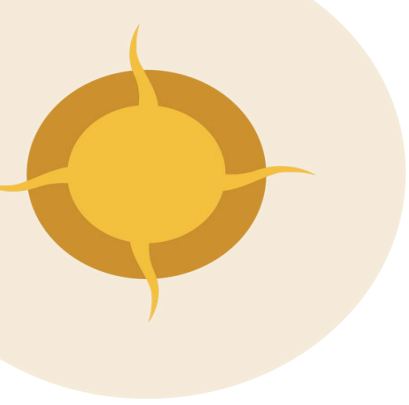




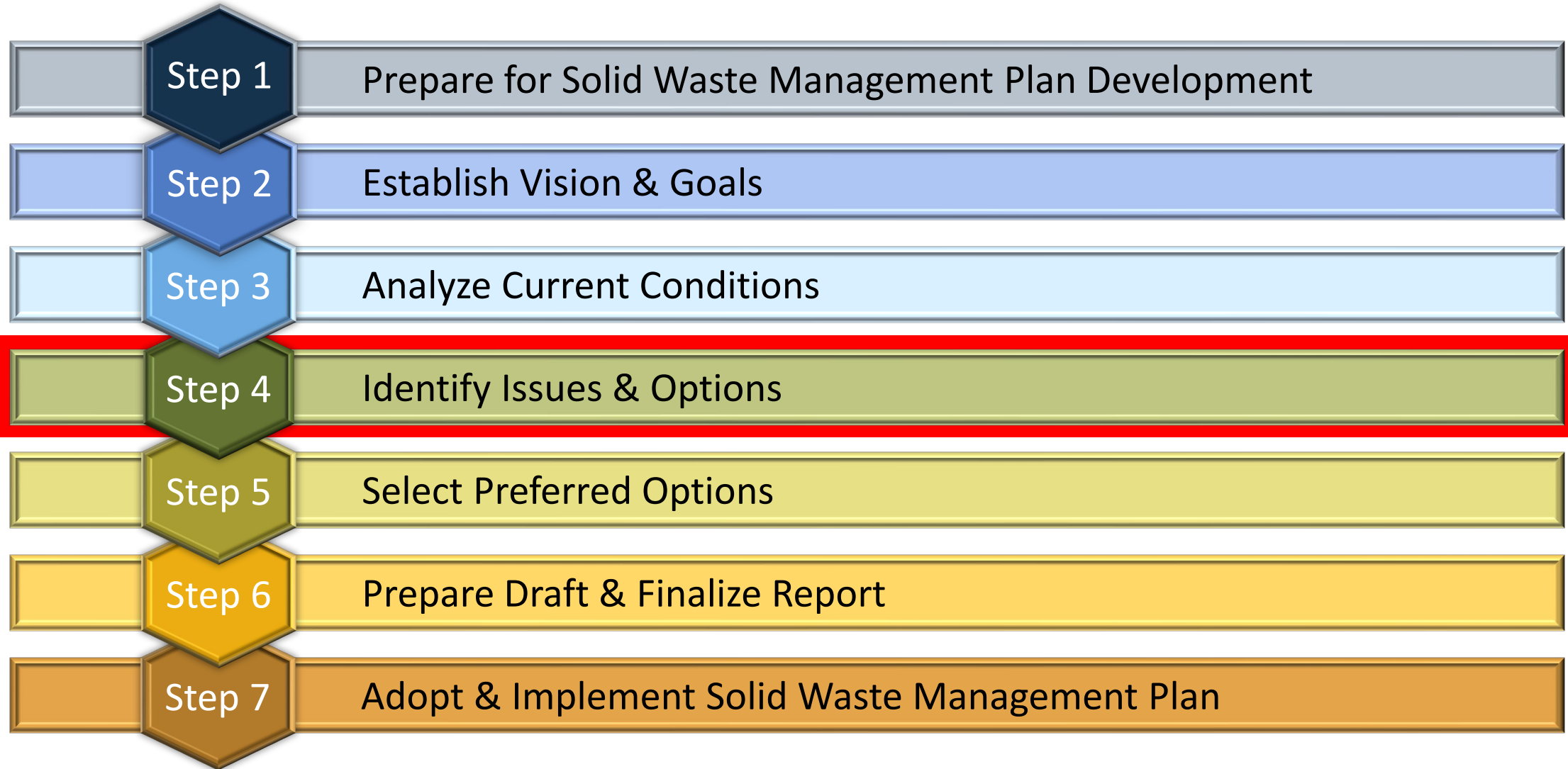
Identify Issues & Options

Step 4

Preparing a Solid Waste Management Plan



Steps in Preparing a Solid Waste Management Plan



Steps in Preparing a Solid Waste Management Plan

Step 4

Identify Issues & Options

- Identify solid waste management issues within your community
- Conduct a gap analysis
- Explore a range of solid waste management approaches and solutions

