



# Analyze Current Conditions

## Step 3 Preparing a Solid Waste Management Plan



# Steps in Preparing a Solid Waste Management Plan



# Steps in Preparing a Solid Waste Management Plan

## Step 3

### Analyze Current Conditions

- Review existing information
- Analyze current waste systems/programs/services
- Conduct waste audit
- Project future waste generation and system demand

# Analyze Current Conditions

This step focuses on building a clear picture of current solid waste systems in the community.

This involves:

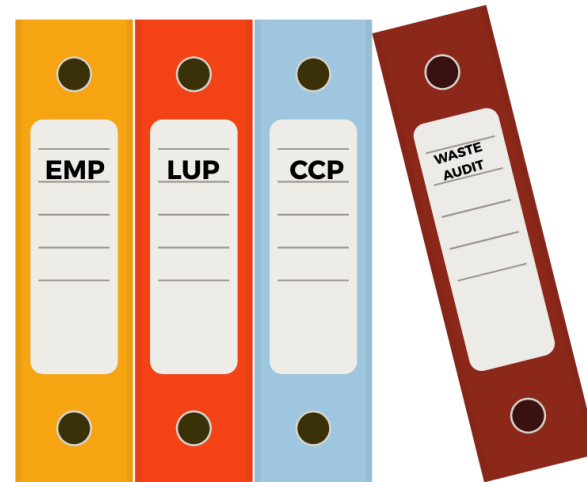
- Reviewing existing information
- Analyzing current waste systems/programs/services
- Conducting a waste audit
- Projecting future waste generation and system demand

# Reviewing & Identifying Key Information

Before initiating work on a SWM Plan, the First Nation's staff should assemble available reports and plans containing information that may inform solid waste decision making.

This could include:

- Environmental Management Plan (EMP)
- Land Use Plan (LUP)
- Community Comprehensive Plan (CCP)
- Community Strategic Plan
- Environmental Site Assessments  
(for any potential contamination and/or illegal dump sites)
- Landfill design or evaluations
- Waste Assessment/Audit



# Community Profile, Demographics, & Growth

A **community profile** is a comprehensive overview of a First Nations waste generation, infrastructure, and diversion programs to help guide in the planning of waste management. It is a baseline, capturing data on waste systems, demographic factors, and infrastructure to address evolving needs and meet environmental goals.

## A community profile includes:

- Identifying key waste generators within the community
- Reporting on community demographics
- Considering location (e.g. proximity to the nearest urban centre)
- Forecasting population growth and future development



# What Practices are Currently in Place?

Consider how waste is currently managed in the community.

What **facilities** do you have for managing solid waste on your reserve(s)?

Examples include:

- Off-reserve disposal site/facility (municipal service-type agreement)
- Transfer Station
- Engineered Landfill
- Non-engineered Landfill
- On-reserve unauthorized (illegal) Dump sites
- Garbage Pick-up/Recycling pick-up



# What Practices are Currently in Place?

Do you have any solid waste **diversion programs** currently operating on your reserve(s)?

Examples include:

- Blue box recycling
- Composting
- Tire collection/recycling
- Electronics collection/recycling
- White Goods collection/recycling
- Battery collection/recycling
- Paint, solvents, used oil collection/recycling



# Infrastructure to Support Current Practices

Now that you know what you have on reserve...

## Consider how those facilities and programs are functioning:

- Is your landfill nearing capacity?
- What is the participation rate in existing waste diversion programs?
- Is the landfill posing any potential risks to the environment?
- Is there sufficient staff to operate the current waste management system?

## Consider what infrastructure the programs and services require:

- What supports do these programs and services require to operate on reserve?
- What is the frequency of these services?
- Are these services functioning effectively?
- Does the community have infrastructure and staff in place to support these services or is more required?
- Are there any plans, audits, or reports that outline the details for these programs or services (e.g. implementation date, upgrades, etc.)?

