Iqaluit Waste Management Project: Designing the Future of Solid Waste Management in our Community

Newsletter #3 June 2013 www.iqaluitwasteproject.ca

Project Update

Based on a detailed options analysis process and community input from Open House #2, a new solid waste management site and program have been identified for the City of Iqaluit.

Site: Northwest site, adjacent to future granular source (see page 3).

Program: Landfill with compost program (curb-side pick-up), bulky recycling (scrap metal, appliances, etc.), and hazardous waste management (see page 5).

This final Newsletter presents the results of this project to allow for community input before the recommended site and program are presented to Council for approval.

Get Involved:

Open House #3

Date: July 17, 2013
Time: 6:00-8:00pm
Location: Abe Okpik Hall

In this project's final Open House, the City will present information on the recommended solid waste management site and program.

Iqaluit's Solid Waste Management Program Vision and Goals

VISION:

The City of Iqaluit will be a leader in Northern waste management practices by identifying and implementing locally appropriate waste management solutions that maximize waste diversion and minimize environmental impacts.

GOALS:

1. EDUCATE the community on the reuse, diversion and disposal options available.
2. REDUCE the amount of waste produced and the amount of litter in our streets.
3. REUSE goods and materials that are not at the end of their useful life.
4. COMPOST organics for the benefit of the community.
5. MANAGE hazardous waste to protect the environment and people in our community.
6. RECYCLE using methods that are locally appropriate .
7. DISPOSE of remaining waste in a way that is environmentally, economically and socially sustainable.

Evaluation of Recommended Site and Program

The following summarizes the analysis of the recommended site (Northwest site, see page 3) and program (landfill with open windrow compost program, see page 5) against the project's environmental, economic and social evaluation criteria (highlighted in **black** below).

Environmental Criteria

Minimize Environmental Impact

The diversion programs included in this option (see page 5) can divert up to 44% of the waste from the landfill and can extend the lifespan on the site by 14 years compared to the status quo. The recommended composting program provides environmental benefits by conserving landfill space, reducing odors, reducing leachate and providing a suitable cover material for the landfill. Environmental impact will be further limited through a run-off management program, hazardous waste management program and the recycling of scrap metal and bulky items. The recommended Northwest site minimizes environmental impact by being set back from rivers and lakes and by sharing an access road with one that is already planned for the future granular source development. Other sites would require a new road to be built through undisturbed areas for the sole purpose of this project.

Economic Criteria

Cost Effective and Affordable

As the Option Comparison Chart shows (see page 4), the recommended program is the most cost effective option over the lifespan of the site. It is also the most affordable program option for capital and operating costs. The recommended site is cost effective due to its ability to share access road capital and maintenance costs with the new granular source project, which is scheduled to be completed in a similar timeframe.

Social Criteria

Aligns with Solid Waste Management Vision and Goals

Good Track Record/ Appropriate Technology for our Remote Arctic Community

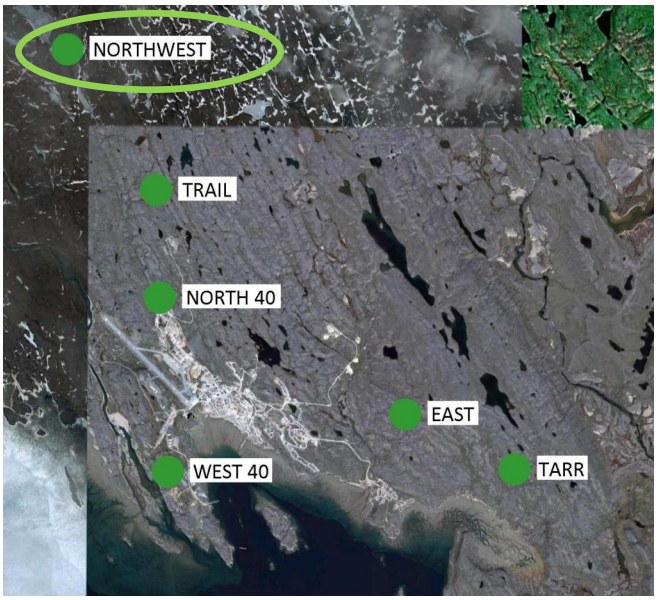
Acceptable to the Community

Ease of Implementation

Open windrow composting programs have been successfully implemented in our community (Bill Mackenzie Humanitarian Society) and in other northern communities. Community feedback during Open House #2 showed a large amount of support for a municipal compost program. The recommended program would be the easiest option to implement but it will still require staff training and the implementation and phasing in of new programs. The recommended Northwest site was identified as the most favorable during Open House #2, and was also found to be most suitable from a technical perspective (see page 3).

