



August 17, 2020

Larry Gardner, Manager  
Solid Waste Services  
Regional District of Nanaimo  
6300 Hammond Bay Road  
Nanaimo, BC V9T 6N2

Dear Mr. Gardner;

Thank you for considering the Nanaimo Recycling Exchange (NRE) Waste Audit Proposal attached to this letter.

The Nanaimo Recycling Exchange is requesting funding from the Regional District of Nanaimo as part of the Zero Waste Recycling program in the Solid Waste Management Plan. The proposal is for the NRE to complete waste audits for the Industrial, Commercial, and Institutional sector of the RDN between October and December, 2020.

These NRE waste audits are designed to provide the RDN with current industry information about waste, waste practices, and the barriers to increased diversion. Sector-specific data will point the way to strategies and educational requirements to prepare business for new bylaw incentives, and highlight new program opportunities to increase diversion.

The NRE is committed to applying successful experience with waste audits, and with helping businesses improve their recycling programs, to the RDN goals and targets on the road to 90% diversion.

Thank you for considering this proposal. If further information is needed, please contact me.

Sincerely,

Jan Hastings, Executive Director  
Nanaimo Recycling Exchange Society  
jan@recycling.bc.ca

# Waste Audit Project Proposal

Prepared for: Larry Gardner, Manager Solid Waste

Prepared by: Jan Hastings, Executive Director

Contact: Jan Hastings, [jan@recycling.bc.ca](mailto:jan@recycling.bc.ca)

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### Summary

The Nanaimo Recycling Exchange is requesting funding from the Regional District of Nanaimo (RDN) as part of the Zero Waste Recycling (ZWR) program in the Solid Waste Management Plan (SWMP).

Nanaimo Recycling Exchange (NRE) is proposing to perform initial waste audits for the Industrial, Commercial and Institutional (ICI) sector from October to December 2020. The purpose of the waste audits is to

- a) determine types and quantities of products in Industrial, Commercial, and Institutional (ICI) waste streams,
- b) identify diversion potential for diversion,
- c) prepare businesses to optimize bylaw incentives in the new Solid Waste Management Plan, and
- d) pave the way for new programs the RDN could implement to increase diversion.

Using a combination of education, enforcement, and incentives to increase ICI diversion is a core strategy of the new SWMP. In addition to waste stream product identification, NRE waste audits will also provide early identification of industry-specific educational requirements about waste products, zero waste recycling options, and alternatives to recycling. Ban enforcement strategies and barriers to implementation of the new bylaws incentives will also be identified. “Hard to recycle” products will be of particular interest to identify and target for diversion, as will products identified as problematic in landfill waste composition data.

The NRE would perform waste audits as the first step in the process of assessing current ICI barriers to waste diversion and planning strategy for new diversion programs.

### Background

The 2012 landfill waste composition study indicated a number of waste types that can be recycled, but end up in the residual waste stream. Extended Producer Responsibility programs available to residential recyclers do not extend to ICI waste streams, but some commercial recycling options do exist. It is not entirely understood why the ICI sector does not always make use of existing recycling options.

The SWMP has provided funding for the NRE to investigate barriers to recycling and develop methods, markets, and collaborations to increase access to recycling programs. Under the ZWR program, the Nanaimo Recycling Exchange (NRE) can act as a research and recycling hub for recycling items currently not commercially marketable. The work with the ZWR would allow the RDN to leverage NRE waste stream audit and recycling experience and identify current barriers and potential for diversion.

### Timeline

The NRE is proposing completion of up to 15 waste audits from October 1 to December 31, 2020.

### Objective

The purpose of a waste audit is usually to assess the waste stream and waste practices of an organization, and then identify waste diversion potential and barriers for waste reduction. Recommendations are typically provided for improvement.

Scope of waste audits can vary:

- minimal audit results can be a baseline “snapshot” of amount and general types of waste.
- comprehensive audits can include tracking waste over a period of time, detailed breakdown of all categories of waste and contamination by area or department, examination of records and processes, extensive examination of internal systems and processes contributing to waste, and extensive commitment to a work plan for waste reduction.

For the purpose of this proposal, the NRE will perform waste audits designed to be comprehensive to the extent they will provide data and direction for the organization, yet targeted to meet objectives of the RDN SWMP:

1. **Maximize use of waste materials:** New waste bylaws will require businesses to become experts in their own waste streams in order to successfully identify and source separate products. Waste audits will start this process with businesses, introduce new sorting practices, concepts of Reduce and Reuse (often ignored in ICI) with the goal of aligning ICI waste practices with bylaws, bans, and ZWR programs.
2. **Develop collaborative partnerships to achieve regional targets:** Engaging ICI with help and support before bylaws come into effect is likely to elicit cooperation and collaboration. ICI is more likely to get on the road to 90% if they feel the RDN is helping them achieve targets. In addition, to achieve the maximum product grade, businesses will need to collaborate on collection for single product shipments. The NRE will help RDN businesses develop collection and shipment constellations.
3. **Manage incentives to maximize behaviour outcomes:** Waste audits can encourage early adoption of source separation bylaws that promote recycling or circular economy solutions. Where diversion options don't exist, audits will recommend procurement changes to implement before bylaws are in place.
4. **Support a circular economy:** NRE will develop a database of appropriate waste products for a regional circular economy.