# What is a Waste Audit?

## A Waste Audit:

- Is a hands-on analysis of waste to determine the quantity, composition and types of waste being produced
- Involves collecting, sorting and weighing a representative sample of the waste
- Defines what types and how much waste your community is generating
- Analyzes your community's waste and production rates



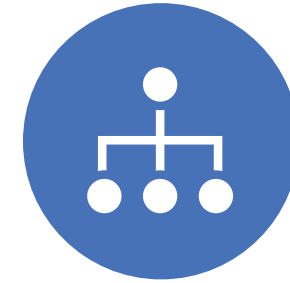
# Waste Audit Benefits



Gather data for waste reporting



Identify ways to reduce costs



Establish additional waste streams



Evaluate the effectiveness of existing waste management systems



Determine community & staff education needs



Address contamination

# Waste Audit Challenges

A waste audit alone will not help to resolve a First Nations solid waste management issues but should be included as part of a larger SWM Plan.

A waste audit:

- Requires significant time and commitment
- Provides only waste data (does not consider the why)
- Safety and health hazards dealing with waste
- Data accuracy can be skewed due to a “non-typical” week (e.g. community event generating more waste than usual)
- Cost to hire specialized auditors can be high
- High contamination levels in the recycling and organics streams

# Community Feedback to Supplement the Waste Audit

Community feedback provides valuable insight and should be considered alongside waste audit data.

## What can community members tell us about the results of the waste audit?

- Are the current programs or services sustainable into the future?
- What are their common waste disposal habits?
- What waste may not have been captured in the waste audit? (e.g., household waste burnt in backyard fire pits/burn barrels that was not part of the curbside pickup that was assessed in the audit)
- If waste diversion rates are low, what is preventing community members from participating?
- How do community members see waste generation changing in the future?

# Guest Presenter

**Aaron Campbell**

Environmental Specialist

*First Nations Technical Services Advisory Group*



**FIRST NATIONS TECHNICAL  
SERVICES ADVISORY GROUP**



Step 3

# Waste Auditing Overview and Case Studies



# What is a Waste Audit?



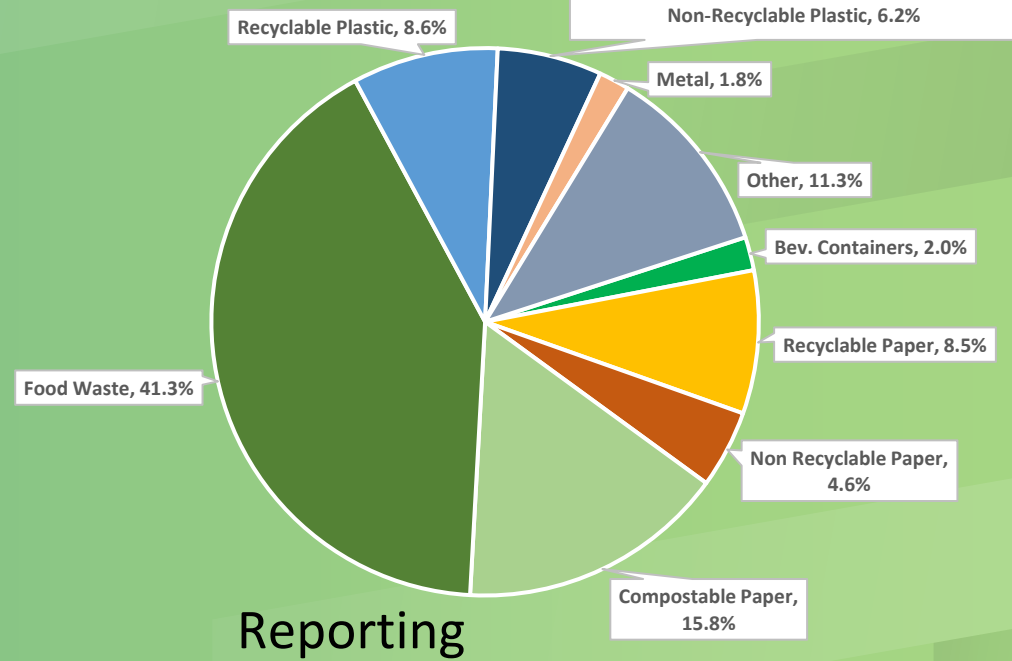
Waste Sample Collection



Waste Sorting



Weighing and Data Entry



Reporting

# Why Complete a Waste Audit?

How can waste auditing benefit your community?

