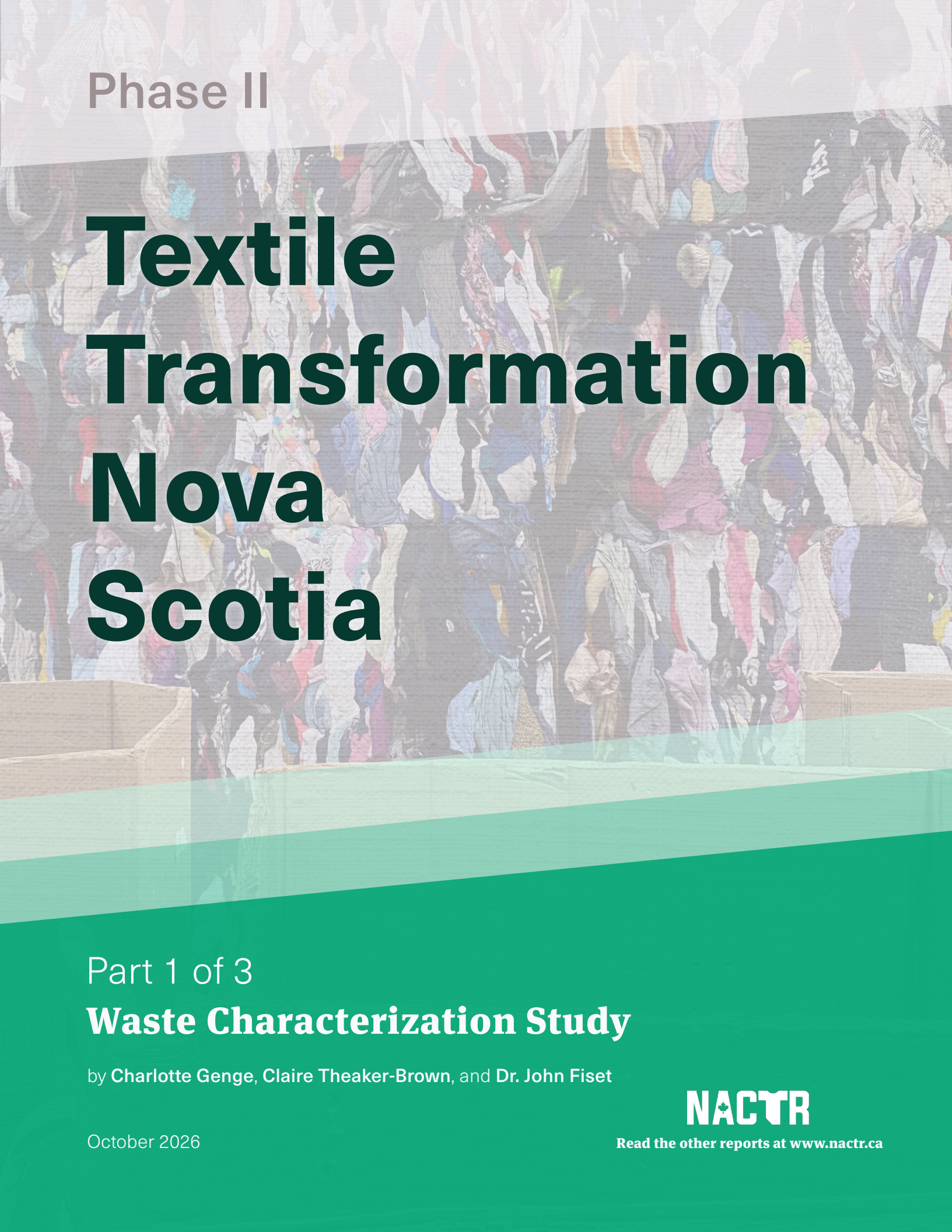




Phase II

Textile Transformation Nova Scotia

Part 1 of 3

Waste Characterization Study

by Charlotte Genge, Claire Theaker-Brown, and Dr. John Fiset

October 2026

NACTR

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Textile Transformation Nova Scotia (TTNS) Phase II

Textile Waste Characterization Study, Donation Etiquette Analysis, & End-Use Pathways Brief

Prepared for:

The National Association for Charitable Textile Recycling (NACTR)



Prepared by:

EnsembleCo Consulting



In collaboration with:

The University of Alberta, Department of Human Ecology,
and the Salvation Army Thrift Store



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Report Authorship

This volume brings together three deliverable reports plus the master document prepared under TTNS Phase II. Authorship, contributions, and reviewers for each report are listed below.

No.	Report	Authors	Reviewers & Contributors
0	Master Report	Charlotte Genge	Dr. John Fiset, Sasha Barnard
1	Waste Characterization Study	Charlotte Genge, Claire Theaker-Brown, Dr. John Fiset	Dr. Rachel McQueen, Tonny Colyn, Sasha Barnard
2	Donation Etiquette Analysis	Charlotte Genge, Dr. John Fiset	Dr. Rachel McQueen, Claire Theaker-Brown, Tonny Colyn, Sasha Barnard
3	End-Use Pathways Brief	Charlotte Genge	Dr. John Fiset, Tonny Colyn, Sasha Barnard

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Genge, C. (2026). End-use pathways brief. In Textile Transformation Nova Scotia (TTNS) Phase II. Prepared for National Association for Charitable Textile Recycling.

This report is one of three integrated deliverables produced through **TTNS Phase II**. Together, the reports examine Nova Scotia's textile system from material, behavioural, and market perspectives. The overall project context and relationship among the reports are presented in the **TTNS Phase II Master Report**. The present **Waste Characterization Study** focuses specifically on the physical characteristics of post-consumer textiles entering Nova Scotia's reuse and recovery system.

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0.0 Executive Summary

Nova Scotia's textile donation stream contains far more value than is currently being captured. Across 4,664 donated items assessed in all seven of the province's solid waste-resource management regions (SWR), an estimated **47% were immediately suitable for resale**, and a further **20% required only minor cleaning or repair** before they could re-enter the market (Grade D1).

Even textiles unsuitable for resale represent a diverse, largely single- or two-fibre material stream that could serve as feedstock for recycling and manufacturing where appropriate sorting, processing capacity, and end markets exist.

This report presents Nova Scotia's first province-wide characterization of donated textiles, examining garment condition, fibre composition, product categories, brand ownership, and material suitability for downstream recovery pathways. The findings establish the material evidence base that the rest of **TTNS Phase II**, and any future textile policy or investment decision in the province, builds on.

Why this matters

Until now, little was known about what actually makes up Nova Scotia's post-consumer textile stream. Decisions about recycling infrastructure, policy, and investment cannot be made without knowing what materials exist, in what condition, and in what quantity. This report begins to close that gap.

Several of this study's findings have direct implications for next steps in infrastructure and policy development. For example, cotton and polyester dominated the sample, together accounting for nearly 82% of all fibres identified, and 84.8% of items contained only one or two fibre types, a composition that meaningfully improves suitability for future sorting and recycling. Denim in particular stands out as a promising feedstock for insulation manufacturing given its high cotton content, although the presence of elastane in many garments creates a processing challenge that must be addressed in developing this pathway.



Key findings

The study identifies three distinct material streams, each requiring a different management approach:



Immediate reuse. An estimated **47% of donated items are in resaleable condition** without any repair intervention required, confirming that reuse remains the highest-value recovery pathway and the first priority for any investment.



Repair and value recovery. A further **20% (Grade D1) require only minor repair or cleaning** before resale, representing a clear opportunity for repair-to-resale programs and social enterprise employment.



Material recovery. Items unsuitable for resale remain **valuable feedstock for insulation, nonwovens, industrial wiping cloths, and future fibre-to-fibre recycling**, provided fibre content can be reliably determined.

The analysis also found that a relatively small number of parent companies are responsible for a disproportionate share of donated clothing: **the top 25 companies accounted for 34.1% of items** while owning only 5.9% of identified brands. This concentration provides a clear and practical starting point for establishing producer accountability under a future EPR framework.

Recommendations

The report identifies **material-level (“MAT”) priorities** for strengthening Nova Scotia’s textile recovery system. The following recommendations are drawn from the full analysis; codes in brackets (e.g., MAT-1) correspond to the numbered recommendations in the report:



Engage the **concentrated parent companies** identified in this study as the foundation for producer accountability and closing the stewardship infrastructure gaps their concentration reveals.
(MAT-1, MAT-2)



Formally include textiles in provincial and municipal waste strategies and audits, using a definition harmonized with NACTR and other Canadian jurisdictions.
(MAT-3)



Explore procurement mandates and consumer incentives, such as recycled-content purchasing requirements and sales tax exemptions on used textiles, as near-term demand-side levers.
(MAT-4, MAT-5)



Explore methods of extending wearable garment lifetimes by considering repair subsidies and eco-modulated producer fees that reward circularity-enabling product design.
(MAT-6, MAT-8)



Improve fibre-content transparency through standardized labelling and digital product information to support fibre-specific recycling.
(MAT-7)

1.0 Introduction

There is a pressing need to examine alternative waste pathways that restore economic value to the textiles entering Nova Scotia's donation stream. Because processing options depend on a wide variety of material characteristics, quantifying what exactly is in the textile waste stream is a necessary first step. Recycling solutions, for example, can be fibre-dependent, while resalability is significantly affected by an item's brand and condition (*Botticello, 2012; Cura & Mäkelä, 2024*). Nova Scotia's textile collection and processing is currently undertaken primarily by for- and non-profit thrift organizations whose operations include receiving, sorting, reselling, and other handling of donated items. Thus, an understanding of what Nova Scotians are donating can illuminate potential resources for and barriers to alternative circular pathways for textiles.

This study is Nova Scotia's first investigation into the item type, textile construction, fibre content, condition, and reusability of donated textiles in the province. The primary objective of this research is to provide baseline data that can inform future product stewardship obligations.

Textile samples were primarily collected from Salvation Army Thrift Store retail locations across Nova Scotia's seven SWR, with over 4,500 items examined.

The central question that this work seeks to answer is:

What is entering and exiting Nova Scotia's charitable textile reuse stream?

The findings presented in this report provide the material foundation for the other **TTNS Phase II** deliverables. The **Donation Etiquette Analysis** examines the behavioural factors that contribute to the material characteristics documented here, while the **End-Use Pathways Brief** uses these findings to evaluate the most appropriate recovery and manufacturing opportunities for Nova Scotia.

A detailed breakdown of data collection and analysis can be found in the following section. Of note is that the research methods used for this project were designed to build on previous Canadian textile waste characterization studies (*Degenstein et al., 2020, 2021; Mak et al., 2025; Sterling et al., 2026; Weber et al., 2017, 2023*). The data collected can thus contribute to a harmonized Canadian data set that can inform domestic textile waste diversion policy development across jurisdictions.



Master Report

Including appendices and references



Waste Characterization Study

Investigation of donated textiles



Donation Etiquette Analysis

Examination of donor behaviour



End-Use Pathways Brief

Evaluation of potential opportunities

2.0 Methodology

2.1 Sampling Approach

This study examined post-consumer textile donations collected through charitable reuse systems across Nova Scotia's seven SWR (Figure 1). Data collection was conducted via two sorting sessions through a partnership with The Salvation Army Thrift Store, one of the province's largest charitable textile collectors and retailers.

For **Sort 2**, a sample of textiles collected from donation bins provided by Big Brothers Big Sisters of Greater Halifax was also assessed.

To facilitate analysis of material flows through the charitable reuse system, textiles were classified into three categories based on their stage in the sorting process: credentials, rejects, and ragout.

- **Credential:** donated items that had not yet been sorted at the store level,
- **Rejects:** items deemed unsuitable for resale during initial store-level sorting, and
- **Ragout:** items initially accepted for resale but subsequently removed from inventory after failing to sell within their allotted retail period, typically four weeks.

This classification provided a framework for examining how textile **quality, composition, and reuse potential** vary across different stages of the charitable reuse system.

Nova Scotia Solid Waste-Resource Management Regions

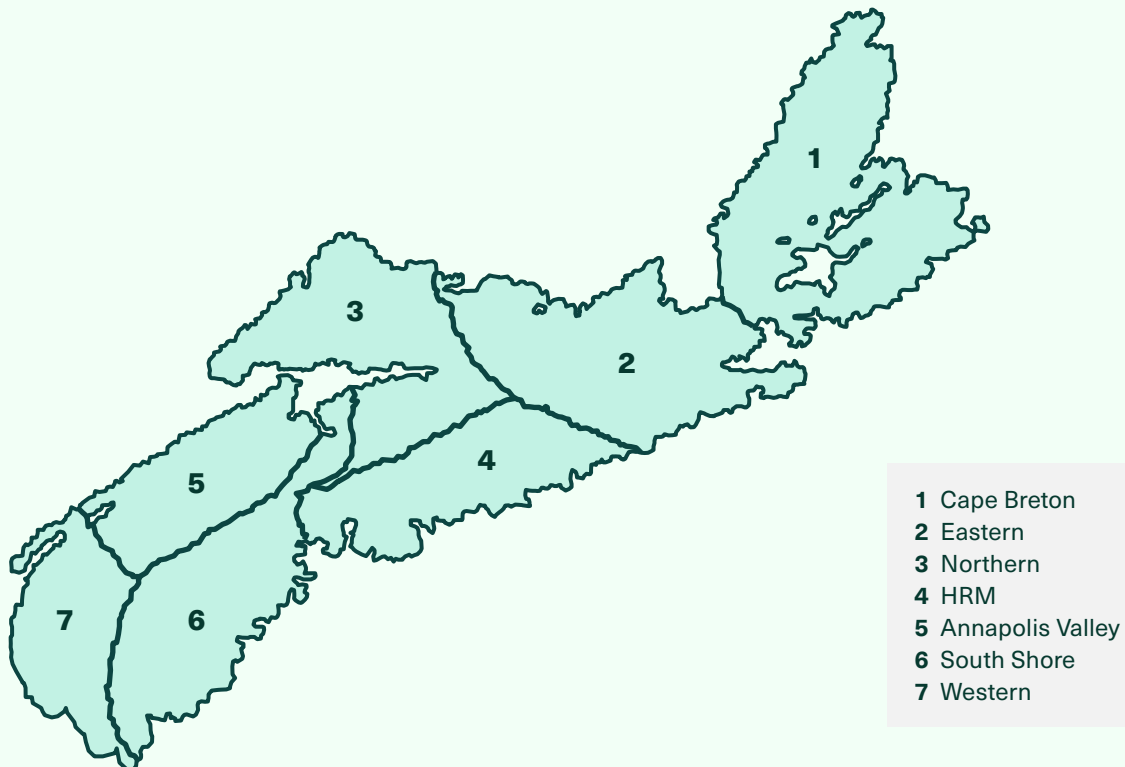


Figure 1: Nova Scotia solid waste-resource management regions (adapted from *Government of Nova Scotia, n.d.*)

The sorting sessions were conducted between February and April 2026 at the Salvation Army Thrift Store Distribution and Recycling Centre (DRC) in Dartmouth, Nova Scotia. This approach served two purposes. First, conducting the sessions in winter and spring helped limit potential seasonal bias in donation patterns, such as the overrepresentation of winter apparel during colder months. Second, the sessions examined textiles at different stages of the charitable donation and sorting process, providing insight into how their composition and condition varied across the reuse system (see **Table 1**).

For each session, the Salvation Army Thrift Store provided one 64-cubic-foot pallet box of between 200 and 300 pounds on average, of requested samples collected from stores in each of Nova Scotia’s waste regions (see photo in **Appendix A4 in the Master Report**). The pallet boxes were transported from their regions of origin to the DRC, where all sorting and data collection activities were conducted. As a complement to **Sort 2**, a supplementary sample of 301 credential textile items collected from donation bins operated by Big Brothers Big Sisters of Greater Halifax were assessed. In total, **4,664 donated items** weighing **2,975 lbs (1,349 kg)** were evaluated across the sorting sessions.

Sort 1: Ragout and Rejected Donations

The first sorting session, conducted over five days in February 2026, examined textiles that had already undergone initial processing within the charitable reuse system. Store staff were instructed to assemble samples that, to the best of their ability, reflected the types and relative proportions

of unsold textiles scheduled to be returned to the DRC for further sorting and processing, including both ragout and rejected items. While the exact proportions may not perfectly mirror the broader return stream, all major textile categories were represented in the sample.