Recommended Solid Waste Management Site

The **Northwest site** has been identified as the preferred location for Iqaluit's new Solid Waste Management Facility based on the analysis of size and regulatory requirements, site suitability, access road feasibility and public support. The table below provides a summary of the site selection process. The North 40, West 40, and Trail sites were screened out for not meeting the airport zoning regulations. A site visit was completed to visually inspect the remaining sites and their access routes. East and Tarr sites were screened out due to site suitability and access route issues.



SITE / Description / Site selection criteria	NORTH 40 Area within former granular extraction area	WEST 40 Open area across street from current landfill	TRAIL Adjacent to current granular source	EAST North of Apex	TARR North and inland from Tarr inlet	NORTHWEST Adjacent to future granular supply
Meets size requirement (min 40 year capacity)	X	X	✓	✓	✓	✓
Meets regulatory requirements	X	X	X	✓	✓	✓
Meets required set backs from lakes and rivers				✓	✓	✓
Suitability • **Feasible access route and site slopes*** • **Low potential for snow drifting issues** • **Minimal aesthetic issues (odor and visibility*)** *based on 2011 site visit	SITES SCREENED OUT			X **Steep slopes, limited wind protection, and visibility from town**	X **Difficult topography along access route**	✓ **Reasonable site slopes, feasible access route, no odor or visibility concerns**
New road required				1.7 km	3.5 km	3.6 km

Program Options	Program Description **The following components are common to all options:** • Segregated, stockpiled, sent south for recycling/ disposal when revenues allow: tires, bulky metals, appliances, End of Life Vehicles (ELV), electronics, hazardous waste • Cover material: compost and shredded wood waste • Re-use Center for all but Status Quo	Total Capital Cost (based on North-west site) (millions)	Annual Capital Cost (capital cost divided by lifespan) (millions)	Annual O&M Cost (millions)	Total Annual Cost (annualized capital cost plus annual O&M cost) (millions)	Annual Diver-sion Rate [1]	Facility Lifespan (years)
Status Quo at new Solid Waste Management Site	• Composted (open windrow): all sewage sludge • Landfilled: glass, plastics, household metals, plastics, paper/cardboard, organics, remaining waste	8.50	0.20	0.82	1.02	8%	42
Option 1: Open Windrow Compost	• Composted (open windrow): food waste (70%), paper/ cardboard (50%), wood (25%), all sewage sludge • Landfilled: glass, plastics, household metals, remaining waste	9.08	0.16	0.87	1.03	44%	56
Option 2: In-vessel Compost	• Composted (in-vessel): food waste (70%), paper/ cardboard (70%)[2], wood (25%), all sewage sludge • Landfilled: glass, plastics, household metals, remaining waste	10.5	0.18	1.00	1.18	48%	58
Option 3: Open Windrow Compost Plus Incineration	• Composted (open windrow)[3]: food waste (70%), all sewage sludge • Incineration: wood (25%), remaining waste after composting and stockpiling (see common items above) • Landfilled: Glass, household metals, incinerator ash	13.58	0.19	1.69	1.88	67%	71
Option 4: Open Windrow Compost Plus Household Recycling of Fibres and Metals	• Household Recycling: metals (70%), paper/cardboard (70%) • Composted (open windrow): food waste (70%), all sewage sludge • Landfilled: glass, plastics, remaining waste	9.53	0.16	1.56	1.72	50%	59

[1] Where applicable, includes diversion through recycling/composting/reuse programs as well as reduction of waste through incineration (70%).
[2] In-vessel compost can take more paper/cardboard than open windrow due to ability to optimize conditions for composting process.
[3] Due to water content in food waste and sludge, it is more cost effective to compost them (instead of incineration.)