1. Feasibility and Planning
2. Progress Tracking
3. Waste Diversion Compliance
4. Education and Promotion



# Waste Audit Scope

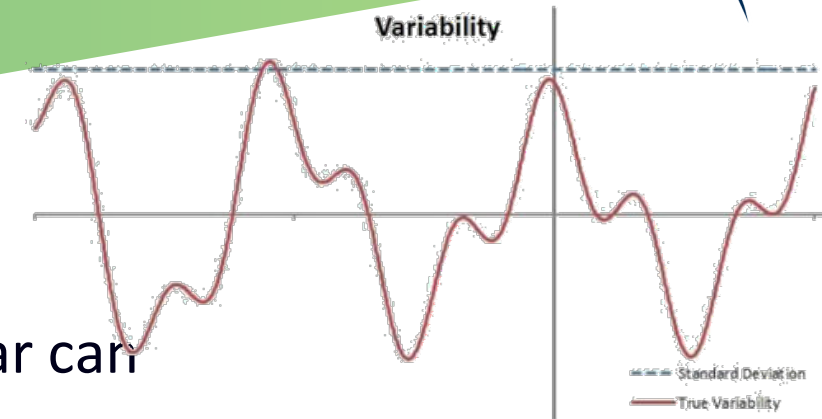
The scope of your waste audit needs to be tailored to your specific needs and situation. Planning is key to a successful study:

1. Sampling Plan
2. Sampling Period
3. Sorting Criteria
4. Frequency
5. Visual vs Weighed

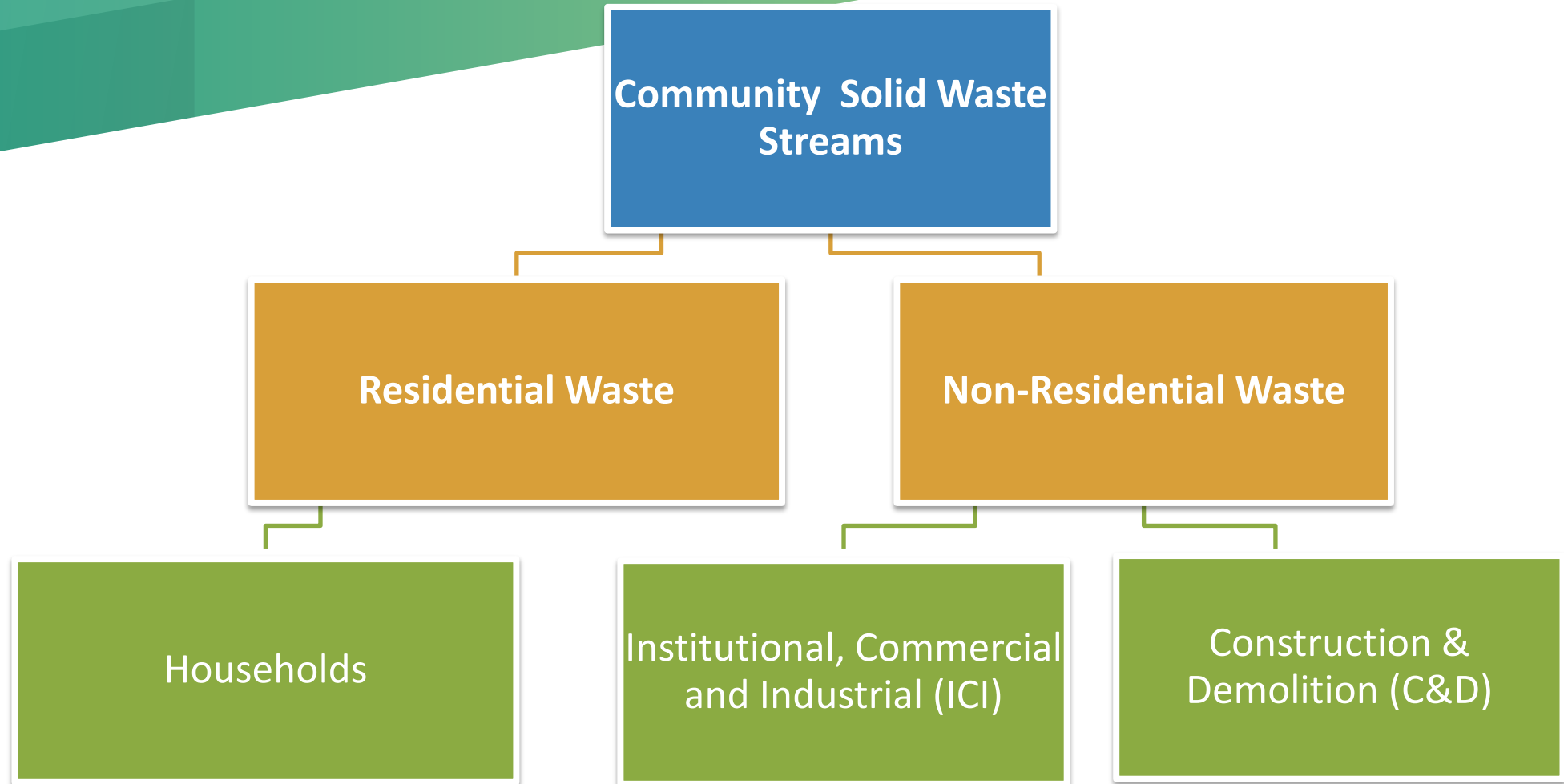


# Variability

- Only a small portion of the total waste generated in a year can be audited, so there is significant variability and error in your estimates.
- Day-to-day changes and unusual waste volumes will always result in variability, but can be improved with subsequent audits.
- If possible, verify and corroborate annual waste generation rates with supplemental data.



# Community Waste Streams



# Residential Waste Streams



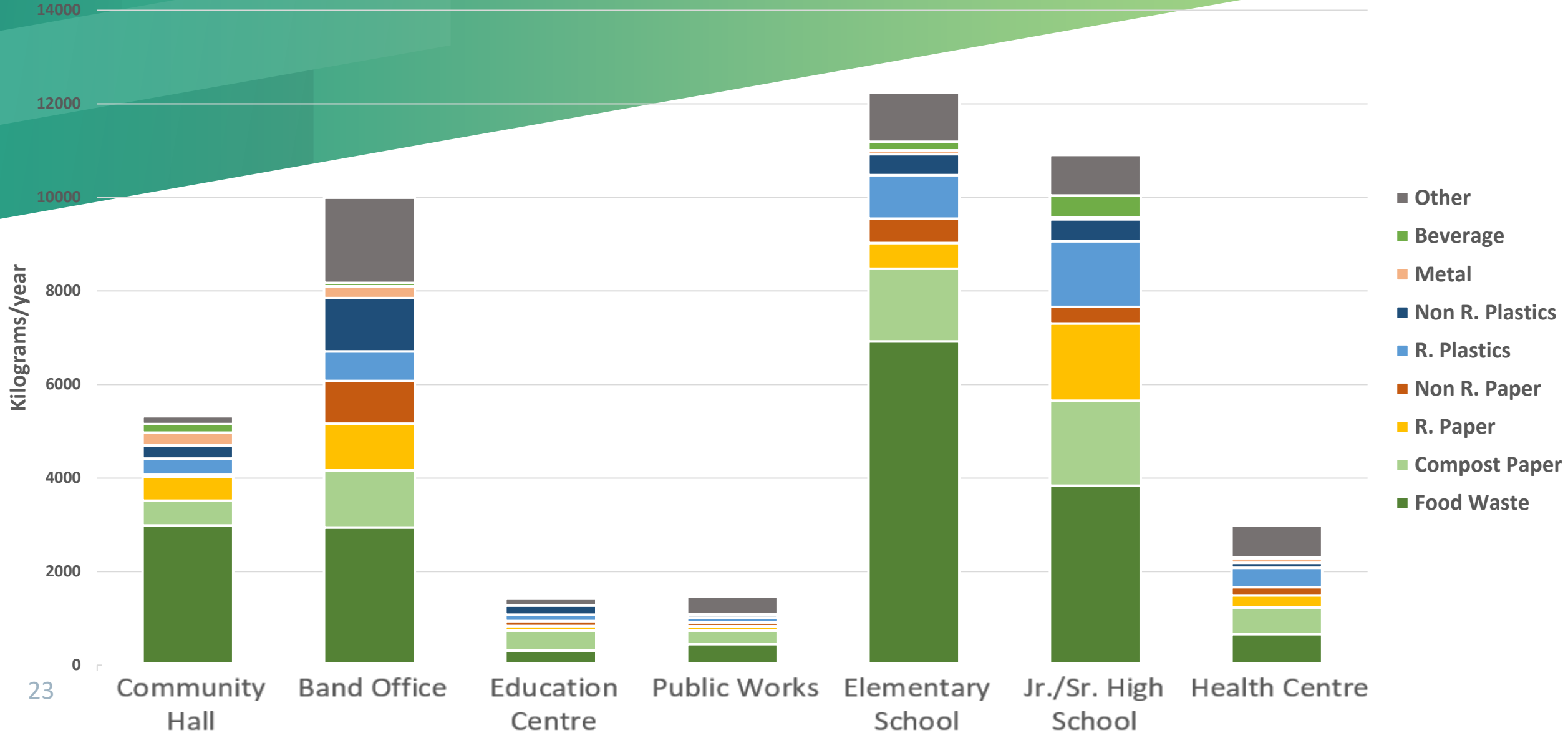
# Waste Auditing Logistics

The logistics of organizing a waste audit can be challenging:

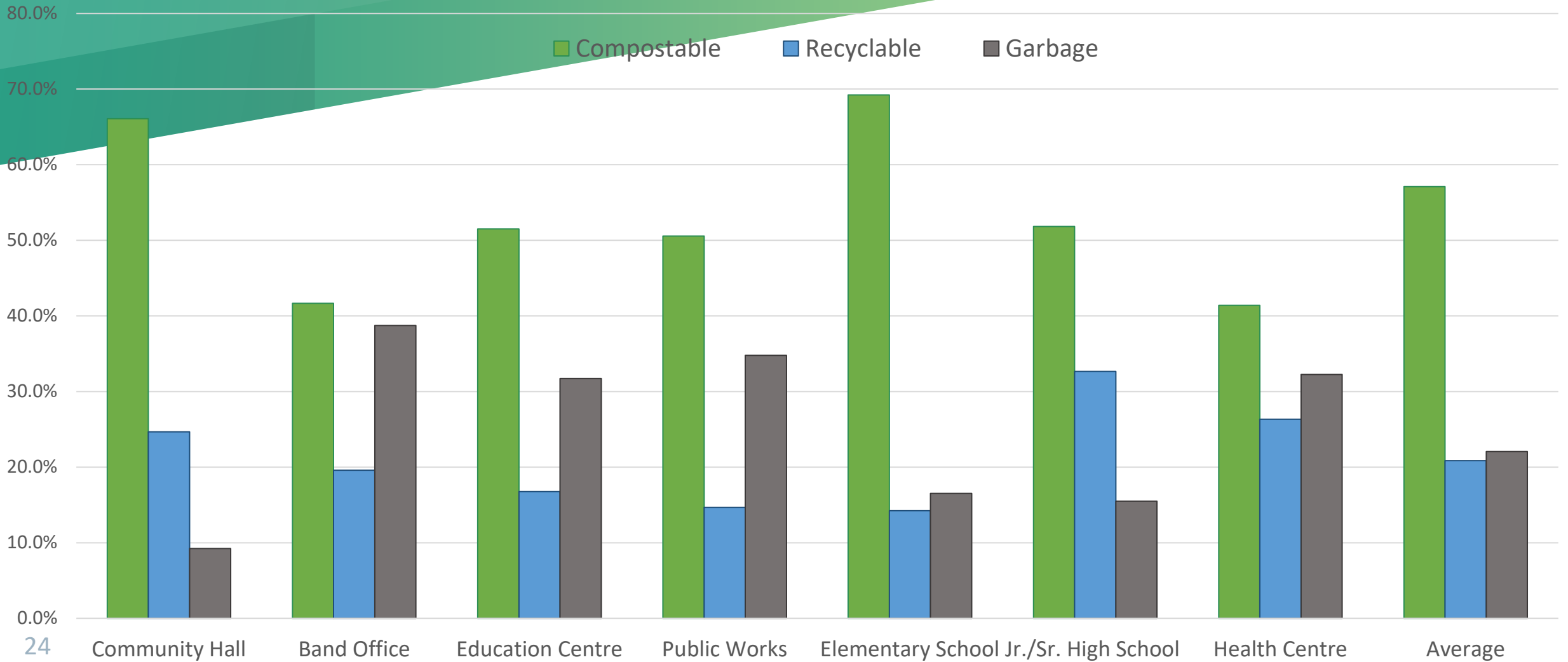
1. Training and PPE
2. Required equipment
3. Sorting location
4. Waste Storage
5. Waste Collection
6. Waste Disposal
7. Sorting and Weighing
8. Recording Data
9. Data Analysis
10. Presentation of Results



# Sample Data Output



# Sample Data Output





# Waste Audit: Pros and Cons

## Pros:

1. Establish a baseline to compare with future progress
2. Determine the feasibility and benefit of waste diversion programs
3. Assess the success and participation rates of existing Diversion Programs
4. Provides educational value and potential community buy-in

## Cons:

1. Logistically challenging
2. Costly
3. High data variability and potential inaccuracy
4. Limited benefit in many circumstances
5. Issues with Public Perception

# Tips for Smart Planning

## Dos:

1. Rely on existing data:
  - Landfill receipts
  - National Waste Composition
  - Transfer Station Records
2. Focus on important waste streams that are highly divertible or causing challenges for your community.
3. Communicate with the waste management professionals in your community.

## Don'ts:

1. Don't Over-sample
2. Don't Over-sort
3. Don't Make assumptions
4. Don't Wait on results to start planning
5. Don't Wait on results to start participating in low-cost or no-cost waste diversion programs
6. Don't Waste audit without a purpose

# Case Study #1 – Organics Diversion

## About the Project

Waste auditing was selected due to the limited scope, restricted to community buildings. The goal was to assess the feasibility of composting programs.

First Nations schools and community buildings have highly specific waste streams that cannot rely on national average waste compositions.

## Key Findings

- Results supported composting feasibility
- Original plan: four seasonal audits
- Only one audit completed due to funding constraints
- Decision made to redirect funds toward composting equipment purchase

## Key Outcomes

1

Audit Completed



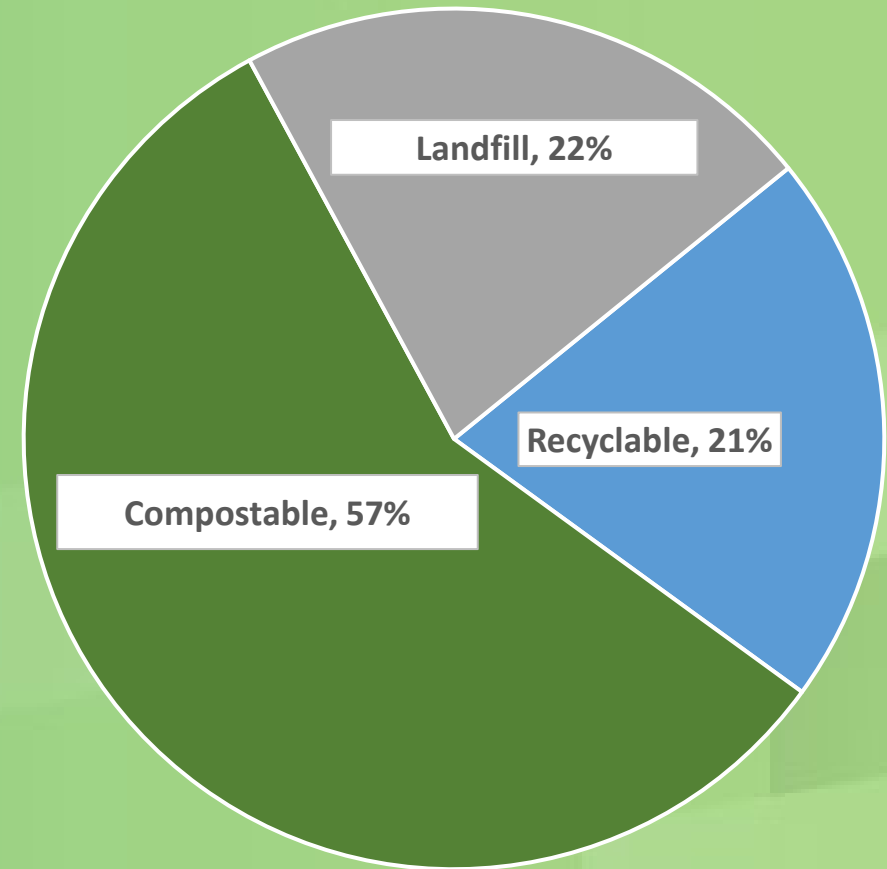
Composting Feasible

4→1

Seasonal Audits Planned

## Conclusion

*Audit results were promising — composting was determined to be a viable path forward for this community.*



# Case Study #2 – Feasibility Study

## About the Project

A waste audit was originally included within the scope of a waste management feasibility study.

The scope called for sampling waste from 100 homes over one week at an estimated cost of \$41,000.

## Key Findings

- Audit not pursued: limited benefit vs. cost
- Landfill receipts used to determine total residential waste generation
- National average waste compositions applied to supplement data
- Waste at dump site will be visually audited and studied using records of waste and recycling removal.

## Key Outcomes

**\$41K**

Audit Cost  
Avoided

**100**

Homes in  
Original Scope



Alternative  
Approach Used

## Conclusion

*Rather than hold up the broader project, we leveraged existing landfill data and a visual audit as a practical alternative.*



# Thank you!



## Any Questions?



# Considering Future Needs

The Waste Audit provides information on the amount and type of waste your community is currently producing and can be used to calculate the **per capita waste generating rates**.

Calculating current waste is key, however, it is also important to **anticipate** how much waste your First Nation will generate **2, 5, 10+ years in the future**.

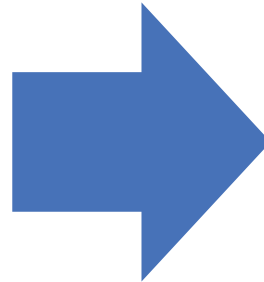
Using information from your waste audit as well as details from your Community Strategic Plan can help to predict the amount and types of waste that will be produced in the future, so you can plan in advance.

# Considering Future Needs - Examples

## Scenarios: Future Needs

ABC First Nation plans for large scale house development of 40 new homes to be completed in 3 years.

EFG First Nation plans on bringing industry partners to reserve as an economic development opportunity.



## SW Considerations

1. What new types and volumes of waste will these scenarios generate?
2. Can the current system handle the demand?
3. What new programs will be required for new waste streams generated during construction and by industry partners?

# 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: Existing Waste Management System

## 3 Existing Waste Management System

### 3.1 Existing Plans, Reports, and Available Information

*What existing reports, plans, or available information were reviewed to support development of the plan?*

### 3.2 Community Profile and Growth Considerations

*What community characteristics, demographics, growth trends, or development considerations may affect future waste management needs?*

### 3.3 Current Waste Management Programs and Services

*What waste management programs, services, or practices are currently in place?*

### 3.4 Existing Infrastructure and Facilities

*What infrastructure, facilities, equipment, or systems currently support waste management?*

### 3.5 Waste Audit Findings

*What information or key findings were identified through the waste audit?*

### 3.6 Future Waste Management Needs

*What future waste generation trends, service demands, or infrastructure needs should be considered?*

# Group Reflection

As a table group, discuss:

- What information or records may be difficult to gather when reviewing your current SWM systems or services?
- What community changes or future needs may affect your SWM planning over time?
- What challenges might you face when trying to improve existing infrastructure or services?