Identify Issues & Options

With a clear understanding of current systems, programs, and services, the focus now shifts to identifying opportunities for improvement and exploring potential approaches to future solid waste management.

This includes:

- Identifying current issues
- Conducting a gap analysis
- Identifying a range of solid waste management options
- Exploring economic development opportunities and partnerships

What Issues Can We Identify?

When you think about solid waste issues, what issues come to your mind?

Waste issues can come in many different forms, such as:



Low participation in recycling programs



All household waste is being landfilled



Stockpiles of divertible waste (e.g. End-of-life vehicles, scrap tires etc.)



Landfill site near capacity



Improper containment & disposal of hazardous waste



Illegal dumping on reserve lands

What Issues Can We Identify?



Poor air quality due to pollutants from burning waste



Production of greenhouse gas emissions due to organic waste being landfilled



Leaching of toxic contaminants from landfill into surface water and groundwater



Underfunding of waste programs



Outdated waste regulations



Lack of enforcement of First Nation Laws



Lack of record keeping, monitoring and evaluation

Gap Analysis

A gap analysis is a key part of developing a Solid Waste Management Plan because it answers a very practical question:

“Where are we now... and what is preventing us from getting where we want to be?”

It compares the current waste management system against the desired future waste system and identifies the gaps that need to be addressed.

How a gap analysis works:

- Assess current conditions
- Define desired outcomes
- Compare current vs. desired to find the “gap”

Example of a Gap Analysis

Area	Current State	Target State	Gap	Priority
Waste diversion	Minimal recycling	40–60% diversion	Lack of programs, participation	High
Infrastructure	Basic landfill site	Engineered landfill + diversion facilities	No transfer station, no organics	High
Policies/regulations	Limited or outdated bylaws	Modern waste bylaw & enforcement	Weak enforcement tools	Med
Data & monitoring	Irregular waste tracking	Annual audits + data tracking system	Limited data for decision-making	High
Public awareness	Low participation	Active community engagement	Lack of education programs	High
Funding	Reactive funding	Stable long-term funding model	No dedicated SWM budget	High
Staffing/capacity	Limited staff	Trained SWM team	Skills and capacity gaps	Med

What to Consider when Identifying Options

Now that you have a clear vision and goals supported by community input, waste audit data, projections for future growth and development, and solid waste management issues identified, the next step is to look at realistic solid waste management options suitable for the community.

Things to consider when identifying options:



Are there existing programs and infrastructure that can be adapted or expanded?



Are diversion programs required? Recycling, composting, household waste?



Does your community provide curbside pick-up, or will residents take waste to a transfer station or facility?



Is new infrastructure or programs required?



Is there potential benefits of developing or participating in regional programs?



Are there potential partnerships?



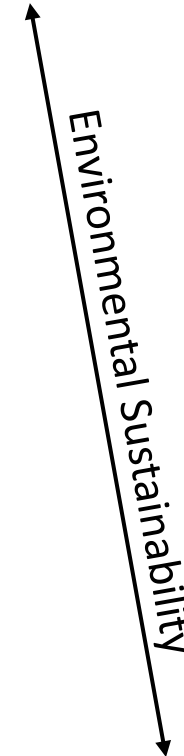
What are the set-up and implementation costs?

Waste Management Hierarchy

When considering your SWM options, you can refer to the **Waste Hierarchy**.

The **Waste Hierarchy** is a framework that prioritizes waste management methods from most to least environmentally sustainable.

Most Preferred



Least Preferred

REDUCTION

REUSE

RECYCLING

RECOVERY

DISPOSAL

Issue/Concern	Goal	Examples of Options
Waste Reduction & Prevention	Stop waste before it exists	• Repair cafés • Share initiatives (tool libraries, swap events)
Recycling & Diversion Programs	Capture recyclable materials effectively	• Residential recycling programs • Curbside pick-up • Extended Producer Responsibility (EPR) programs
Organics Management	Divert biodegradable waste from landfill	• Backyard composting programs • Community composting (e.g., community gardens)
Collection & Transportation Systems	Efficiently move materials through the system	• Improve curbside collection • Waste truck upgrades and routing improvements
Transfer & Processing Infrastructure	Consolidate & prepare waste for transport or diversion	• Transfer stations • Baling facilities • Compaction systems
Treatment Technologies	Extract value or reduce waste volume before disposal	• Waste-to-energy systems (e.g., incineration with energy recovery)
Disposal Options	Safely manage residual waste	• Municipal-type landfill agreements • Engineered landfill systems
Special Waste Streams	Safely manage materials requiring unique handling	• Household hazardous waste depots/events • Scrap metal recycling • Construction & demolition (C&D) diversion
Education & Behavioural Change	Ensure participation and proper system use	• Public awareness campaigns • School programs • Clear sorting guides, labeling, and signage
Policy & Governance Tools	Support and enforce the waste system	• Waste management bylaws and regulations • Enforcement mechanisms



Turning Solid Waste into Economic Development

Now that we have identified some of the solid waste issues found in communities, we can begin exploring practical approaches to waste diversion.

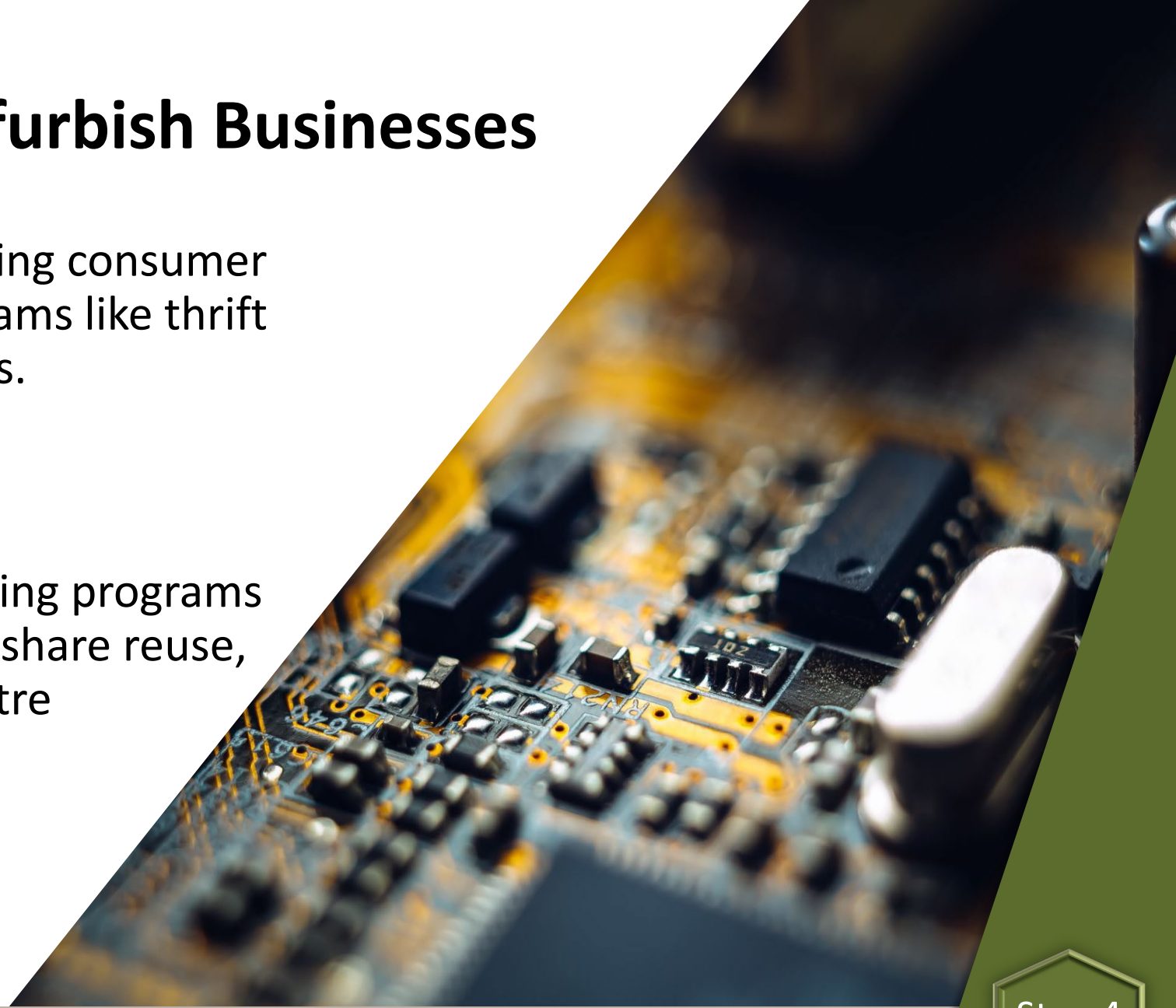
The following are some examples of innovative organizations that are finding creative ways to reduce solid waste in landfills while supporting economic development.

Repair, Reuse, and Refurbish Businesses

Refurbishing, repairing, and reusing consumer goods through community programs like thrift stores and computer repair shops.

Example Organization:

[Circular Innovation Council](#): offering programs such as their reuse program, the share reuse, repair hub and plastic action centre



Waste-to-Energy Technologies

Converting organic waste into biogas for energy.

Example Organizations:

Biomass Heating (Inuvik, NWT): integrated bioheat into major municipal infrastructure and pioneered innovative local fuel initiatives by processing waste cardboard bound for the landfill into heating fuel pellets

- ▶ *BioEnergy Centre: Meadow Lake Tribal Council:* The facility is fueled by residual woody biomass generated by the NorSask sawmill. The carbon-neutral plant is capable of producing 55,000 mw-hrs per year to the SaskPower grid - enough to power 5,000 homes



Construction & Demolition Waste Recycling

Reusing wood, concrete and metals left over from construction and demolition projects.

Example Organization:

[Unbuilders](#): a Vancouver-based company dedicated to working against the wasteful ways in which buildings are typically bulldozed



Recycling & Materials Reprocessing

Collecting, sorting and reprocessing materials into new materials for manufacturing.

Example Organizations:

▶ [Precious Plastic](#): offering solutions to recycle plastic into bricks, tiles, furniture and more

[Shuliy Machinery](#): recycling equipment for tire/rubber recycling, wood recycling, textile recycling etc.



Composting Programs

Building programs and facilities for turning yard and food scraps into valuable soil.

Example Organizations:

[Cowessess First Nation \(SK\)](#): Implemented a biotech "sea can" composting project that turns food waste into soil in 5 days, powering local greenhouse production

[Listuguj Mi'gmaq Government \(QC\)](#): Launched a composting facility in 2022 with tailored operational guides and training to manage community organic waste



New Technology Options

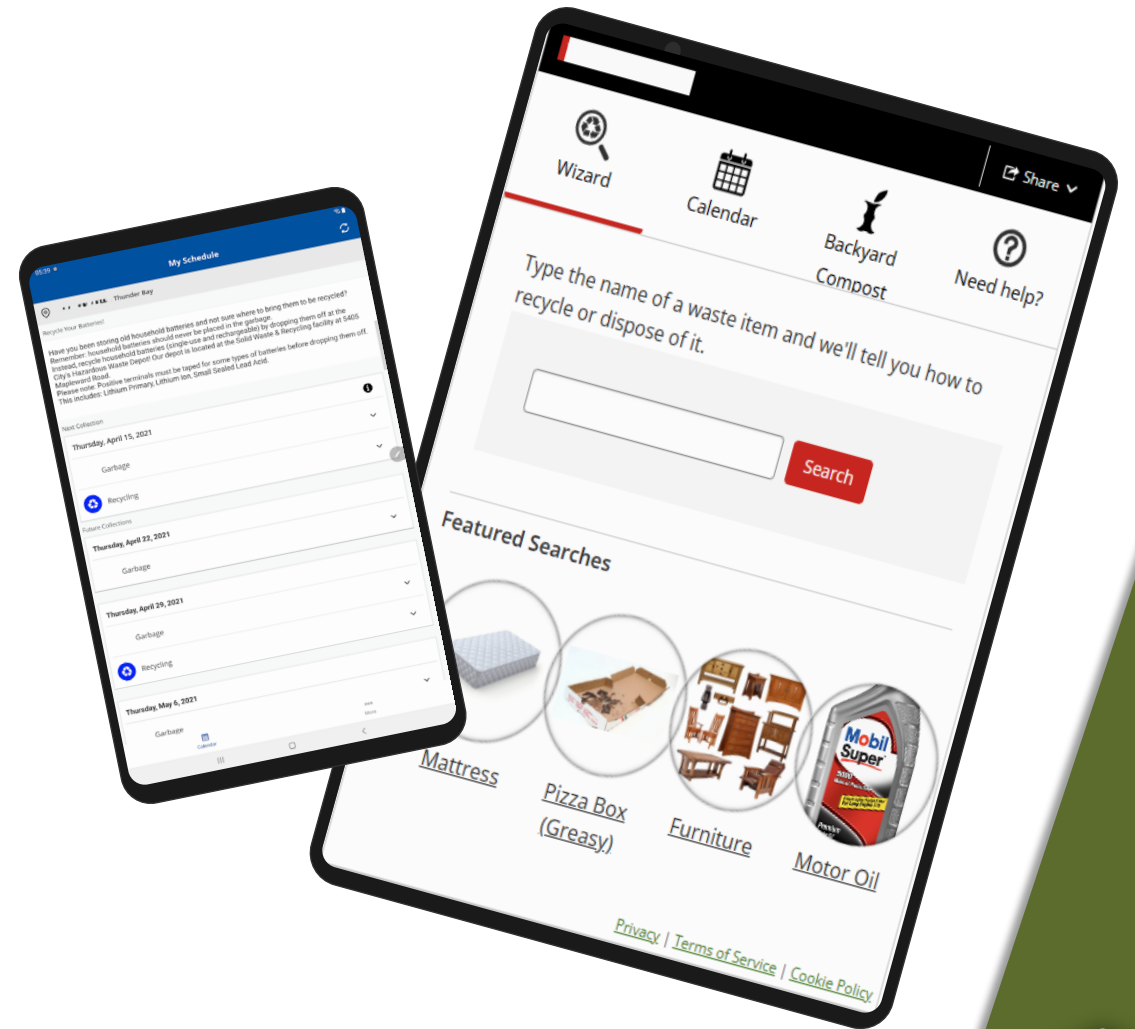
- Pello: AI-powered sensors for smarter waste operations
- Recycling Robots: AI robots can be programmed to quickly and accurately sort recycling materials
- Solar-Powered Trash Compactors: compress trash as it accumulates inside a dumpster to increase capacity. This allows these smart containers to hold up to five times more than traditional trash bins



Step 4

New Technology Options cont.

- E-Waste Kiosks: allow you to dispose of your unwanted electronics safely and easily
- Recycling Apps: to help individuals and businesses navigate the world of recycling, from donating your food waste to a worthy cause and giving away your clothes, to locating a nearby recycling center. (Nipissing First Nation Waste App)



Developing a Solid Waste Law

If the First Nation has issues with:

- illegal dumping
- littering
- hazardous materials in the landfill
- poor participation rates in recycling and diversion programs

a **Solid Waste Law** may be appropriate.

First Nations under a Land Code have the authority to develop laws “respecting the development, conservation, protection, management, use and possession of First Nation land.”

This could include developing a **Solid Waste Law**.

Partnership Options

A solid waste partnership can help reduce financial risk, improve environmental outcomes and accelerate efforts to meet diversion targets

- Regional Collaboration – Neighbouring Municipalities
- Public-Private Partnerships (3P)
- Producer Responsibility Partnerships (EPR)
- Service Contracts
- Shared Infrastructure Agreements
- Nation-to-Nation Partnerships
- Institutional Partnerships

Planning Activity Instructions

Using the information from this presentation and the provided community profile, work with your table group to complete the corresponding activity questions for XYZ First Nation.

Discuss ideas, identify key considerations, and work together to make planning decisions in the best interest of the community.

Use the provided handout to record your group's responses for this activity.

Activity: Current Waste Management Issues

4 Current Waste Management Issues

4.1 Identified Issues

What waste management challenges, gaps, or areas of concern have been identified?

4.2 Gap Analysis Findings

What gaps were identified between current waste management systems and future community needs or goals?

4.3 Future Pressures and Emerging Needs

What future pressures, growth, or changing community needs may affect waste management systems and services?

Group Reflection

As a table group, discuss:

- What might be challenging about identifying waste management issues or gaps in your own community?
- What future changes or community needs may affect waste management planning?
- What people, information, or partnerships could help support planning?