The NRE waste audit will assess management of garbage, recycling and organic products in ICI waste. In addition, waste will be sorted and categorized, contamination assessed, records and process data will be collected and analyzed through interview, records analysis, observation, “bin diving,” and breaking bags. Product research and specific education about bylaws, landfill bans, and source separation procedures will be provided to prepare the business and the sector for compliance with the new SWMP.

### Project Outline

The RDN has identified strategies to meet objectives in the SWMP: NRE waste audits would address strategies 1 and 2 below, and set the stage for future implementation of programs.

1. **RDN strategy to increase ICI diversion:** A combination of education, enforcement of landfill bans, and incentives through new regulation has the highest waste diversion potential.
2. **RDN ICI Strategy:** Expanded Industrial, Commercial and Institutional (ICI) Waste Management
3. **Zero Waste Strategy:** programs with new diversion potential will be implemented upon adoption of this Plan.

Every policy, procedure, person, and system in an organization contributes to waste and to whether the waste gets diverted to recycling/re-processing, or becomes residual waste in the form of garbage in a landfill. The NRE waste audit examines waste, and systems and practices as a first step.

#### Waste Audit Process

The NRE will do initial research to identify at least 15 waste audits, including 5 each of Industrial, Commercial, and Institutional businesses, ranging in size and purpose, across the RDN. A list will be developed by recommendations through NRE contacts from depot recyclers, and research and initial contact will be by telephone or email. Some pre-screening will be necessary to ensure businesses meet selection requirements.

On-site audits will be scheduled at selected organizations, with arrangements to interview all relevant employees, observe practices, gather records, and examine the waste. Due to COVID-19 restrictions, some data can be collected by zoom meetings, emails, phone communications, depending on site technology.

Productive interviews take time and skill. NRE audit interviews are designed to elicit quantitative and qualitative data about waste, which is both sensitive and not well understood. It's typical for the "recycling champion" of an organization to go to great lengths to highlight recycling successes and avoid mention of less flattering outputs.

The NRE will use a semi-structured, guided interview approach that covers the same topics at each site, yet allows flexibility for feedback, probing, and clarification and, most importantly, for open communication that builds trust. Getting the true picture of waste practices and challenges depends on early recognition that the NRE and RDN are there to help and not police.

Quantitative data will be collected from interviews of people responsible for contracts, departmental processes, disposal, procurement, and financial decision making. Techniques of observation, breaking bags, bin-diving, and records analysis will be used to identify waste categories, and sub-categories. If records are available to calculate monthly or annual waste tonnages, they will be used to calculate diversion rates. If not available, visual estimates of volume will be translated to weight units to calculate diversion rate and to provide baseline measurements.

For some businesses, weight based measurement will be taken from waste samples using a portable scale, and sample data will be used to extrapolate tonnages. For bulky industrial waste, records or visual estimates will be necessary.

Off-site calculations and research will be conducted to identify composition and recyclability of products to assess diversion potential and/or procurement options. Research about products will also provide data for planning potential NRE ZWR programs. Individual audit report information will be provided to the RDN, and communicated to the organization.

### Waste Audit Selection

For the purpose of providing waste audits that address diversion needs specific to the RDN SWMP, this proposal recommends waste audits targeted to address particular materials identified in landfill composition studies, and materials with potential to make immediate gains toward 90% diversion.

To achieve this goal, NRE waste audits will focus on:

- ICI with fibre and plastic,
- ICI with other 'hard to recycle' materials such as Expanded Polystyrene (styrofoam),
- ICI with organic waste,
- ICI with self-reported waste challenges.

In absence of data identifying sources of recyclable material in the RDN landfill, the NRE will select 5 businesses from each of Industrial, Commercial, and Institutional sectors. In order to gather instructive data about barriers and potential for diversion, selections will be from large, medium and small ICI organizations across the geographical range of the RDN.

### Project Management

For this project, all activities will be directed and managed by the Executive Director.

#### **Executive Director tasks:**

On-going communication with RDN staff  
Report writing  
Monitoring of project progress

#### **Executive Director and Staff tasks:**

Identification and selection of ICI participants  
On-going communication with participants  
Scheduling and organizing audits  
Data compilation  
General monitoring and evaluation of process

## Deliverables

The NRE will deliver to the RDN

1. A maximum of 15 comprehensive waste audits,
2. Waste audits will include ICI organizations across sectors and across the RDN
3. A summary report will be produced for each organization, providing waste categories, diversion rate, diversion potential, barriers, procurement options
4. A summary of qualitative data important to identification of barriers, best practices, and sector challenges.
5. An aggregate report that includes
  - waste stream tonnages/volumes of garbage and recyclable products in selected waste streams,
  - organizational and industry-specific barriers to diversion and bylaw compliance,
  - best practices, innovations and successes,
  - general and industry-specific RDN/Solid Waste Plan strategies to increase ICI diversion (such as education and/or enforcement strategies).
  - inventory of organizations and products appropriate for Circular Economy.

Baseline data will be provided to the organization: diversion rate and potential diversion will be identified.

Where diversion potential is immediately applicable, options will be communicated to the organization.

Where not immediately available, it is necessary to communicate potential projects the RDN may implement to increase diversion.

## Proposed Budget

Description	Quantity	Hours per Audit	Fee per hour	Cost
Waste Audits	15	15	\$ 100.00	\$ 22,500.00
Contingency fee @10%				\$ 2,250.00
<b>Total</b>				<b>\$ 24,750.00</b>