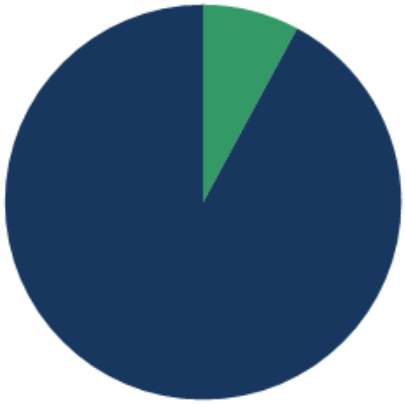
Recommended Solid Waste Management Program: New Landfill with Open Windrow Compost

Program Component	Description
Open Windrow Compost Program • Food waste • Paper/cardboard • Clean wood • Sewage Sludge	• Food waste will be collected though municipal curb-side collection, sewage sludge delivered from the Wastewater Treatment Plant, clean wood segregated at the solid waste management site, and paper/cardboard collected from high yield commercial/institutional establishments. • Collection of organics will be integrated into existing garbage pick-up schedule (e.g. replace a garbage collection day with an organics collection day). • Can accept about one quarter of our wood waste and about half of our paper/ cardboard. • Composting will be completed by the Open Windrow method, which is a low cost, low-tech approach that has been successfully implemented in Iqaluit by the Bill Mackenzie Humanitarian Society. • Compost and shredded wood waste will be used as landfill cover material.
Household Hazardous Waste Program	• Corrosive, flammable, explosive or poisonous waste will be dropped off at a designated area at the waste management facility where it will be sorted and prepared for shipping to an accredited southern hazardous waste facility.
Bulky Recycling Program • Scrap metal • Appliances • Tires • Waste Electronics	• Bulky items (scrap metal, appliances, tires, waste electronics) will be dropped off at designated areas of the solid waste management site, prepared and stored for shipping to accredited southern recycling facility.
End of Life Vehicles Program	• Seasonal program (summer) . • Trained municipal staff will drain fluids and safely remove hazardous materials and reusable parts. Unsalvageable metal will be compacted and shipped south with the scrap metal.
Re-use Center • Larger items that can be reused (e.g. construction materials, furniture, wood, etc.)	• Useable goods and materials will be dropped off at designated area, sorted and stored for re-use by the public. • If necessary, a sea can will be used to protect goods from the elements. • Will not include items that are accepted elsewhere in town (clothing, books, toys, etc.).
Landfill **Waste not diverted by the above programs**	• Waste not included in the above programs will be disposed of in an area designed to isolate it from ground and surface water. Precipitation that comes in contact with waste (runoff) will be managed on the site and will be treated before it is discharged into the environment. • Landfill waste will be compacted to reduce volume and covered to reduce blowing litter, odour and animal problems.
Public Education Program	• On-going public education and awareness programs will be run to promote effective waste management practices in the community.

Next Steps

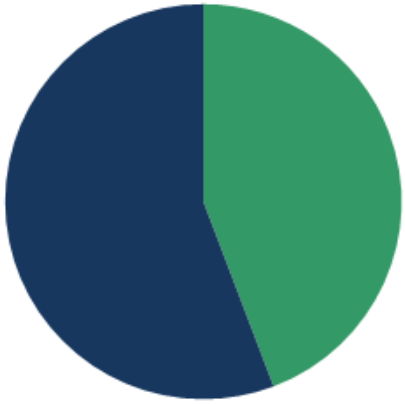
Following the July Open House, community feedback will be incorporated into the recommendation that is taken to Council for approval. After Council approves the site and program, next steps include:

- Regulatory approval process through the Nunavut Water Board
- Detailed site investigations to obtain geotechnical and topographic information for site design
- Design and tendering of site and access road
- Municipal staff training in preparation of new programs
- Construction and commissioning of the new Solid Waste Management Facility
- Phasing in of new programs
- Public education campaign to encourage participation in new programs
- Closure and Decommissioning of West 40 Landfill



Status Quo:

- **8% Diverted**
- **92% Landfilled**



Recommended Program:

- **44% Diverted**
- **56% Landfilled**

Questions ? Comments?

Email us:
comments@iqaluitwasteproject.ca
Call us:
979-6363 ext. 226
(Director of Engineering and Sustainability)

We want your feedback on the recommended site and program! Please share your thoughts in the space below and drop them off at City Hall by **July 19, 2013** or email your comments to comments@iqaluitwasteproject.ca: