, Recycle

Curbside Textile Program

Repair Café

Glass Recycling

Circular Moment – Repair cafes are quickly gaining traction in communities across the country, sometimes being folded into a Share, Reuse, Repair initiative. Repairing products and keeping them in use in their current form is very impactful from a circular economy point of view. And the use of 3D printing is an emerging technology that is helping facilitate this activity even more.

Long Term Plans – Organics Diversion

Re-evaluate in 5 years or if favourable opportunity is presented

1. food waste is a significant amount of our overall garbage (30%)
2. compost is a valuable resource
3. landfilling organics creates GHG emissions

Circular Moment – Regenerating nature is the 3rd principle of the circular economy. Returning organic material to the soil directly supports this principle.

Factor	"at Home"	Centralized
Collection System	Not required	Required
Convenience	Lower	Higher
Annual Cost	$1,000s	$100,000s
Capital Needs	None	Significant
Volume	Small	Significant
GHG Reduction	Low	Significant

Long Term Plans – Waste Disposal Options

Three Options:

- Thermal Treatment Technology (advance recycling – AR)
- New Waste Disposal Site
- Export Waste for Disposal

Long Term Plans – Waste Disposal Options

Thermal Treatment Technology (advance recycling – AR)

- "Traditionally, thermal treatment technologies have been used for the final disposal of waste, like through incineration, or to produce energy-from-waste such as generating electricity or fuel. However, advanced recycling represents an evolution of thermal treatment technologies, allowing for the recovery of resources from waste via *waste breakdown* rather than *waste disposal*" (MECP, 2022).

Long Term Plans – Waste Disposal Options

Thermal Treatment Technology (advance recycling – AR)

- Pilot project proposed – company is assuming risk (approvals, sourcing sufficient feedstock, cost, etc.)
- Potentially complicated approval process; time consuming and expensive – EA amendments for AR being considered
- Diverts waste from landfill and generates products (energy source (fuel), carbon black, char, metals)
- Does not encourage Waste Management Best Practices (Reduce, Reuse, and Recycle)
- Cost unknown

Long Term Plans – Waste Disposal Options

Pilot Thermal Treatment Project:

Opportunity to:

1. manage waste locally
2. reduce the long-term liability associated with establishing more landfill sites

The process proposes to ‘recycle’ over 80% of the incoming waste stream.

The Municipality should continue work with the proposed vendor to determine if it is feasible and cost competitive.

Long Term Plans – Waste Disposal Options

New Landfill:

Three approval processes under the Environmental Assessment Act (EAA) (O. Reg 101/07)

- Individual EA (most complex) >100,000m^3
- Environmental Screening Process >40,000m^3 < 100,000m^3
- Exemptions <40,000m^3

Long Term Plans – Waste Disposal Options

Environmental Screening Process (Sites 40,000m^3-100,000m^3)

Designated under the EAA but exempt from the requirements of an individual EA

Requirements include:

Part A: Overview of Assessment Requirements for Waste Management Projects

- Detailed Screening and Assessment of Proposed Site
- Consultation (Ministry, First Nations, public notification)

Part B: Environmental Screening Process

- Environmental Impact Studies
- Environmental Screening Report

Application and Fee

Costs estimated at $500,000 - $750,000 for approvals

Estimated Timeline 5 - 7 years

Provides 25 years landfill site life based on estimated waste generation

Long Term Plans – Waste Disposal Options

Important Considerations:

- Subject to Ministry requirements/recommendations
- Potential for “Bump Up” during the process
- Adjacent municipality may have final ‘say’ in approval if proposed site within 3.5 km of municipal boundary

Long Term Plans – Waste Disposal Options

New Landfill

- Impacts of waste disposal in the area
- Social considerations
- Complicated and costly approval process
- Does not encourage circularity and will increase GHG emissions

Long Term Plans – Waste Disposal Options

Exporting Waste:

Requires storage location or collection vehicles to haul to licensed facility

Long term planning is limited - annual Cost to export waste estimated at $315,000 is likely to increase in the future as landfill space becomes limited

On the positive side

- the Municipality is not using land
- creating nuisances for residents
- in theory the option is more affordable

Long Term Plans – Waste Disposal Options

		Annual (Capital Cost Amortized)	Annual Operating Cost (2023)	25 Year Total Cost	50 Year Total Cost
Establishing a New Landfill (comparison of size and design options)	Waste Disposal Site 99,000m3 (natural attenuation) ($)	36,000	155,000	7,000,000	NA
	Waste Disposal Site 99,000m3 (engineered clay liner) ($)	107,000	205,000	11,000,000	NA
	Waste Disposal Site 280,000m3 (natural attenuation) ($)	55,000	155,000	NA	23,700,000
	Waste Disposal Site 280,000m3 (engineered clay liner) ($)	230,000	205,000	NA	49,100,000
Exporting Garbage	Export ($)	0	315,000	8,900,000	35,000,000

Summary

Short-term

- Expect increase costs for exporting waste ($155,000-$220,000). Recommendations in the report are intended to reduce these costs and improve environmental performance.
- Municipality will see some cost savings from the new Blue Box programs starting in 2025.

Long-term

- Wait 2-years to see if Thermal Treatment Pilot Project is feasible
- Initiate an Environmental Screening Process in 2 years for a New Landfill as alternative
- Other long-term recommendations in the report are intended to increase diversion of waste from landfill and result in environmental benefits.

QUESTIONS?

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