It is important to note that although stores were instructed to provide only reject and ragout items, a small amount of credential material was also included in some samples due to sorting and handling practices at the store level. This is discussed further in **Section 5.1 – Limitations**.

Sort 2: Credential/Unprocessed Store Donations

The second sorting session (**2A**), conducted over five days in April 2026, focused on credential donations received directly at Salvation Army Thrift Store locations, along with a subsample of credential donations (**2B**) collected through charitable donation bins. Similar to **Sort 1**, retail thrift stores located in each of Nova Scotia’s seven waste regions were instructed to assemble a pallet box containing a representative sample of textiles entering the charitable reuse system, this time consisting of store-based donations of credential textiles. Each pallet was weighed upon arrival and again after data collection was completed, with the difference used to calculate the total weight of the items assessed. To support balanced regional representation, approximately 50 items from each region were evaluated in rotation. After all seven regions had contributed 50 observations, the process was repeated until the target sample of approximately 300 items per region was reached.

Donation Sorting Sessions

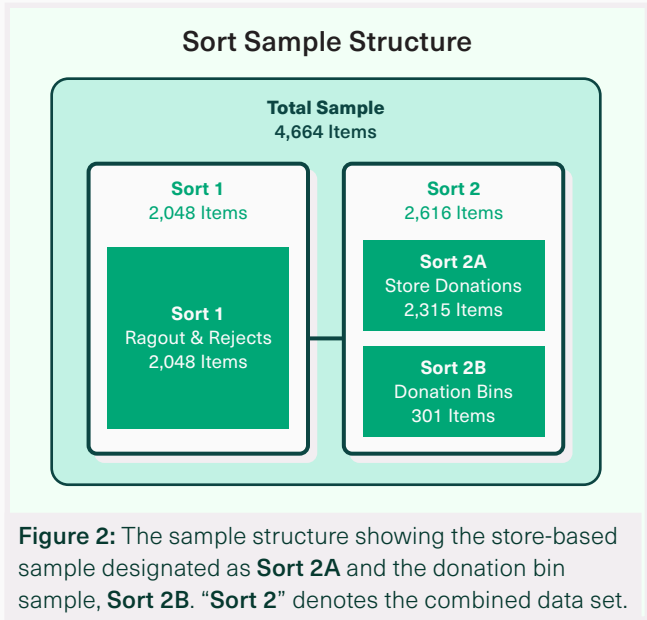
Session	Session Date Range	Primary Sample Composition
Sort 1	February 9-13, 2026	Ragout & Rejects
Sort 2A	April 13-17, 2026	Credential
Sort 2B	March 1-14, 2026	Credential

Table 1: Summary of sorting sessions and associated sample composition

As a complement to the store-based sample, credential donations collected from charitable textile donation bins throughout the Halifax Regional Municipality (HRM) were also assessed. This additional sample allowed us to examine whether donation channel was associated with differences in the quality, condition, or composition of incoming textiles. Unlike the donations assessed from Salvation Army Thrift Store locations, these materials had been deposited in unattended collection bins. At the time of the study, researchers had access only to bins within the HRM, so comparisons of donation quality between rural and HRM bins were outside the scope of this research.

To preserve the integrity of the donation stream, bags remained unopened until they arrived at the sorting location. In total, 40 donation bags collected from a wide range of donation bins across the HRM were weighed and processed. An average of eight items was randomly selected from each bag, resulting in a final sample of 301 items. This approach captured variation across multiple donation events while maintaining a manageable sample size. For analytical purposes, the donation-bin sample was treated as an eighth region, and all items were assessed using the same procedures applied in the other sorting exercises.

For reporting purposes, the store-based sample is designated as **Sort 2A (store donations)** and the donation bin sample as **Sort 2B (donation bins)**. References to **Sort 2** denote the combined dataset comprising both **Sort 2A** and **Sort 2B** (see Figure 2 for the sample structure). Figure 3 presents the total sample weights associated with each sort.



2.2 Sorting procedure

Before data collection began, members of the research team were trained in item classification, condition assessment, fibre identification procedures, and data recording protocols. Following this training, each item was individually assessed by a trained researcher.

Each item underwent a detailed visual inspection covering the following attributes and condition indicators:

- **Attributes**

- Retail section, category, and subtype
- Brand
- Textile construction
- Fibre content

- **Condition**

- Grade
- Visible defects and contamination, including moisture and odour
- Value assessment, including characteristics that may add to or detract from potential market value

Photographs were taken of each item to support verification of classification, fibre content, and condition assessments. For a complete list of data points, data collection form, sample item photographs from **Sorts 1 and 2**, and photos of commonly observed defects, see **Appendix A5 in the Master Report**. Data collection procedures evolved over the course of the study. **Sort 1** employed the use of photographs and the submission of a digital data collection form after the sorting session based on the photographs, which was replaced solely by a digital data collection form completed in-situ for **Sorts 2A and 2B**.

The streamlined digital system improved data collection efficiency and supported the inclusion of additional variables while maintaining comparable item assessment rates. It is also worth noting that items commonly donated in pairs, like socks and gloves, were logged as separate items (i.e., a pair of socks would be assessed separately as two separate items).

2.2.1 Item classification

Items were classified using a three-level hierarchy consisting of **Retail Section** (home/pet items, men's apparel, women's apparel, children's apparel, and unisex/other), **Item Category** (e.g., tops, accessories, sleepwear), and **Item Subtype** (e.g., "button-down shirt," "hat," "pyjama top"). All classifications were selected to align with common sorting and merchandising practices used by thrift retail organizations.

Retail Section, referred to as gender and age classification in some previous studies, was included because it reflects how garments are typically sorted, stored, and displayed within resale environments and may also influence consumer demand and resale value (*Mizrachi & Ori, 2025*). Efforts were also made to align item categories and subtypes with classifications used in prior textile characterization studies (*Sterling et al., 2026; Weber et al., 2023*) to facilitate future comparative analyses and dataset harmonization across studies.

2.2.2 Brand

Brand information was recorded for each item whenever it could be reliably identified. Brands were tracked for three primary reasons: First, brand identification provides insight into **item volumes by producer**, information that may be relevant as manufacturers become stakeholders in future policy discussions. Second, it helps illustrate the extent to which **fast fashion and hyper-fast fashion** have affected textile donation volumes and quality. Third, it enables analysis of the relationship between brand and **potential resale value**.

Brand information was recorded at two levels: during the initial sort, the individual brand displayed on the item was recorded. Subsequently, during analysis, brand parent companies or broader brand group that owned the brand at the time of data collection was recorded.

For example, an item labelled Banana Republic was recorded under Banana Republic as the individual brand and Gap Inc. as the parent company. Tracking both levels made it possible to preserve distinctions between consumer-facing brands while also examining the combined presence of brands operating under the same corporate ownership.

Brand identification was based primarily on manufacturer labels. Where labels were absent or illegible, alternative identifiers such as logos, embroidery, printed graphics, or branded hardware were used when available. If no reliable brand identifier could be located, the item was recorded as “Unknown”.

2.2.3 Textile construction

Each item was assessed for textile construction, defined as the method by which fibres, yarns, or other materials are assembled to create a fabric. Textile construction was recorded because processing, recycling, and repair options are often influenced by both fabric structure and fibre composition. Three construction categories were used in this study: **woven**, **knit**, and **nonwoven**.

Woven fabrics are produced by interlacing yarns at right angles, whereas **knit** fabrics are created by interlooping yarns, resulting in greater elasticity and stretch. **Nonwoven** materials are formed through the bonding, entangling, or interlocking of fibres or materials rather than through weaving or knitting (e.g., felt and leather). **Figure 4** (Yan, Kasal, & Huang, 2016) illustrates the different textile construction types.

Textile Construction Types

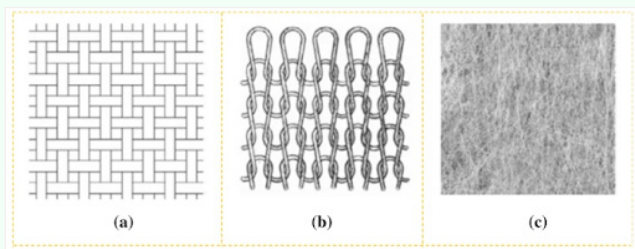


Figure 4: Construction types of textiles: (a) woven, (b) knit, (c) nonwoven from Yan, Kasal, & Huang, 2016

2.2.4 Fibre content

Each item was assessed for fibre composition, as fibres are the fundamental building blocks of fabrics (Lomov & Verpoest, 2005) and can be classified as **natural** (e.g., cotton, linen), **synthetic** (e.g., polyester, acrylic), or **man-made cellulosic** (e.g., rayon) fibres. Documented fibre types aligned with those documented in previous studies to allow for data harmonization (Mak et al., 2025; Sterling et al., 2026). Where available, fibre content information was obtained directly from fibre content labels. When labels were missing or illegible, fibre composition was assessed using a FabriTell Near-Infrared Spectroscopy (NIRS) scanner manufactured by Matoha (Figure 5). The same scanner model has been employed in previous textile characterization studies conducted in Alberta, Saskatchewan, and Ontario, facilitating comparison across datasets (Mak, McQueen, & Kozlowski, 2025; Sterling et al., 2026; Weber et al., 2023). Items for which neither label information nor scanner results provided a reliable identification were classified as “Unknown.”

FabriTell Fibre Scanner



Figure 5: Matoha FabriTell NIRS scanner (photo taken from www.matoha.com)

2.3 Condition

Condition is a key factor in determining reusability and resale value. For the purposes of this study, condition was defined as the extent to which an item retained its original functionality and appearance relative to its condition at the time of purchase. Condition assessments focused on **observable wear, damage, contamination, and other factors affecting resale or reuse potential.**

2.3.1 Grade

Items were assigned a condition grade using the framework adapted from *Sterling et al. (2026)* and *Weber et al. (2023)*. Grades ranged from **A (new with tags)** to **F (contaminated or unsuitable for reuse and recycling)**. Table 2 shows each grade and its definition.

For this study, grades **A** through **C** were considered ‘**rewearable**,’ meaning the item could reasonably be placed on a retail sales floor without additional intervention. Grade **D1** and **D2** items were both classified as ‘**recoverable**,’ meaning they retained the potential for reuse following cleaning, repair, or

refurbishment. Grade **D1** items required relatively minor intervention before they could be resold, whereas Grade **D2** items required substantially greater effort, resources, or processing before a resale attempt could be considered. In practice, a Grade **D2** assignment required not only that repair be technically feasible, but that the repaired item would be reasonably likely to sell in a secondhand market; items where this was judged unlikely, even if technically repairable, were graded **E** rather than **D2** (e.g., a blown-out crotch seam in a pair of jeans is repairable, but the repaired item is unlikely to be resaleable). This threshold may account for some of the cross-study variation in **D2** and **E** proportions discussed in **Section 4.0 – Discussion**. Grades **E** and **F** were considered ‘**unwearable**,’ as neither category was suitable for direct reuse or resale. However, Grade **E** items retained the potential to be **recycled** or otherwise **recovered** through downstream processing, whereas Grade **F** items were considered unsuitable for recycling due to severe contamination or other characteristics that rendered the item ineligible for material recovery.

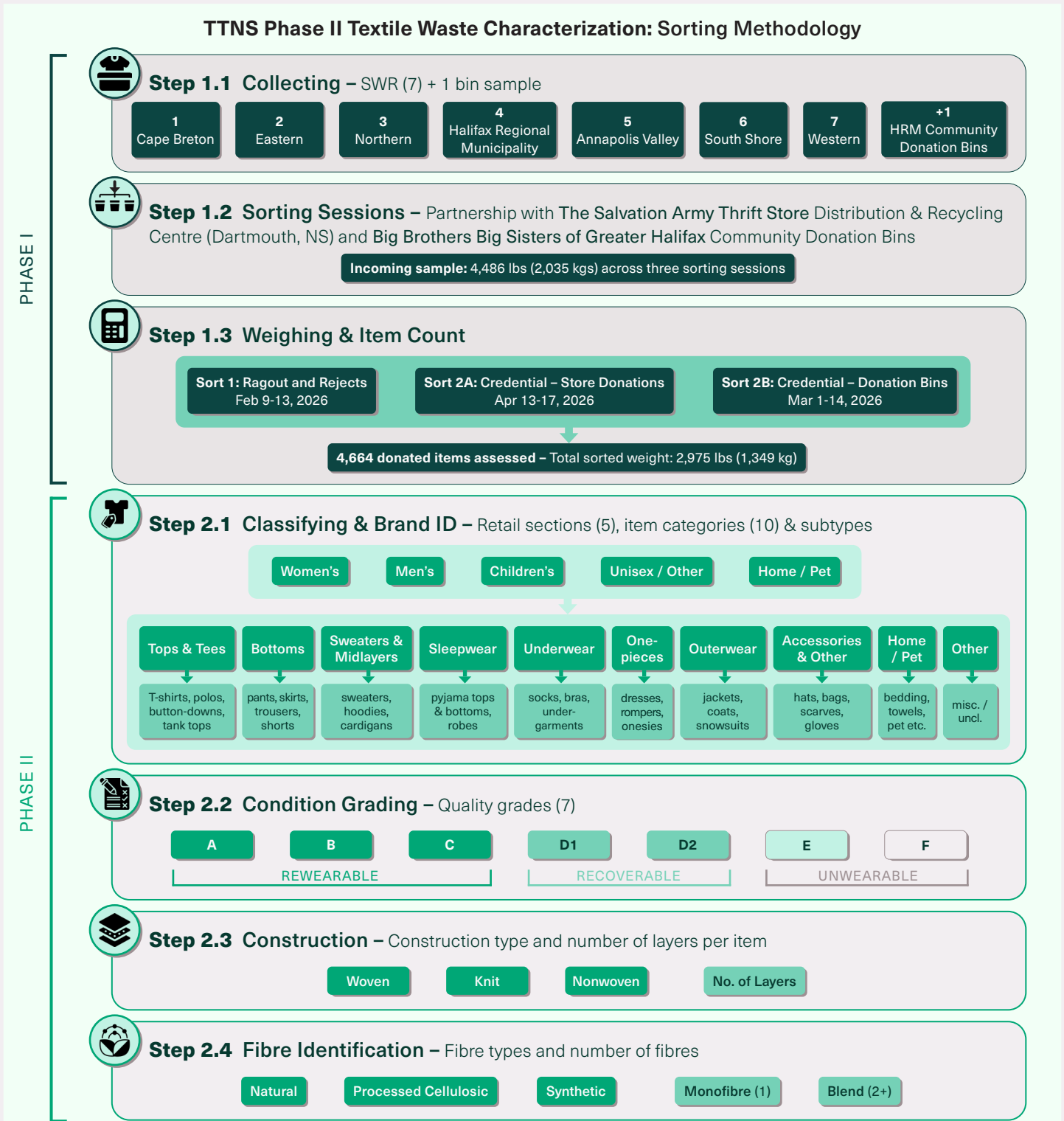
Donation Condition Grading System

REWEARABLE RECOVERABLE UNWEARABLE	Grade	Definition
	A	Perfect; has original tags/packages
	B	Excellent; very few or no signs of use
	C	Good; some visible use but salable as-is
	D1	Unacceptable for immediate sale; shows signs of wear, damage, and/or staining but could become resaleable with minor cleaning and/or repair .
	D2	Unacceptable for immediate sale; may become resaleable after deep cleaning and/or repair .
	E	Not repairable, but fibres are uncontaminated and could be recycled or recovered through downstream processing.
	F	Fibres are contaminated (mould, strong odour) and cannot be recycled.

Table 2: The grading system used to assess the condition of donated textiles in the study.

2.3.2 Defects & Contamination

Each item was also assessed for the presence of specific defects and contamination types, including staining, tears, missing components, pilling, odours, moisture damage, pet hair, and other indicators of deterioration. A complete list of the defects and contamination categories tracked in this study is provided in Appendix A1 in the Master Report. The complete project methodology is shown in Figure 6.



2.3.3 Value Assessment

Items in **Sort 2** were also assessed for additional characteristics that could positively or negatively influence resale potential but were not adequately reflected by condition scores alone. **Value-add characteristics** included attributes associated with increased consumer demand, such as **vintage appeal**, **premium brands**, **collectible merchandise**, and other desirable features. **Value-detracting characteristics** included factors that could reduce marketability despite favourable physical condition, such as **low-quality construction**, **undesirable branding**, or **other factors affecting consumer demand**. These variables were included to provide a more nuanced understanding of the factors influencing reuse and resale outcomes beyond physical condition alone.

Value-adding attributes: Recognizing that value is subjective and varies across second-hand textile users, the assessment focused specifically on attributes likely to influence a thrift shopper’s perception. Value-adding attributes were informed by common sorting and merchandising practices, such as placing vintage items in dedicated sections, displaying premium brands or collectable fanwear in boutique areas, and storing seasonal merchandise until the appropriate time of year.

Value-detracting attributes: Characteristics that could reduce marketability despite an item’s

otherwise acceptable condition, such as personal nametags, previous alterations, or event-specific and promotional customization. These criteria were informed by existing resale protocols and observations made by the research team.

Table 3 outlines the “value-add” and “value-detract” categories that were identified.

2.4 Analytical Approach

Descriptive statistical analyses were used to identify patterns within the textile donation stream and to characterize the materials entering and exiting Nova Scotia’s charitable reuse system. Following data cleaning and validation, datasets were consolidated and reformatted for analysis. **Summary statistics, frequency distributions, cross-tabulations, and comparative analyses** were conducted using *IBM SPSS Statistics (Version 29)*. Results were used to examine **regional differences, material composition, fibre distributions, condition outcomes, and relationships between donation channel and textile quality**.

Several data collection variables evolved over the course of the study. Observations from **Sort 1** informed refinements to both the data collection protocol and condition assessment framework used in **Sort 2**. Additional variables, including **value-add** and **value-detract** characteristics, were introduced in **Sort 2** but are not directly comparable between certain variables collected during **Sort 1**.

Donation Value Addition and Detraction Categories

Value Add	Value Detract
Vintage	Promotional merchandise/swag
Collectable fan gear (e.g., sports team, band shirt, cartoon character)	Company uniform
Made in Canada	Part of an incomplete set (e.g., pajama top without pants)
Premium/luxury brand	Previous customization (e.g., a personal name tag) or alteration (e.g., hemming or patching)
Notably high-quality materials or construction	Notably low-quality materials or construction

Table 3: The categories for value-add and value-detract determined during Sort 1 and subsequently assessed during Sort 2A

3.0 Results

3.1 Items by type

Retail Section: Of the 4,664 items examined:

womenswear was the largest Retail Section (n=2,236, 47.9%), followed by **menswear** (n=977, 20.9%), **children's apparel** (n=793, 17.0%), **home and pet items** (n=403, 8.6%), and **unisex apparel** (n=255, 5.5%).

The proportions of womenswear and children's apparel were broadly consistent with global apparel retail industry estimates of 51.0% and 15.3%, respectively (*Uniform Market, 2025*). Menswear accounted for a smaller proportion of the study sample than of the global apparel market, where it represents an estimated 32.8% (*Uniform Market, 2025*). However, this difference may partly reflect the classification of some items as unisex apparel that might conventionally be placed within the menswear section in retail settings.

Item Category:

Tops were the most common Item Category, accounting for nearly one-third of all items examined (n=1,361, 29.2%).

The next most prevalent categories were **bottoms** (n=778, 16.7%), **accessories** (n=700, 15.0%), and **sweaters** (n=553, 11.9%).

For most item categories, the proportions observed in this study were broadly consistent with previous textile characterization research, though individual comparisons varied. *Weber et al. (2023)* found a lower proportion of clothing in Ontario's residential waste streams but higher proportions of accessories, footwear, and home items, whereas *Sterling et al. (2026)* reported the opposite pattern. **Sleepwear** was a clear exception to this general consistency: it made up a much larger share of the present sample (n = 308, 6.6%) than in either comparison study (2.0% in *Weber et al., 2023*; 4.1% in *Sterling et al., 2026*).

Item Subtype:

Short-sleeved T-shirts and polo shirts were the most common item subtypes (n=561 items, 12.0% of the total sample).

They were followed by **sweaters** (n=271, 5.8%), **socks** (n=266, 5.7%),

long-sleeved T-shirts and polo shirts (n=253, 5.4%), **pants and trousers** (n=209, 4.5%),

tank tops (n=184, 3.9%),

hoodies (with or without a zipper; n=164, 3.5%),

sports or athleticwear (n=152, 3.3%), and

outerwear (n=144, 3.1%).

Together, these nine item subtypes accounted for **47.3%** of all items examined, illustrating that a relatively small number of common garment types comprised a substantial proportion of donated textiles.

Example: Sorting Items by Type



Donated items were classified by:
retail section (e.g. womenswear),
item category (e.g. tops), and
item subtype (e.g. T-shirt).

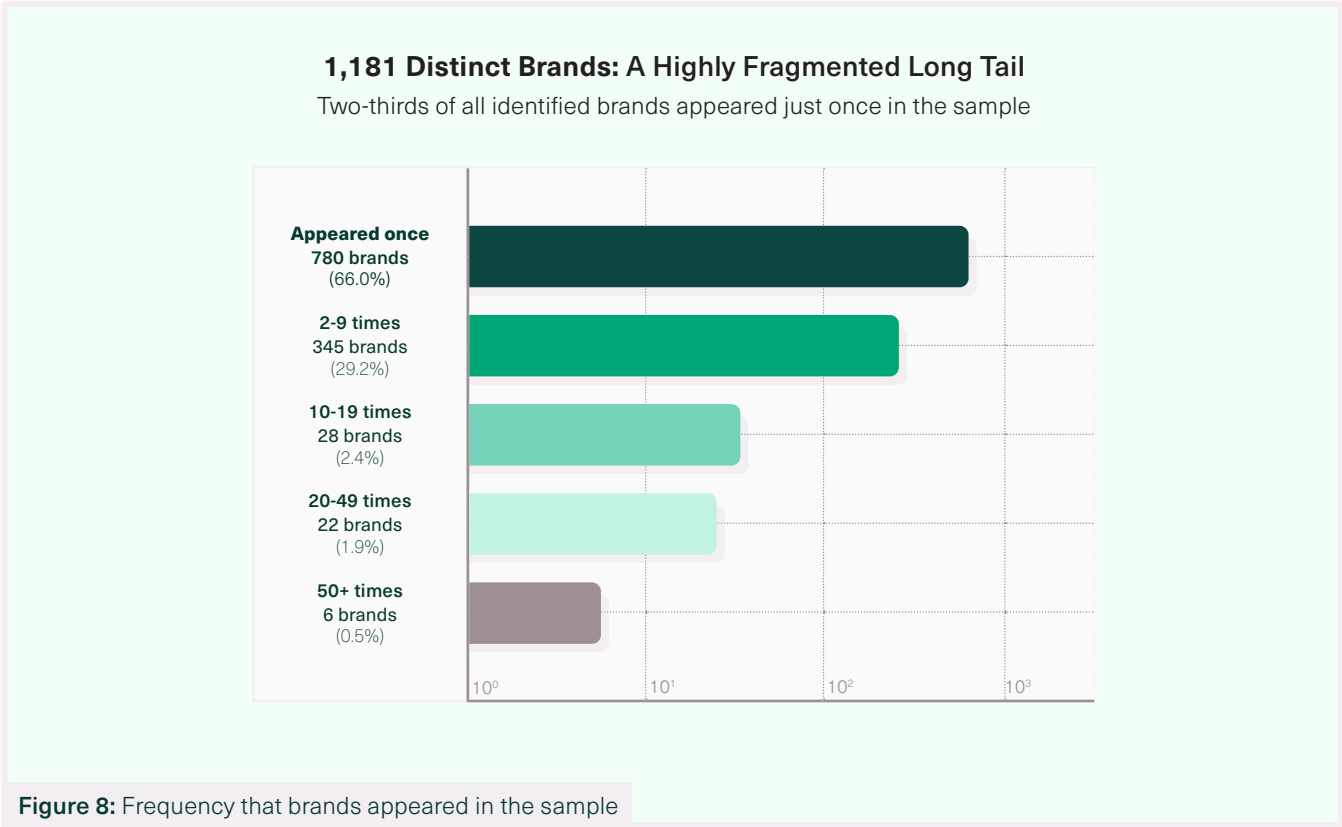
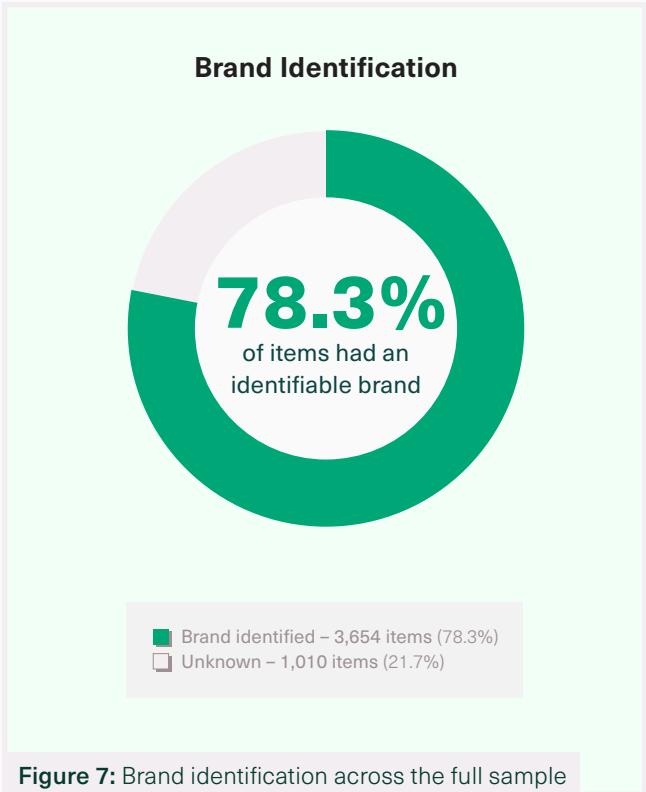
3.2 Brand

Brand: Brand information was available for **3,654 items** (78.3%) and unavailable for 1,010 items (21.7%) because the identifying label was missing or illegible.

Figure 7 shows the brand identification across the full sample. At the individual-brand level, **1,181 distinct brands** were identified, revealing a highly fragmented brand distribution in which most brands appeared infrequently.

Six brands (0.5%) appeared **50 or more times**,
22 brands (1.9%) appeared **20-49 times**,
28 brands (2.4%) appeared **10-19 times**, and
345 brands (29.2%) appeared **2-9 times**.
The remaining 780 brands (66.0%) were observed only **once**.

Figure 8 shows a breakdown of the frequency that brands were found in the sample.

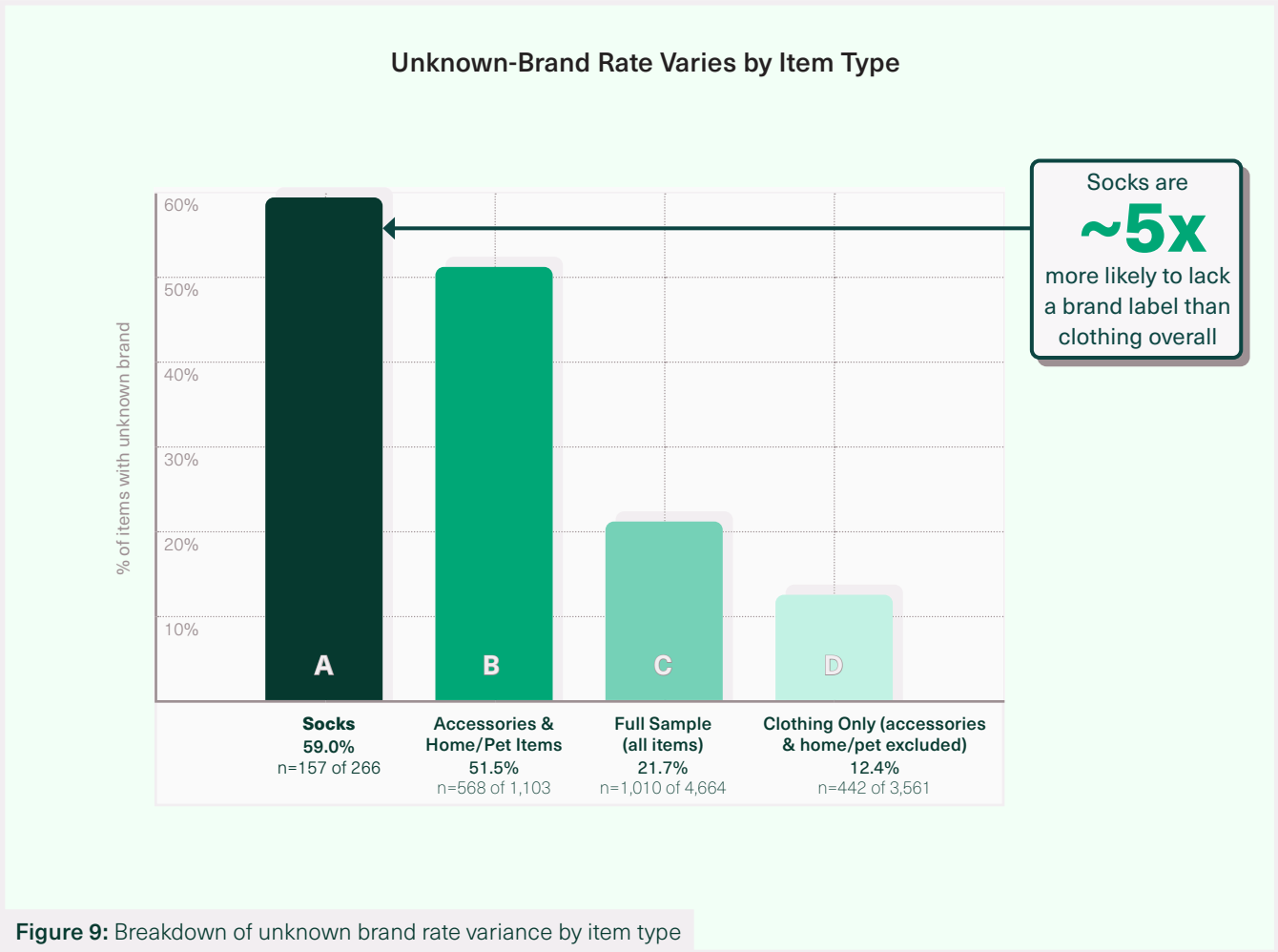


Missing brand information was not evenly distributed across item types. When accessories and home/pet textiles were excluded from the sample, leaving **3,561 clothing items**, the unknown-brand rate dropped from 21.7% to **12.4%** (n=442). This implies that the 1,103 accessories and home/pet items removed from this comparison accounted for a disproportionate share of unidentifiable brands: 568 of these items, or 51.5%, lacked a usable brand label, more than four times the rate observed among clothing items.

Socks were a particularly notable driver of this pattern: of the 267 socks examined, 157 (59.0%) had no identifiable brand, the highest unknown-brand rate of any item subtype and nearly five times the clothing-level rate. Socks alone accounted for 15.5% of all unknown-brand items in the sample despite representing only 5.7% of items overall.

Figure 9 shows a breakdown of the unknown brand rate variance by item type. This is consistent with the expectation that small accessory items such as socks are less likely to carry a durable or legible brand label than garments, and suggests that brand-based analyses in this report may be most reliable when interpreted at the clothing level rather than across the full sample.

The 50 most frequently identified brands, along with their parent companies and countries of origin or head-office locations, are listed in **Appendix A7 in the Master Report**. The 20 most common brands accounted for 1,156 items, representing 24.8% of the total sample. George was the most frequently observed brand (n=195), followed by Old Navy (n=156) and Joe Fresh (n=119). This is comparable to findings from *Sterling et al. (2026)* in a sample collected from Alberta, Ontario, and Saskatchewan.



Examining brands at the parent-company level revealed an even greater concentration of donated items among a relatively small number of apparel companies (see **Appendix A8 in the Master Report**).

Gap Inc. (United States) was the most frequently represented parent company, accounting for 251 items across four brands (Old Navy, Gap, Banana Republic, and Athleta).

Walmart Inc. (United States) followed closely with 246 items spanning nine brands (George, Athletic Works, Cherokee, Mainstays, NOBO, Faded Glory, HomeTrends, Tranquil Nights, Walmart), while

Loblaw Companies Limited (Canada) ranked third, with 119 items represented entirely by its Joe Fresh brand.

Other highly represented parent companies included:

H&M Group (Sweden; 85 items across two brands),
Giant Tiger Stores Limited (Canada; 79 items across seven brands),

Carter's, Inc. (United States; 59 items across one brand),

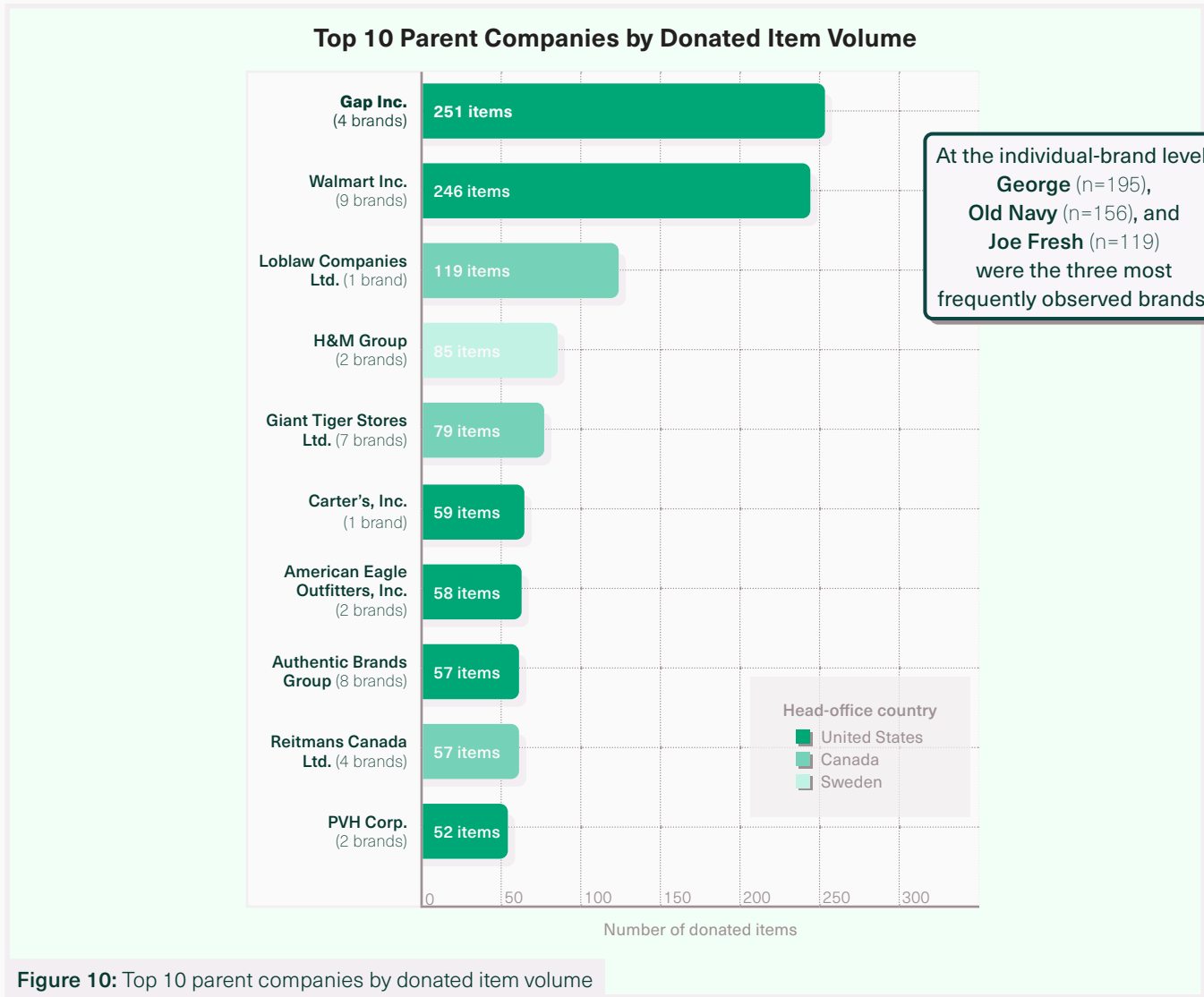
American Eagle Outfitters, Inc. (United States; 58 items across two brands),

Authentic Brands Group (United States; 57 items across eight brands),

Reitmans Canada Limited (Canada; 57 items across four brands), and

PVH Corp (United States; 52 items across two brands).

Figure 10 shows the top 10 parent companies by donated item volume.



This concentration becomes especially apparent when the leading parent companies are considered collectively. Although 1,181 unique consumer-facing brands were identified, the top 25 parent companies collectively owned 70 of these brands (5.9%). Each of these parent companies was represented by at least 20 items, and together they accounted for 1,590 items (34.1% of the total sample). Thus, while the donation stream appeared highly diverse at the individual-brand level, a substantial proportion of items could be traced to a relatively small group of corporate owners. **Figure 11** shows the contrast between the share of unique brands and the share of all donated items for the top 25 parent companies.

Importantly, the list of parent companies also includes retailers, making this distinction especially relevant in the context of Extended Producer

Responsibility (EPR). In this context, the term producer may refer not only to a brand owner or manufacturer but also to the actor responsible for placing a product on the market (*Ellen MacArthur Foundation, 2024*). Large Canadian retailers may therefore be considered producers when they import, commission, or sell products under private labels, licensed brands, diffusion brands, or other brand arrangements, even when they do not manufacture the products themselves.

Because retailers may sell goods across multiple consumer-facing brands, parent-company ownership alone may not fully capture responsibility for placing textile products on the Canadian market. Further investigation into the retail origins and market pathways of branded textile goods is therefore recommended.

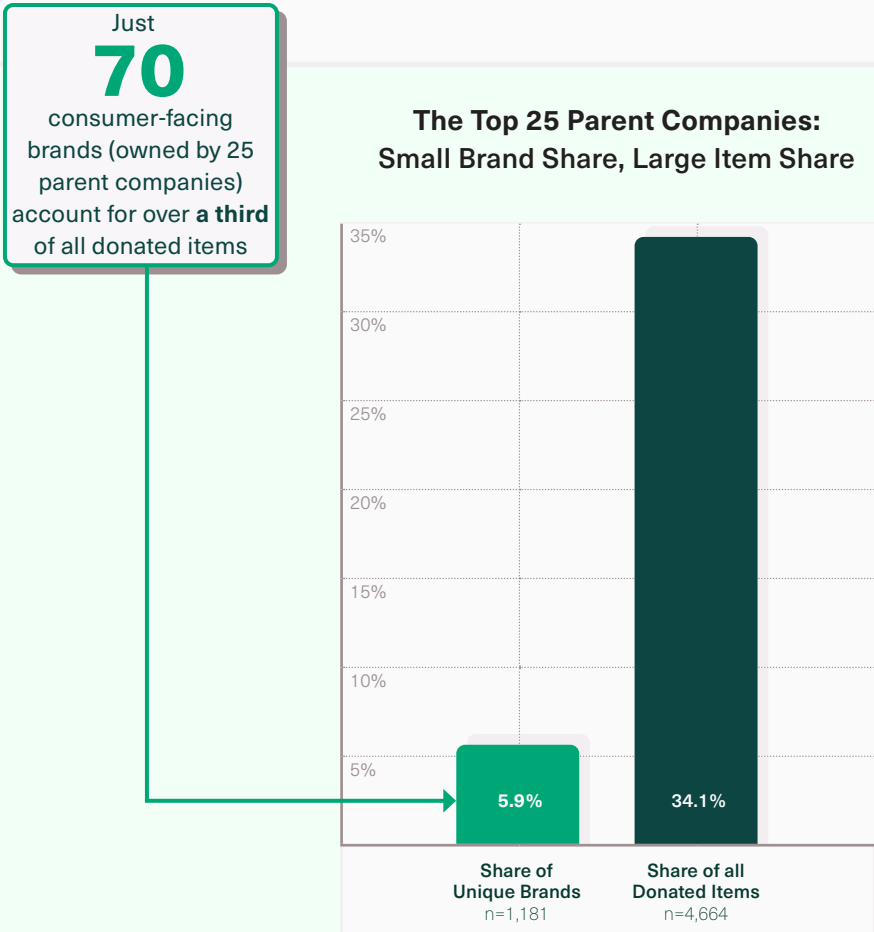


Figure 11: Share of unique brands compared with the share of all donated items for the top 25 parent companies

3.3 Textile construction

Knits, wovens, and nonwovens:

Knitted textiles made up more than two-thirds of the sample ($n = 3,142$, 67.4%), while

woven textiles accounted for most of the remainder ($n = 1,411$, 30.3%).

Nonwoven materials, including leather, represented a comparatively small share of the sample ($n = 111$, 2.4%).

The predominance of knitted textiles is consistent with the high frequency of garment categories such as T-shirts, sweaters, socks, hoodies, and athleticwear, which are commonly produced using knitted constructions. Woven textiles were more often associated with items such as trousers, button-down shirts, jackets, and household textiles.

Number of layers:

Most items consisted of a **single textile layer** ($n = 4,168$, 89.4%), while smaller proportions had

two layers ($n = 313$, 6.7%) or

three layers ($n = 183$, 3.9%).

Among single-layer items, **knitted constructions** were most common ($n = 2,967$, 71.2%), followed by **woven constructions** (27.5%) and **nonwoven materials** (1.3%). Single-layer knitted items alone accounted for **63.6%** of the total sample.

The construction of the outer shell differed among multilayer items.

For two-layer items, **woven shells** were most common ($n = 146$, 46.6%), followed by

knitted shells ($n = 127$, 40.6%) and

nonwoven shells ($n = 40$, 12.8%).

This pattern was more pronounced among three-layer items, of which

121 (66.1%) had **woven outer shells**,

48 (26.2%) had **knitted shells**, and

14 (7.7%) had **nonwoven shells**.

Nonwoven outer materials (e.g., leather) were therefore more prevalent among two- and three-layer items than among single-layer items. The inside layer of a three-layer item was not determined since it wasn't visible, however, these are likely in many cases to be nonwovens (batting or padding).

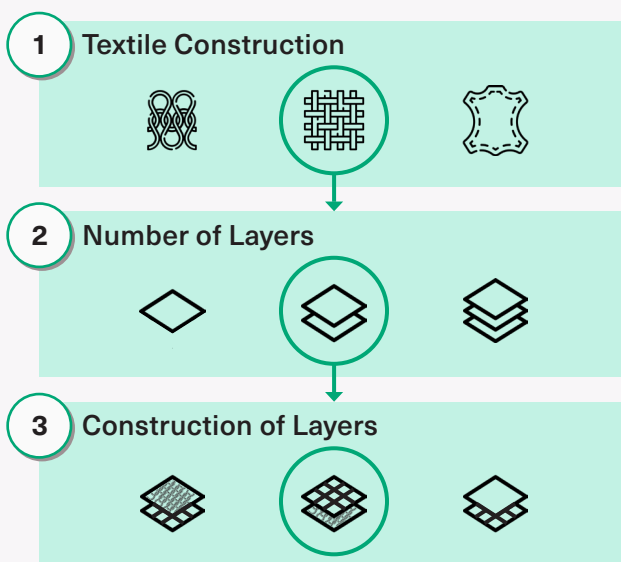
The inner layers of multilayer items also frequently used the same textile construction as the outer shell.

Among two-layer items with a knitted outer shell, 92 (72.4%) also had a **knitted second layer**.

Similarly, 61.5% of items with a woven outer shell also had a **woven second layer**.

These results suggest that although multilayer items were more structurally diverse than single-layer items, their individual layers were often constructed from the same general textile type.

Example: Determining Textile Construction



Donated items were classified by:

construction (e.g. woven),

number of layers (e.g. two), and

construction of layers (e.g. woven shell, knitted inner).

3.4 Fibre content

Fibre-content labelling:

Fibre-content labels were present on 3,420 items (73.3% of the sample).

For an additional 954 items (20.5%), fibre content was identified using a fibre scanner.

The fibre composition of the remaining 290 items (6.2%) could not be determined, primarily because of textile coatings, multilayer construction, or technical limitations of the scanner.

Figure 12 shows the fibre-content availability for the sample.

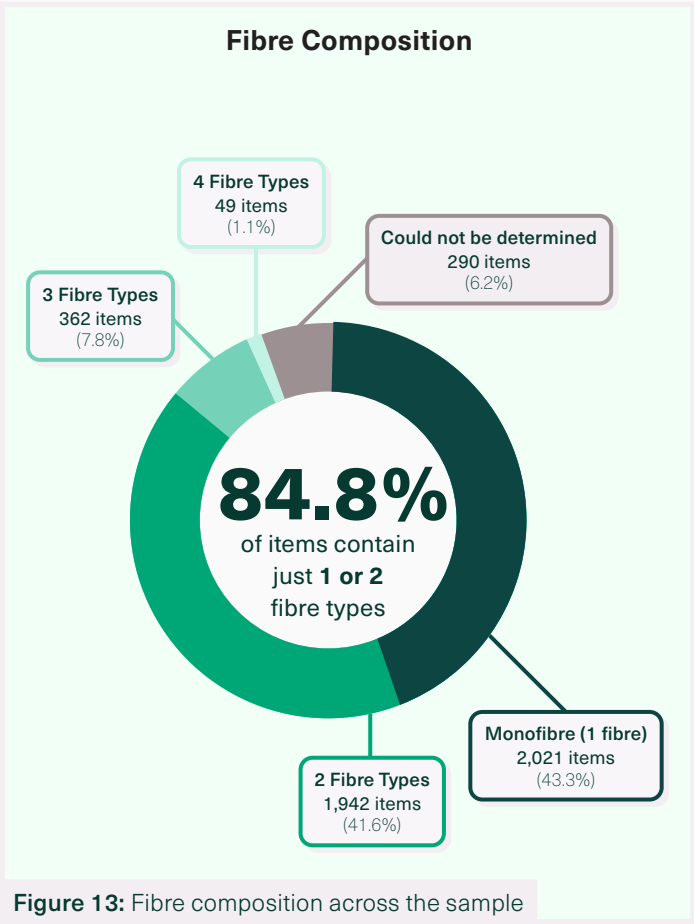
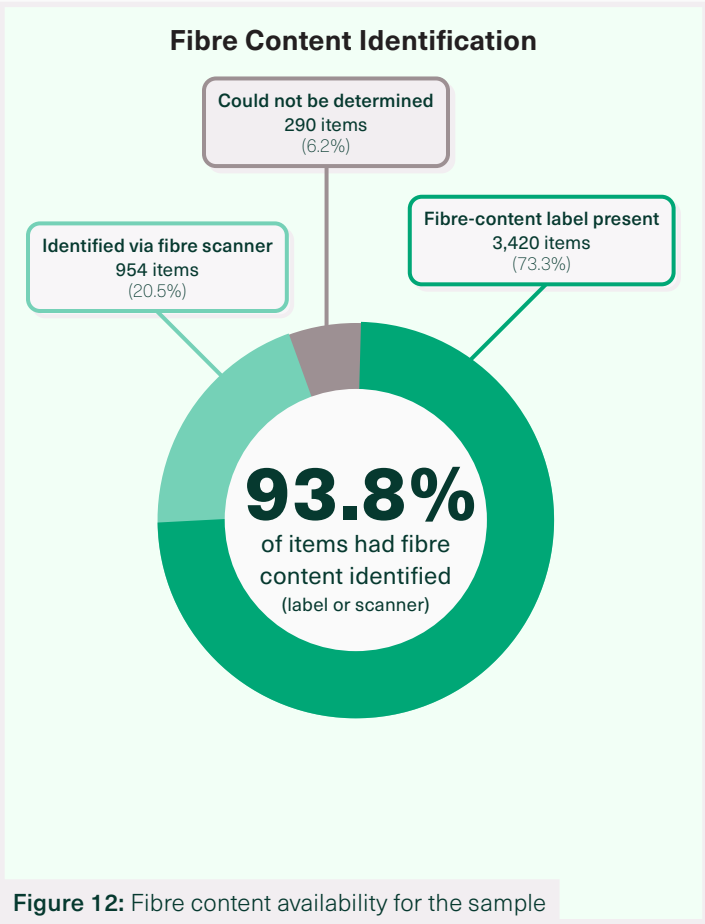
Fibre Composition: Excluding items with unknown fibre content (n = 290, 6.2%), most textiles in the sample contained either:

one fibre (n = 2,021, 43.3%) or

two fibres (n = 1,942, 41.6%).

Three-fibre blends accounted for 362 items (7.8%), while 49 items (1.1%) contained four fibre types.

Overall, 84.8% of all items in the sample consisted of one or two fibre types, indicating that relatively simple fibre compositions predominated. This is an encouraging finding from a circularity perspective, as textiles composed of fewer fibre types are generally easier to sort, separate, and recycle than complex fibre blends, which often require more specialized processing technologies and have fewer viable end-use pathways (Wagaw & Babu, 2023). Figure 13 shows the fibre composition across the sample.

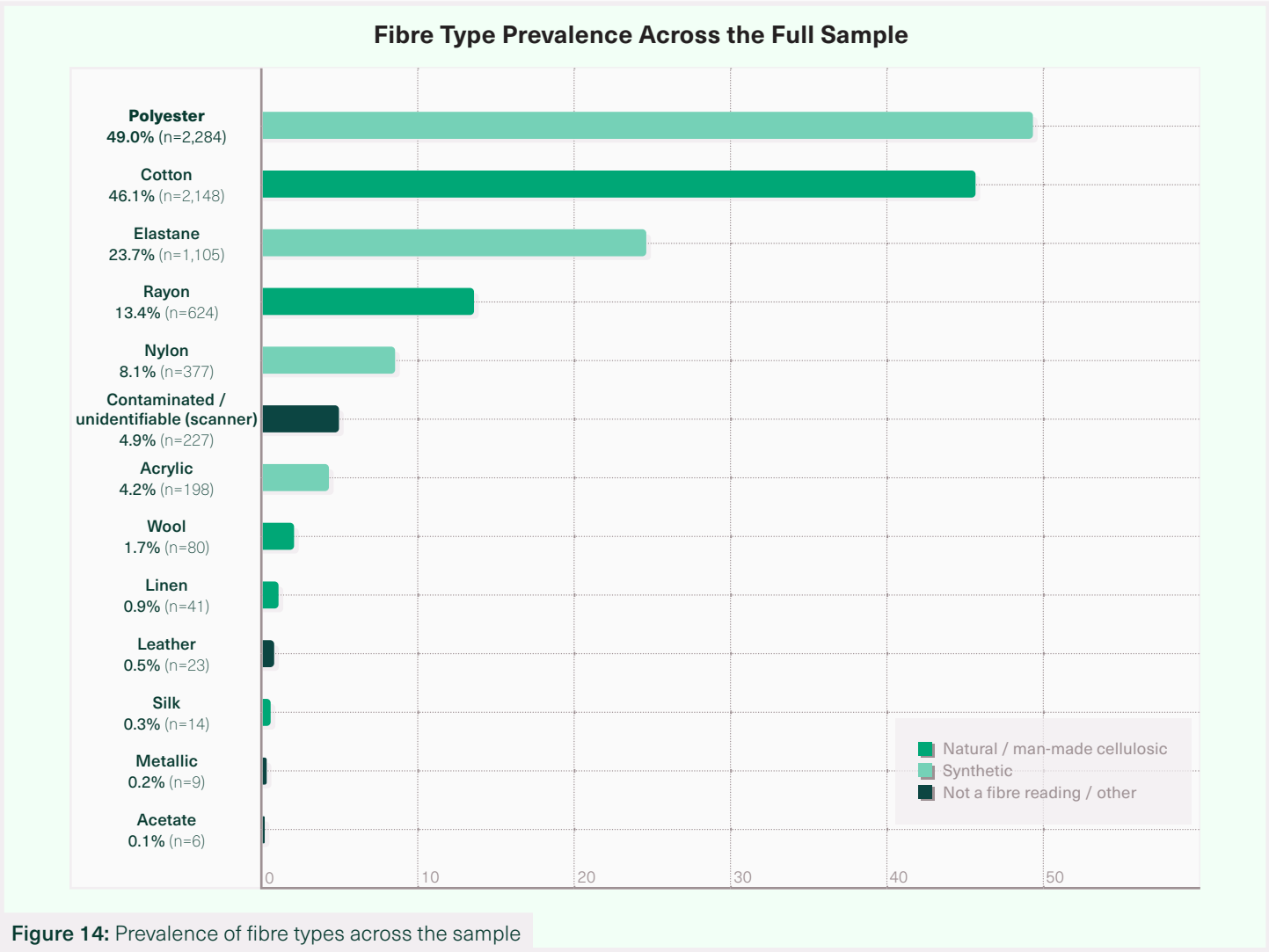


Fibre Type: Across the sample, **polyester** was the most prevalent fibre, appearing in 2,284 items (49.0%), closely followed by **cotton**, which was present in 2,148 items (46.1%). **Elastane** was the third most common fibre, occurring in 1,105 items (23.7%), reflecting its widespread use to provide stretch and improve garment fit. **Rayon** was also common, appearing in 624 items (13.4%), followed by **nylon** (377 items, 8.1%) and **acrylic** (198 items, 4.2%). All remaining fibres were present in fewer than 2% of items, including **wool** (n=80, 1.7%), **linen** (n=41, 0.9%),

leather (n=23, 0.5%), **silk** (n=14, 0.3%), **metallic fibres** (n=9, 0.2%), and **acetate** (n=6, 0.1%).

In addition, the scanner classified the fibre content of 227 items (4.9%) as “**contaminated,**” meaning that the percentage of the fibre was too low to be accurately identified by the scanner. **Figure 14** details the fibre type prevalence across the sample.

Monofibres: A total of 2,009 (43.1%) items contained only one identified fibre type, making monofibres the largest fibre-count category in the sample. Their relatively simple composition makes them especially useful for analysis because they can be linked more directly to established and emerging recycling pathways without the added complications created by fibre blends.



Natural and regenerated cellulosic monofibres, including **cotton, rayon, wool, silk, and other cellulosic fibres**, accounted for 996 items (49.6% of monofibres). Synthetic monofibres, including **polyester, acrylic, nylon, and other synthetics**, accounted for 994 items (49.5%). Nonwoven fibres like **leather** accounted for 19 items (0.9%).

Cotton was the most common monofibre, accounting for 901 items (44.8%), followed closely by **polyester** at 823 items (41.0%). Together, these two fibres represented **85.9%** of all monofibre items. Both have comparatively well-established recovery pathways. Mechanical recyclers can process cotton and polyester textiles, including T-shirts, into wiping rags and feedstocks for industrial applications. At the same time, much innovation is currently

being undertaken in chemical recycling focused on recovering polyester, cotton, and poly-cotton blends for fibre-to-fibre recycling, creating potential end markets for these textiles (*Andini et al., 2024; Juanga-Labayen et al., 2022*).

Wool represented approximately 1.1% of monofibre items. Although present in relatively small quantities, clean and uncontaminated wool may retain value across reuse and fibre-recovery applications. Wool can also be processed through relatively decentralized systems, potentially allowing smaller-scale enterprises to participate in fibre preparation and product manufacturing (*Fibershed, 2026*). However, this value depends heavily on the absence of other fibres, as blending can reduce the feasibility and quality of wool recovery. **Figure 15** shows the monofibre composition across the entire sample.

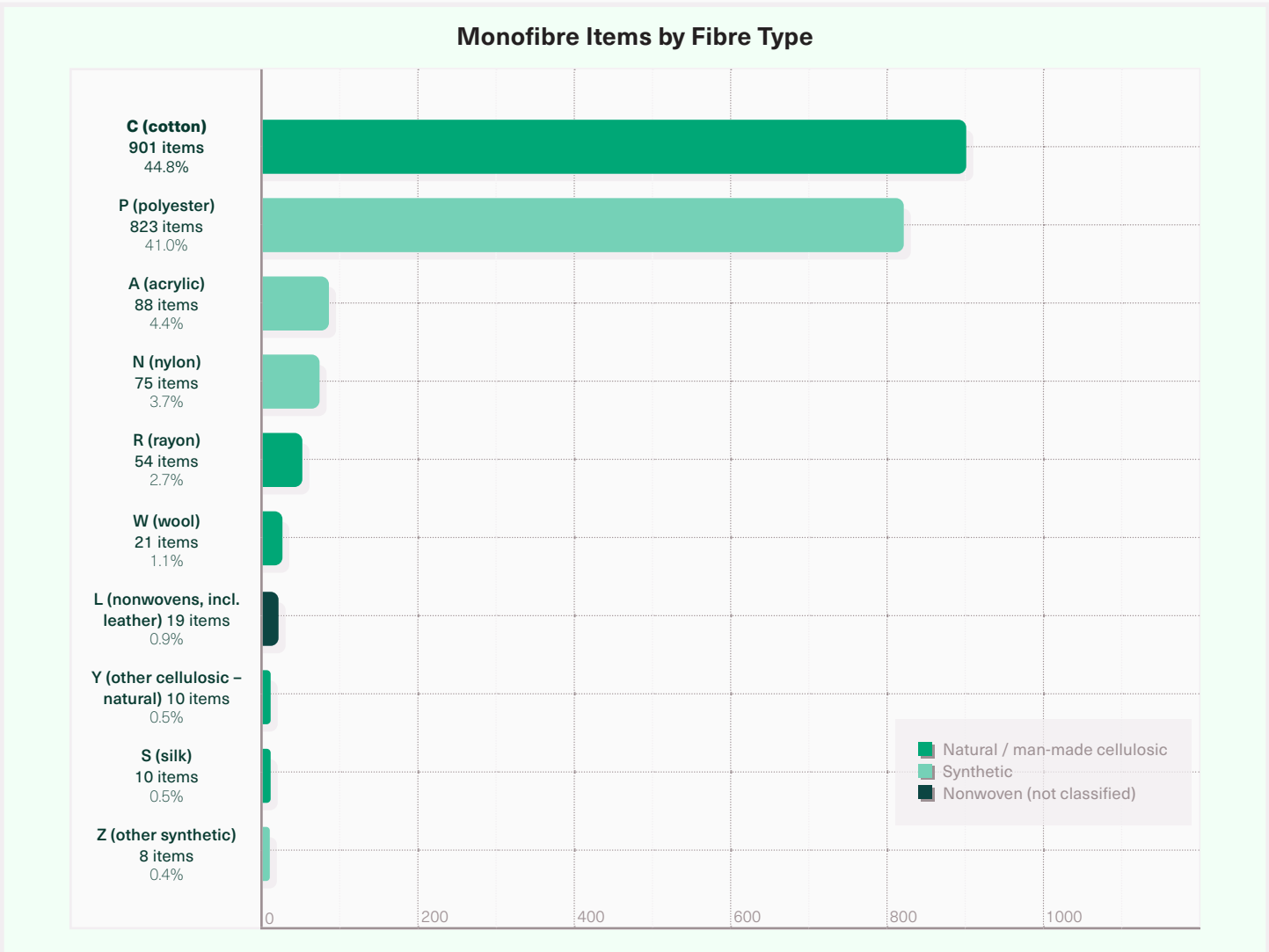


Figure 15: Monofibre items found in the sample

Synthetic and Natural Fibres:

Natural fibres were the dominant fibre type in 50.6% of all items, while synthetic fibres were dominant in 42.5%.

The remaining 6.9% were classified as unknown or other, including leather and nonwoven materials (Figure 16).

Consistent with the findings of *Sterling et al. (2026)*, cotton was the most dominant fibre, accounting for 1,926 items, or 41.3% of the total sample. Fibre dominance, however, should be distinguished from fibre concentration.

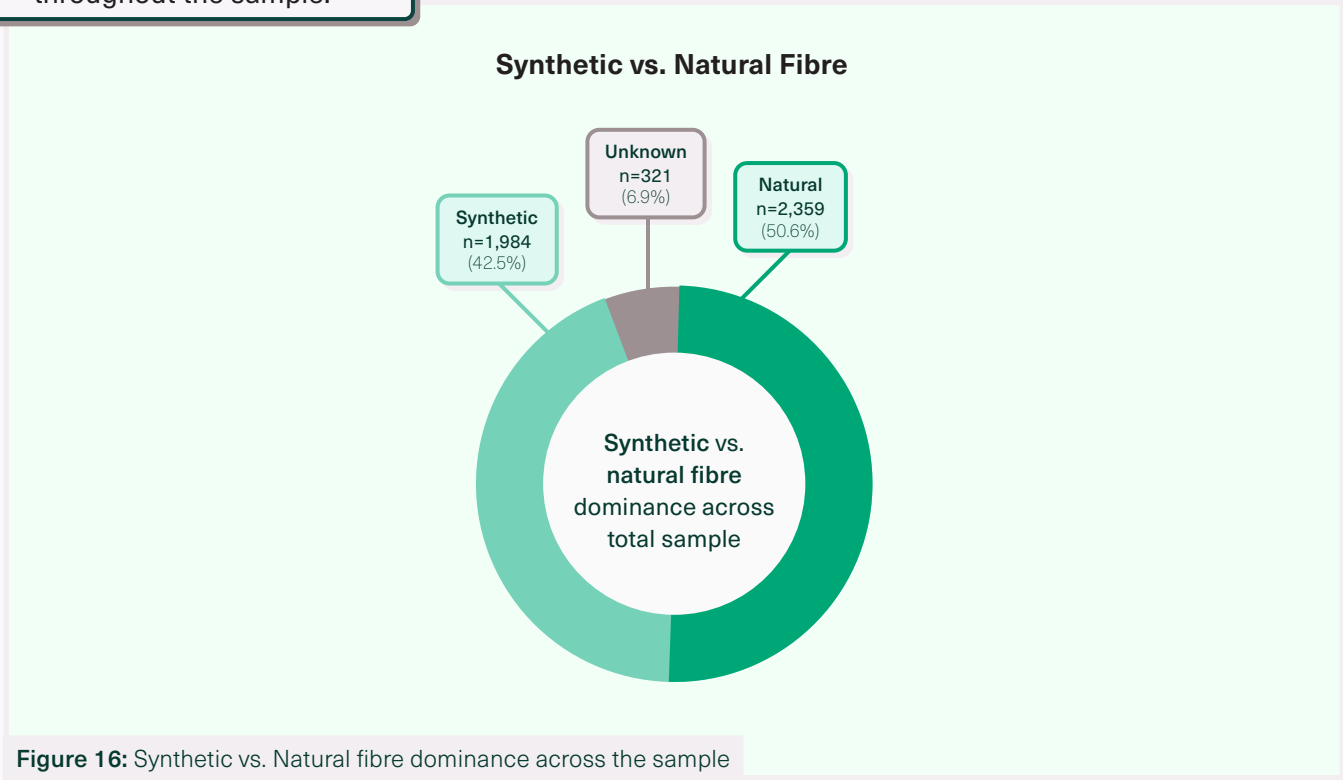
Figure 17 provides an illustrative example of the difference between fibre dominance and fibre concentration.

For example, although 41.3% of items were cotton-dominant, cotton represented 35.8% of all fibre content recorded across the sample.

Polyester also represented 35.8% of total fibre content, despite being the dominant fibre in a smaller proportion of individual items.

Figure 18 shows the fibre dominance and fibre concentration findings for the two most dominant and concentrated fibres in this study, cotton and polyester.

Fibre dominance identifies the fibre present in the largest proportion within an individual item, whereas fibre concentration reflects the share of a particular fibre across all fibres identified throughout the sample.



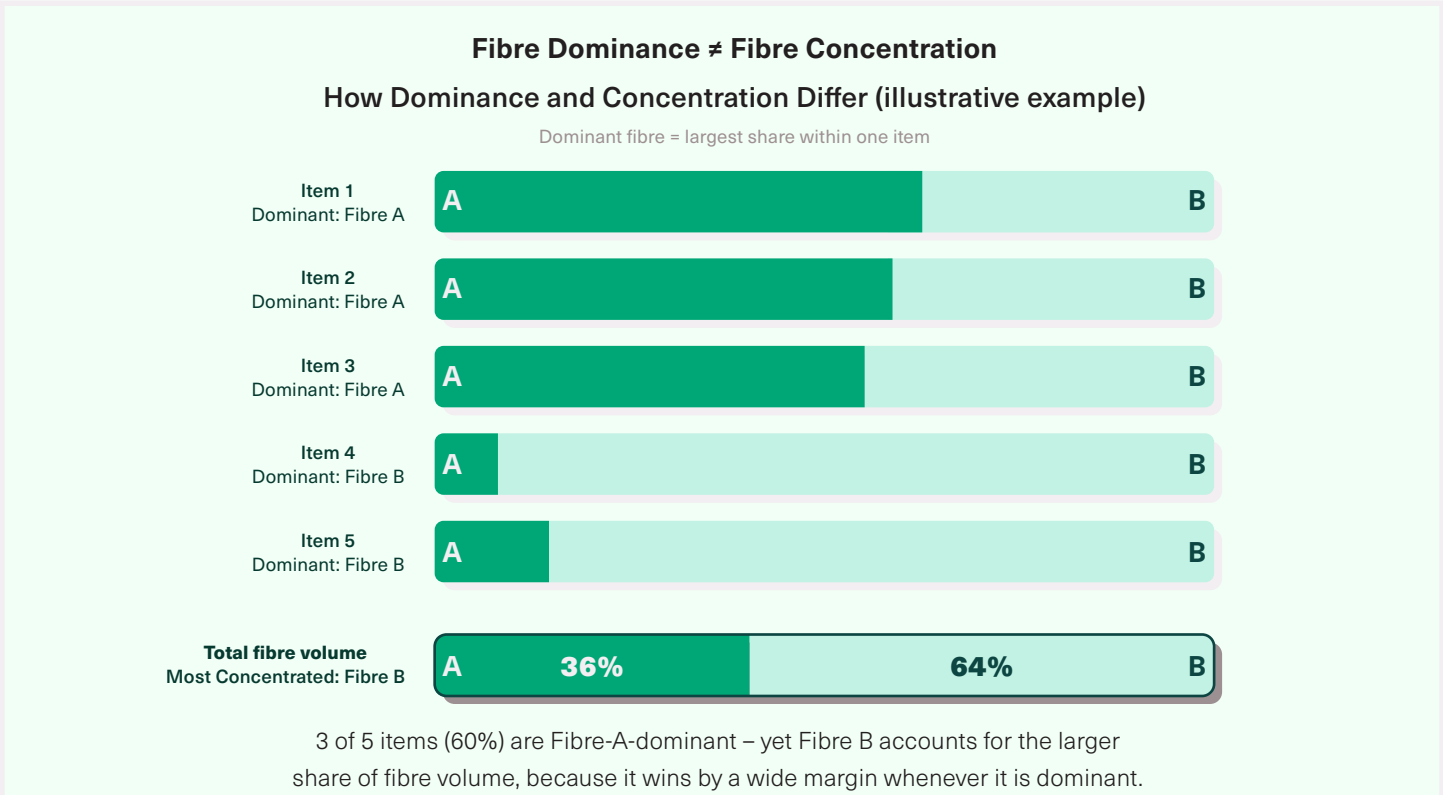


Figure 17: Illustrative example of the difference between fibre dominance and fibre concentration

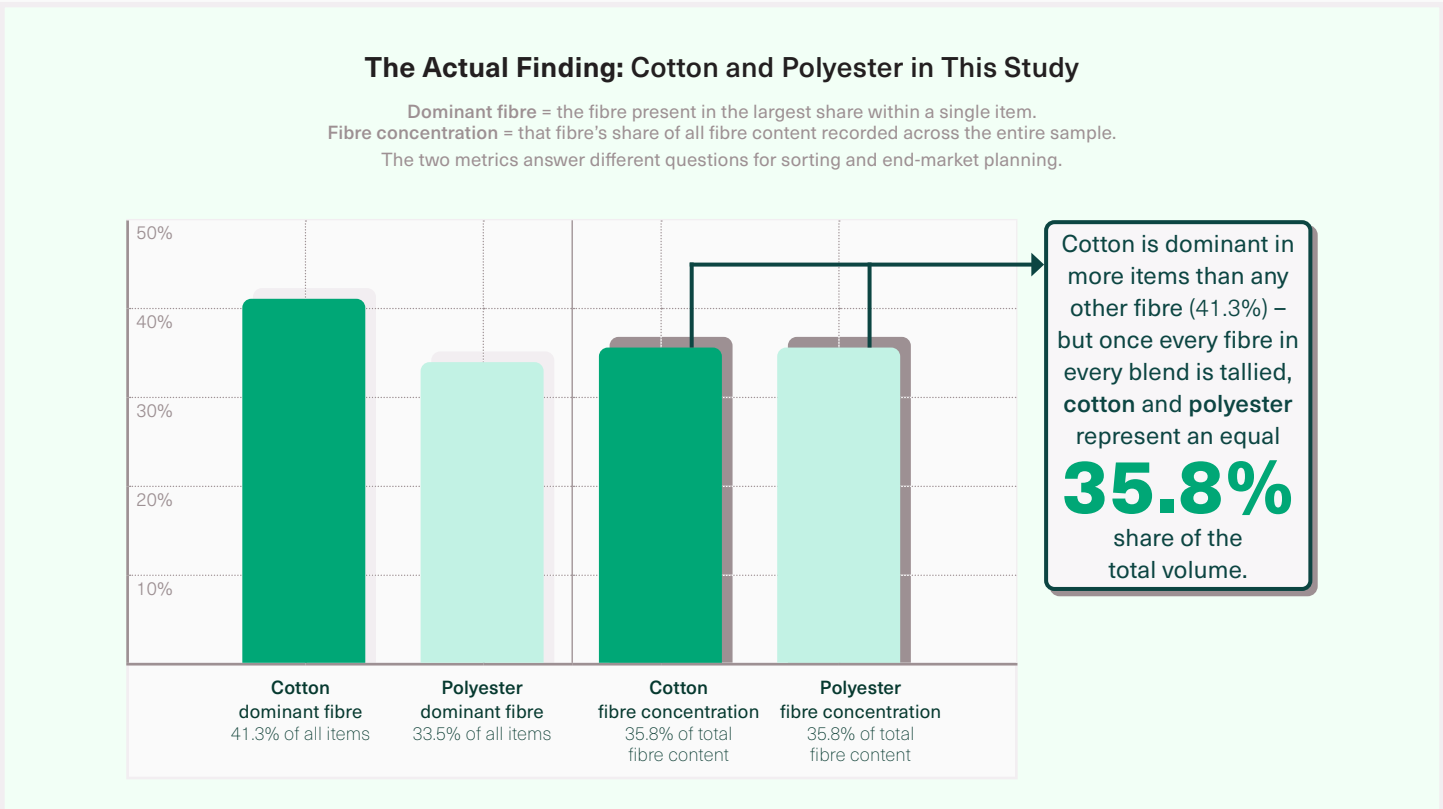


Figure 18: Findings for the most dominant fibre (cotton) and most highly concentrated fibres (cotton and polyester) in the study

This distinction has important implications for textile sorting, processing, and end-market development.

Dominant-fibre data helps identify how individual products may be classified or directed toward particular pathways, while

fibre-concentration data provide a clearer picture of the total volume of each material available across the waste stream.

Fibre Blends: A total of 136 distinct fibre blends were identified across the 4,664 items examined, highlighting the complexity of textiles as a waste stream. The five most common blends were:

cotton-dominant cotton/polyester (CP, 18.6%), polyester/elastane (PX, 13.6%), cotton/elastane (CX, 9.3%), polyester-dominant polyester/cotton (PC, 5.4%), and nylon/elastane (NX, 5.3%).

Together, these five combinations accounted for 52.2% of blended items. The remaining 47.8% was distributed across 131 other fibre combinations, each occurring in relatively small quantities.

Figure 19 below illustrates this considerable complexity in fibre blends.

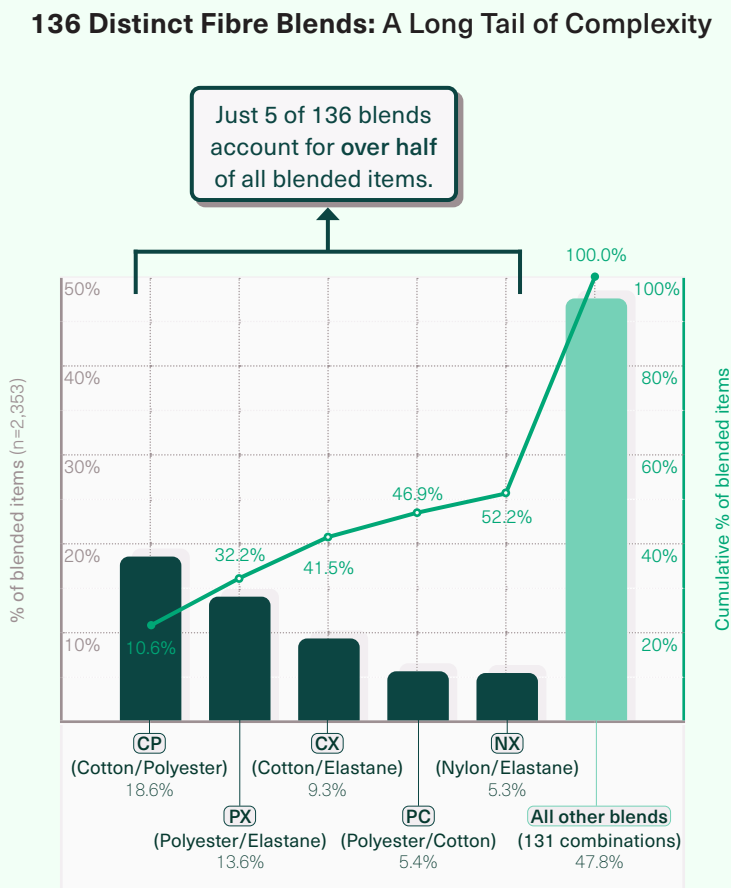


Figure 19: The distribution and complexity of blended items in the sample

3.4.1 Elastane and recycling interruptors

Of particular note is the presence of elastane (“X”) in **23.8%** of the sample (n = 1,109). Elastane therefore potentially prevents nearly one-quarter of the sampled items from being processed through conventional mechanical recycling systems.

Elastane’s elasticity causes problems during shredding and fibre opening, leading to clumping, machine blockages, reduced shredding efficiency, and lower-quality recycled fibres (Choudhury, Tsianou, & Alexandridis 2024; Rodrigues et al., 2025). Elastane was found primarily in apparel, with only 0.5% of home and pet items containing the fibre.

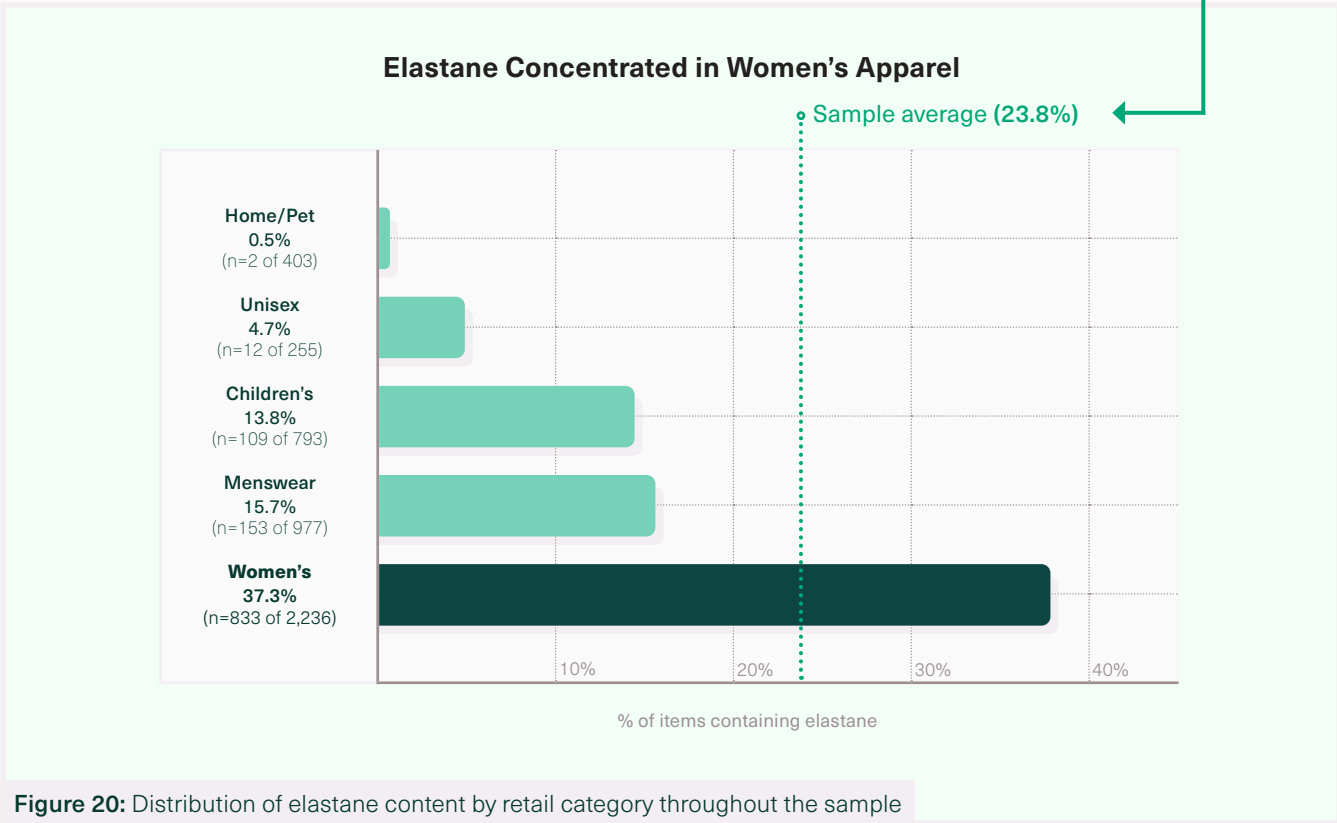
Elastane was especially prevalent in women’s apparel, appearing in:

- 37.3% of women’s items, compared with
- 15.7% of menswear,
- 13.8% of children’s apparel, and
- 4.7% of unisex items.

This pattern suggests a need to disincentivize unnecessary elastane use, particularly in women’s garments designed to provide stretch but that may be more difficult to reuse, repair, and recycle than more durable, tailored woven garments. Manufacturers should be encouraged to use elastane more selectively and to consider alternative garment designs that preserve functionality without compromising circular end-of-life pathways.

Figure 20 shows the elastane concentrations by retail section.

Note: Elastane appears in **23.8%** of all items (n = 1,109) and complicates mechanical recycling; it stretches rather than cutting cleanly, and can accumulate in or damage processing equipment.





Denim Case Study

The proportion of denim was also tracked because of emerging denim-specific end-market opportunities, including the manufacture of **insulation products** (*Islam et al., 2022; Read, 2021; Krippendorf, 2011*). Denim accounted for 3.1% of the overall sample (n = 143). However, 67.8% of these denim items contained elastane (n = 97). Eliminating elastane from the denim items would have more than doubled the number of cotton monofibre denim items (see **Figure 21**).

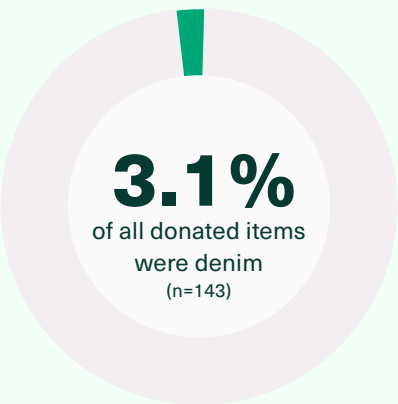
These findings provide further evidence of the need either to disincentivize elastane use in denim manufacturing or to invest in recycling technologies capable of processing elastane-containing materials.

Without such changes, the widespread inclusion of elastane may continue to restrict access to emerging denim recycling and insulation markets.

Removing elastane would **more than double** the number of cotton-monofibre items available for established recycling and insulation-manufacturing pathways.

Denim Case Study: Elastane as a Recycling Barrier

Denim as a Share of the Full Sample



Elastane Presence Within Denim

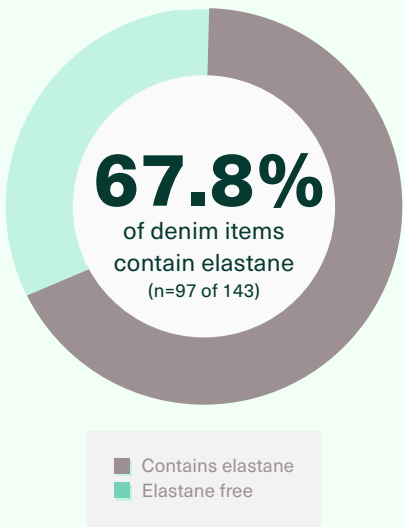


Figure 21: Demonstration of the barrier presented by elastane content

3.0 Results

3.5 Condition of items

Grade: Using the adapted A-to-F grading system applied in previous studies (*Sterling et al., 2026; Weber et al., 2023*), most items demonstrated some form of reuse or recovery potential. Nearly half of the sample (n=2,188, 46.9%) was immediately suitable for resale, including:

- 60 Grade A items (1.3%),
- 899 Grade B items (19.3%), and
- 1,229 Grade C items (26.4%).

A further 906 items were classified as Grade D1 (19.4%) and 621 as Grade D2 (13.3%), meaning that 32.7% of the sample could potentially become resaleable through cleaning or repair. Another 840 items (18.0%) were classified as Grade E and were unsuitable for rewear but contained fibres that could potentially be recycled or repurposed. Only 104 items (2.2%) were classified as Grade F because odour, mould, paint, glue, or other contaminants rendered them unsuitable for reuse or recycling.

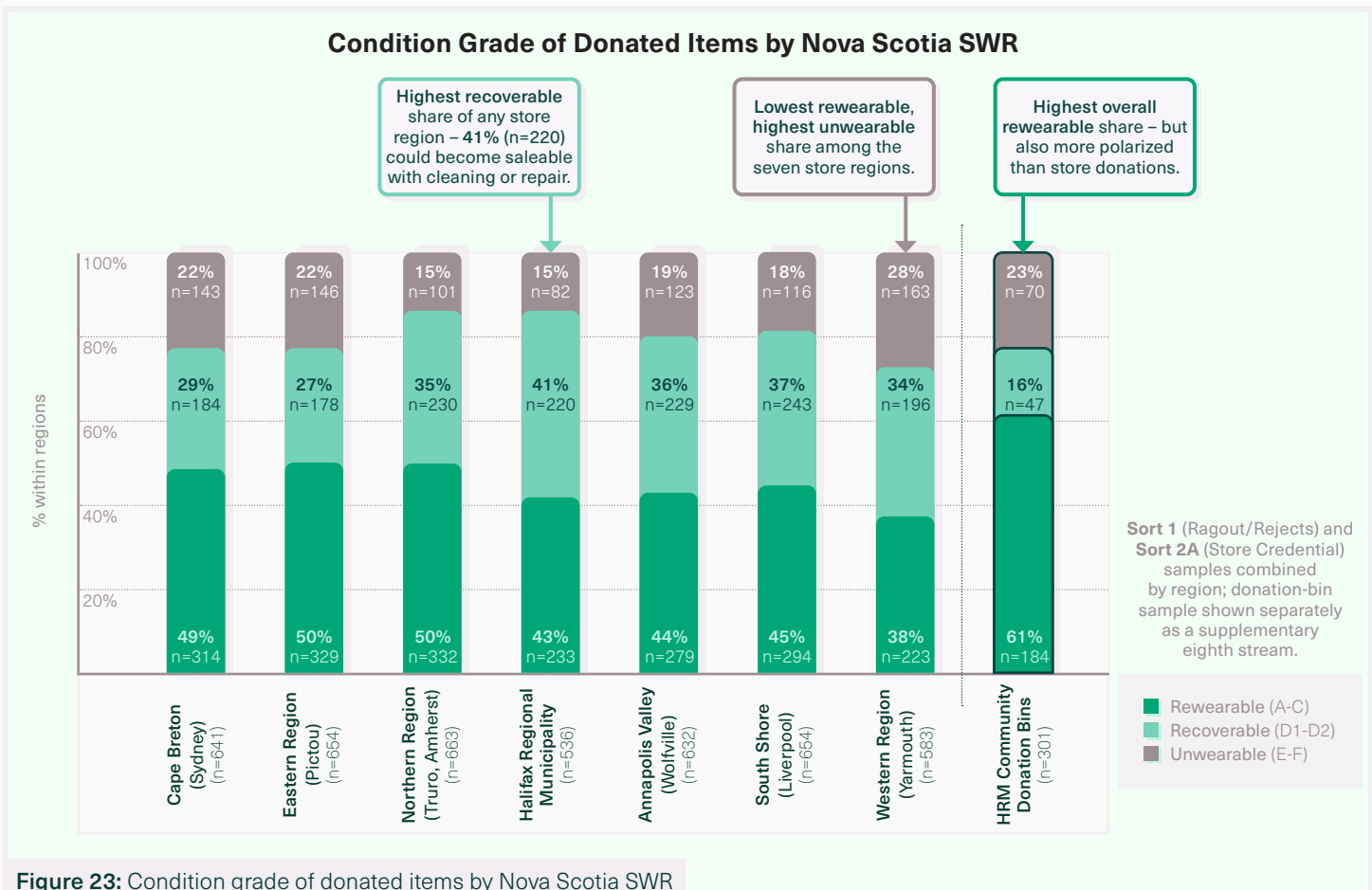
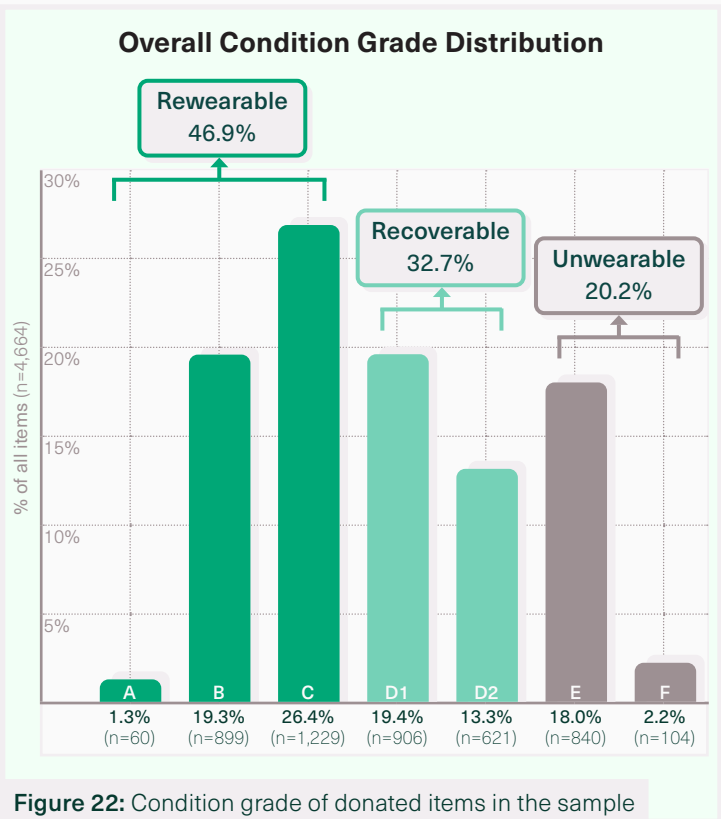


Figure 22 shows the condition grade of donated items for the overall sample. Figure 23 shows the condition grade of donated items broken out by waste region.

The distribution of grades, however, varied significantly across the three sampling streams. Relative to expected values, **Sort 1** contained significantly fewer A-, B-, and C-grade items and substantially more D2-, E-, and F-grade items. **Sort 2A** showed the opposite pattern, with significantly more A-, B-, and C-grade items and fewer D2-, E-, and F-grade items. **Sort 2B** contained relatively more A-, C-, and F-grade items but fewer D1- and D2-grade items than expected. Taken together, these findings indicate that the ragout and rejects represented by **Sort 1** contained considerably poorer-quality textiles than the Credential-store donations represented by **Sort 2A**.

Credential-bin donations represented by **Sort 2B** exhibited a more polarized distribution, containing relatively high proportions of both the best- and worst-quality items.

Figure 24 shows grade outcome by donation stream. In addition, grade distributions differed significantly across the five Retail Sections. Home and pet items exhibited the clearest concentration of lower grades, with significantly fewer Grade B and C items and more Grade D2, E, and F items than expected. In contrast, women’s apparel contained significantly more Grade B and C items and fewer Grade E and F items. Children’s apparel contained more Grade B items and fewer Grade F items, whereas menswear contained fewer Grade B items than expected. Unisex items were disproportionately represented among Grade A items. Figure 25 shows the variance of condition grade by retail section.

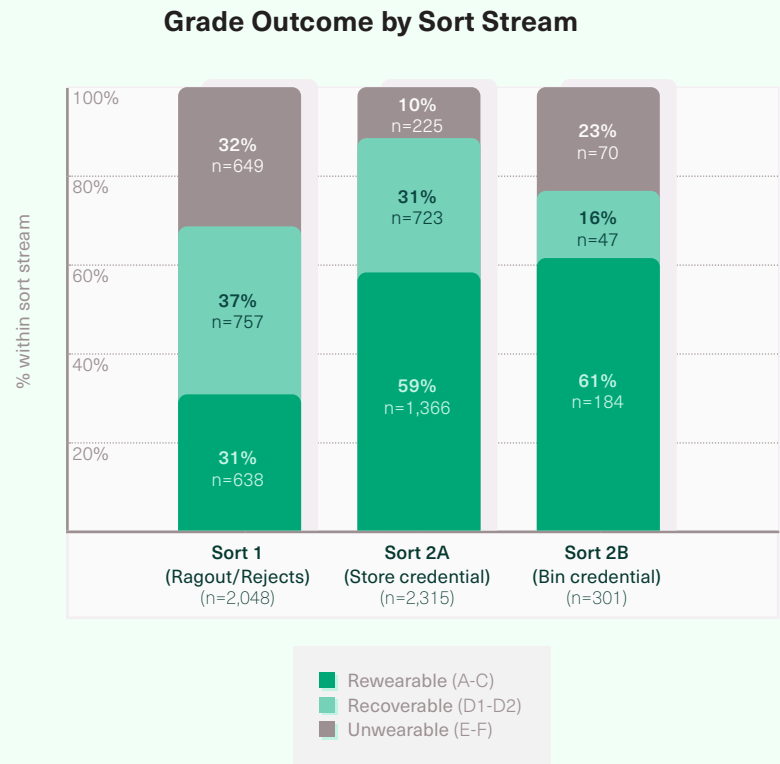


Figure 24: Condition grade outcome by donation stream

Damage and Defects: Combining major and minor occurrences, the most common issue in **Sort 1** was **staining**, affecting 727 items (35.5%), followed by **pilling** (n=632, 30.9%), **fading** (n=625, 30.5%), **thinning** (n=413, 20.2%), and **dust or lint** (n=379, 18.5%).

In **Sort 2**, the most prevalent issue was **pilling** (n=883, 33.8%), followed by **staining** (n=565, 21.6%), **fading** (n=540, 20.6%), and **dust or lint** (n=492, 18.8%).

Across the full sample, the most frequently observed issues were **pilling** (n=1,515, 32.5%), followed by **staining** (n=1,292, 27.7%), **fading** (n=1,165, 25.0%), **dust or lint** (n=871, 18.7%), and **thinning** (n=620, 13.3%).

Because individual items could exhibit more than one issue, these percentages are not mutually exclusive. Several of the most commonly observed issues, particularly **dust or lint** (18.7%), **minor staining** (9.2%), and **odour** (4.0%) are conditions that donors can often prevent or address before donation through laundering, drying, and appropriate storage.

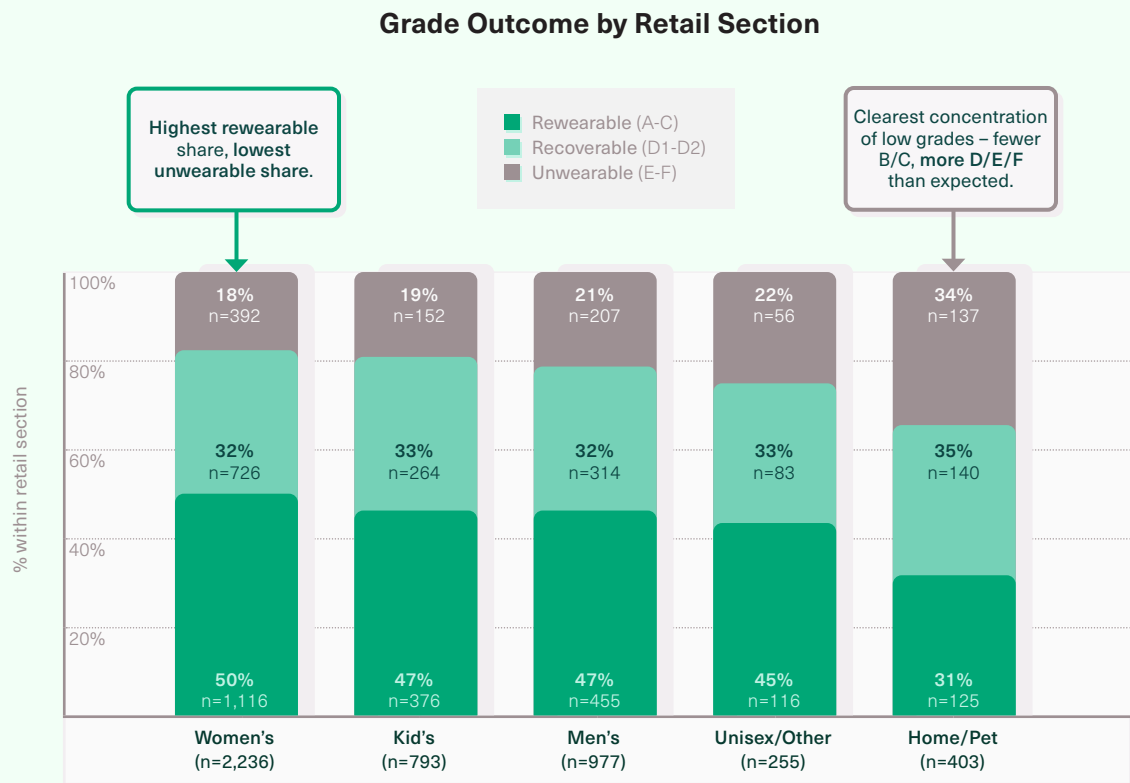


Figure 25: Variance in condition grade by retail section

Together, these issues were observed on at least 1,467 items (31.5% of the sample), although some items exhibited more than one of these conditions. This finding highlights the potential value of donor education around simple pre-donation practices, as relatively minor improvements in cleanliness could substantially increase the proportion of items immediately suitable for resale while reducing processing time and costs for charitable organizations. The implications of these findings for pre-donation practices and donor education are discussed in greater detail in the TTNS Phase II Donation Etiquette Analysis.

Figure 26 shows damage and defect prevalence across the reuse pipeline.

Figure 27 shows the percentage of items with at least one donor-preventable defect present.

Table 4 further details minor and major defect occurrences by sort session.

A supplementary set of six defect categories, introduced partway through data collection and recorded for **Sort 2** items only, is reported separately in Appendix A9 in the Master Report.

Defect Prevalence Shifts Across the Reuse Pipeline

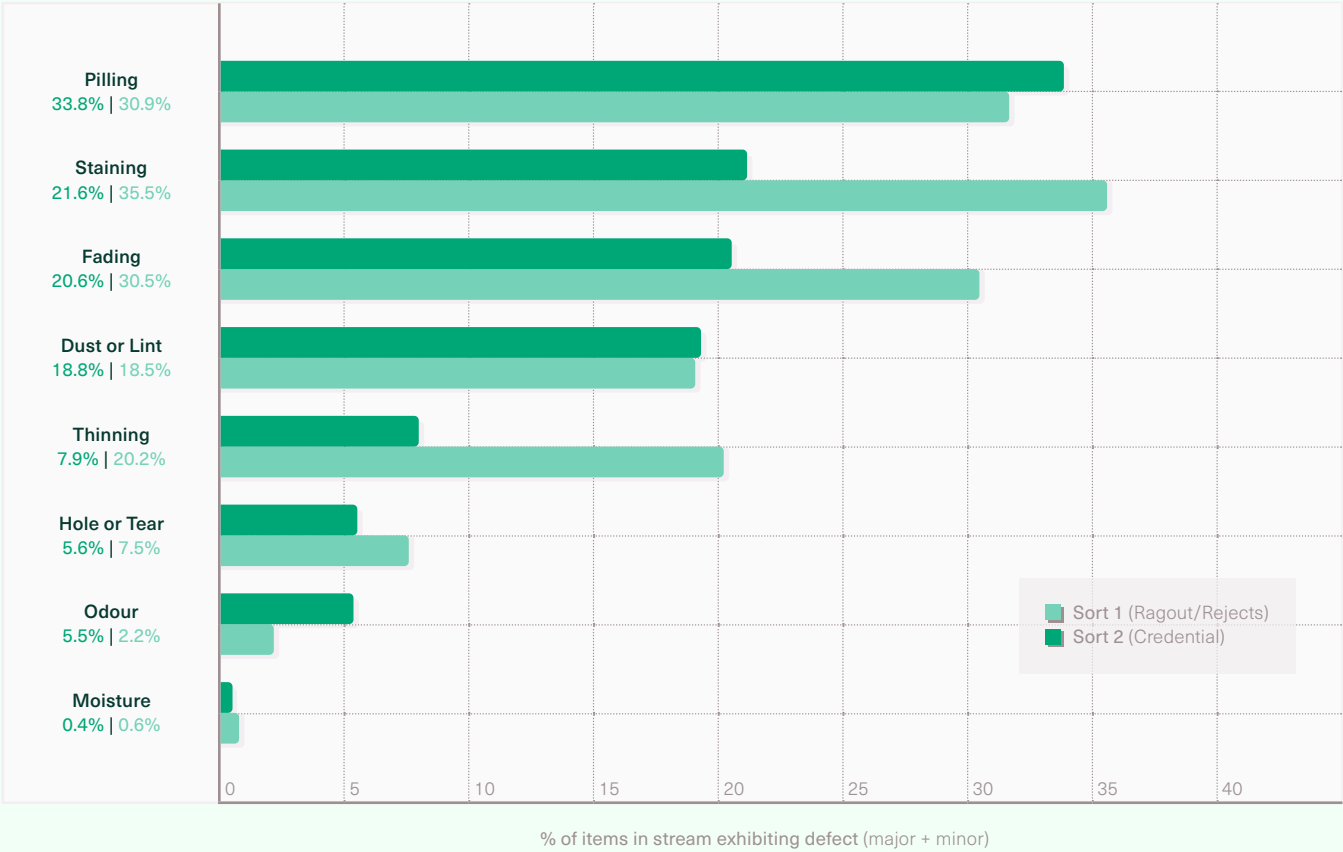
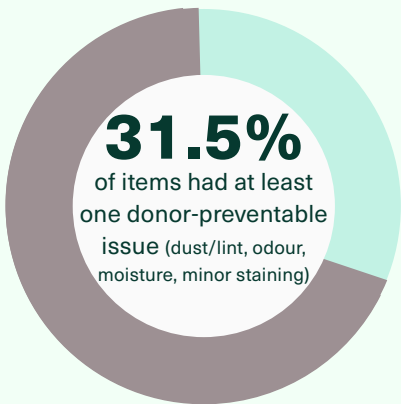


Figure 26: Damage and defect prevalence across the reuse pipeline

Preventable Through Pre-Donation Care



Note: Six additional defect categories: dirty/needs a wash, hair or fur, wrinkling, snag or run, misshapen or stretched, and cracked or degraded print, were introduced beginning with **Sort 2** and were not tracked during **Sort 1**. Because these categories cannot be compared across both sort sessions, they are not included in Table 4 below and are instead reported separately in **Appendix A9 in the Master Report**.

Figure 27: Items with at least one donor-preventable issue present upon examination

Instances of Defects

Defect	Sort 1 (n=2,048)	Sort 1 Total	Sort 2 (n=2,616)	Sort 2 Total	Combined Total	% of Sample (n=4,664)
Pilling	Major: 414 Minor: 218	632	Major: 351 Minor: 532	883	1,515	32.5%
Stain	Major: 514 Minor: 213	727	Major: 348 Minor: 217	565	1,292	27.7%
Fading	Major: 381 Minor: 244	625	Major: 198 Minor: 342	540	1,165	25.0%
Dust or Lint	Major: 195 Minor: 184	379	Major: 119 Minor: 373	492	871	18.7%
Thinning	Major: 239 Minor: 174	413	Major: 73 Minor: 134	207	620	13.3%
Hole or Tear	Major: 73 Minor: 81	154	Major: 77 Minor: 70	147	301	6.5%
Odour	Major: 0 Minor: 45	45	Major: 43 Minor: 100	143	188	4.0%
Moisture	Major: 13 Minor: 0	13	Major: 9 Minor: 1	10	23	0.5%

Table 4: Minor and Major defect occurrences across sort sessions

3.6 Value-Adding and Value-Detracting Attributes

This study also tested a **supplementary valuation scale** for items assessed in **Sort 2A** alongside the A-to-F condition-grading system. The research team identified several attributes that could meaningfully increase or decrease an item’s resale or reuse value but were not fully captured by condition grade alone. Because new-with-tags status was already reflected in a Grade A classification, the supplementary scale focused on characteristics that added to or detracted from an item’s value beyond its assigned grade.

Across **Sort 2A**, the research team found 429 items that had **value-adding attributes** and 390 items that had **value-detracting attributes**.

The most common value-adding attributes were:

- premium brand status** (n=115, 26.8%),
- remarkably high-quality handfeel or construction** (n=104, 24.2%),
- vintage status** (n=78, 18.2%),

- fanwear** (n=52, 12.1%), and
- manufacture in Canada, the United States, or Europe** (n=45, 10.5%).

The most frequent value-detracting attributes were:

- remarkably low-quality handfeel or construction** (n=145, 37.2%),
- promotional branding or messaging** (n=112, 28.7%),
- personalized clothing such as items with nametags** (n=45, 11.5%),
- missing matching pieces** (n=41, 10.5%), and
- uniforms** (n=37, 9.5%).

These findings demonstrate that items assigned the same condition grade may differ considerably in their likely resale value because of characteristics not captured by physical condition alone. (See **Figure 28** for more detail).

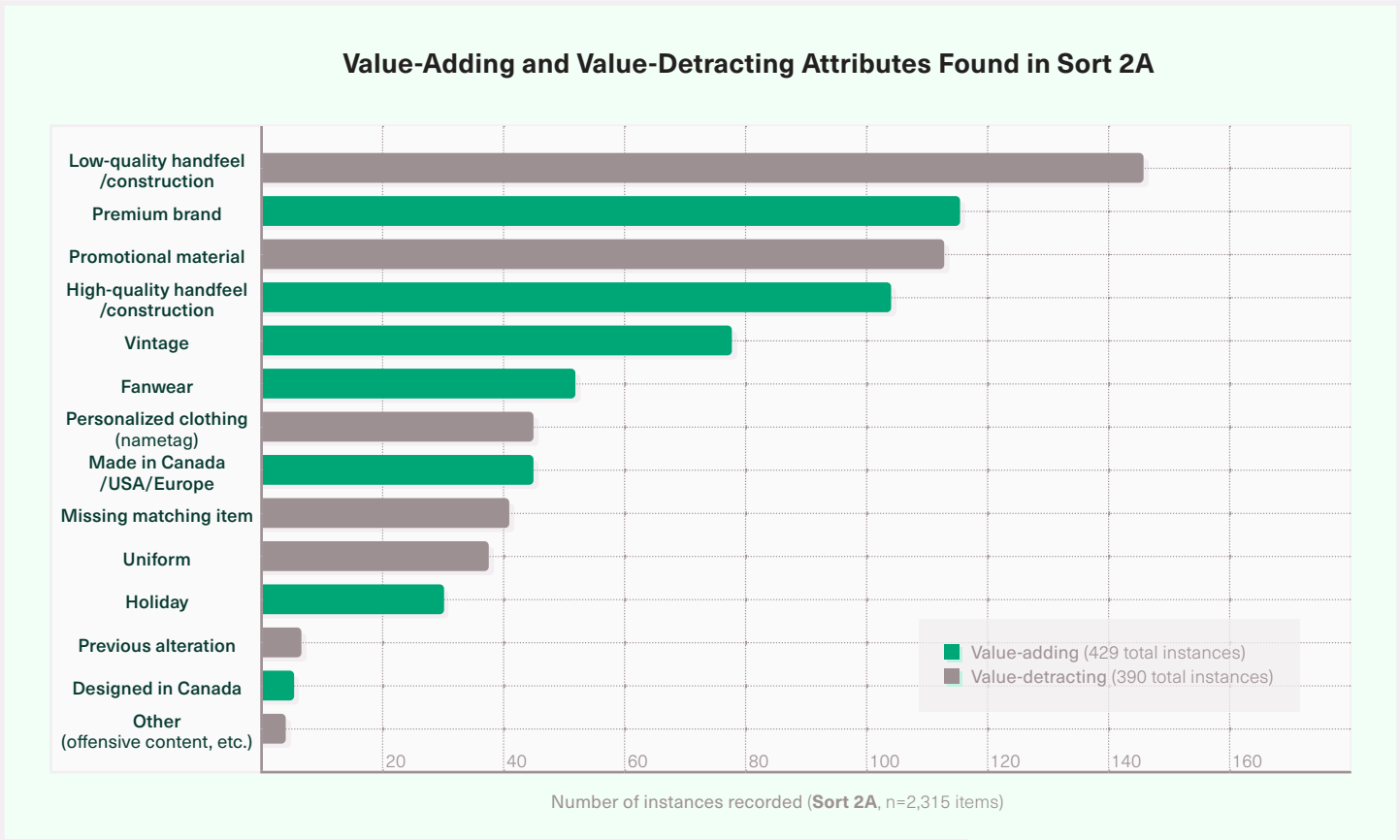


Figure 28: Summary of value adding and value detracting attributes by number of instances

4.0 Discussion

This study provides the most comprehensive characterization of donated textiles conducted in Nova Scotia to date, and contributes to a growing body of work characterizing Canadian textiles, examining 4,664 items collected across all seven of Nova Scotia's solid waste-resource management regions thereby capturing donations spanning the province. Clothing was collected from comparable retail locations across each region, providing broad geographic coverage of donation and resale conditions province-wide. The study examined two distinct textile streams: rejected and ragout items assessed after retail sorting and processing, and credential donations assessed before retail sorting and processing. Within the credential sort, a supplementary sample of textiles collected through donation bins was also included, allowing the quality of bin donations to be compared with items donated directly to stores. By documenting product characteristics, brand ownership, fibre composition, condition, and physical defects, the findings provide new insight into the composition of the charitable reuse stream and identify opportunities to improve textile circularity.

1,181 individual consumer-facing brands were identified, suggesting a highly fragmented marketplace. However, many of these brands can ultimately be traced to a much smaller group of corporate owners.

Although the 25 most represented parent companies owned only 6% of the identified brands, their products accounted for more than one-third (34.1%) of all items in the sample.

This concentration becomes even clearer when comparing item counts: this same group of 25 parent companies accounted for 1,590 items, nearly as many as the top 50 individual brands combined ($n = 1,671$). These findings indicate that, although consumers encounter a highly diverse array of brand names, responsibility for placing these products on the Canadian market is considerably more concentrated.

This has important implications for textile EPR, as engaging a relatively small number of retailers, private-label owners, and multinational apparel companies could address a substantial proportion of the products entering Nova Scotia's charitable reuse system.

Second, the donation stream retained considerable value. Nearly one-half of all donated items were immediately suitable for resale, while an additional one-third could potentially return to the market following cleaning or repair. Fewer than one in five items had reached the point where direct reuse was no longer appropriate but fibre recovery remained feasible, and only a very small proportion of donations were contaminated beyond practical recovery. To capture value beyond what the A-to-F condition grade alone reflects, the study also developed a supplementary valuation framework identifying value-adding and value-detracting attributes not captured by the letter-grade system. Whereas the letter-grade system assesses an item's condition and immediate potential for reuse or recovery, it does not capture characteristics that may increase or reduce its appeal and market value to an end customer. This supplementary framework helps close the gap between an item's condition grade and its likely market value, particularly as new reuse and resale applications emerge within the Canadian circular economy.

These findings reinforce that donated textiles should be understood as a resource stream with strong recovery potential.

Third, the findings underscore the importance of product design and condition in shaping future circularity. To examine this precisely, the study distinguished between fibre dominance within individual items and fibre concentration across the full sample, providing a more accurate account of fibre prevalence and the composition of the available material stream than a dominance-only analysis would allow.

Encouragingly, most items contained only one or two fibre types, suggesting that relatively simple fibre compositions remain common within the donation stream. This profile may not hold, however, as fast fashion continues to drive down the cost of clothing, blending fibres is often cheaper for manufacturers than single-fibre construction, and the current prevalence of simple compositions is at risk of eroding as production shifts further toward cheaper, blended fabrics (*Niinimäki et al., 2020*).

At the same time, elastane emerged as a significant constraint. Present in nearly one-quarter of all items, elastane can disrupt established mechanical recycling processes and limit opportunities for fibre recovery. Its concentration in women's apparel and denim is especially important because these are high-volume textile categories that might otherwise offer strong recycling potential. **These findings suggest that improvements in textile circularity may depend as much on upstream product design decisions as on investments in downstream recycling infrastructure.**

Fourth, many barriers to reuse were behavioural rather than technological. Although some defects reflected normal product aging, frequently observed issues such as staining, dust or lint, moisture, odour, and minor soiling could often be prevented or mitigated through laundering, proper storage, and more thoughtful donation practices. Together with the accompanying donation behaviour research (see **TTNS Phase II Donation Etiquette Analysis**), these findings suggest that **relatively modest improvements in public education could increase the proportion of items suitable for immediate resale while reducing sorting time, cleaning costs, and disposal expenses borne by charitable organizations.**

Reuse is also constrained by a matching problem. Because donated clothing typically remains on store shelves for only a limited period, the consumer who wants or needs a particular item may never encounter it. The relatively consistent proportion of D1-grade items across the sampling streams further suggests that many functionally usable items attract limited consumer demand in their current condition.

Modest interventions on both sides of the reuse system, including improving donation quality while extending, diversifying, or better targeting opportunities for items to reach suitable buyers, could therefore increase successful reuse. Donor education should thus be viewed as a critical component of textile circularity alongside improved product-consumer matching, recycling innovation, and producer responsibility.

Finally, the findings illustrate the importance of viewing charitable textile systems as one component of a broader circular economy rather than as the final destination for unwanted clothing. **Charities successfully extend the life of millions of garments, but they cannot overcome limitations created by product design, declining garment durability, contamination, or oversupply.** The prevalence of complex fibre blends, stretch fibres, and lower-quality construction shifts greater responsibility onto downstream organizations despite those decisions being made upstream during product design and manufacturing. Addressing these challenges will therefore require coordinated action across the textile value chain. **Producers can design and manufacture for item longevity and next-life readiness, governments can establish supportive policy frameworks, charitable organizations can continue optimizing sorting and reuse systems, and consumers can improve the condition of donated items through better care and donation practices.** Collectively, these interventions have the potential to increase textile recovery, reduce landfill disposal, strengthen charitable reuse systems, and improve the economic viability of emerging circular textile industries.

Taken together, this study demonstrates that Nova Scotia's charitable textile stream contains substantial untapped environmental and economic value. The results reveal a material stream characterized by concentrated producer responsibility, considerable remaining reuse potential, largely recyclable fibre compositions, and multiple opportunities for intervention before products reach end-of-life. Realizing this potential will require a systems-based approach that aligns product design, consumer behaviour, charitable operations, and public policy to support a more circular textile economy.

5.0 Recommendations

Findings from the **Waste Characterization Study** point to a textile stream that is large in volume, high in fibre and blend diversity, and split into three distinct outcomes: immediately resaleable, recoverable with intervention, and unsuitable for reuse. Findings also indicate that a relatively low number of parent brand companies are responsible for a large percentage of all items.

The recommendations that follow build directly on these findings and are identified with the prefix “**MAT**”, signifying “material”, to distinguish them from recommendations presented in the other TTNS Phase II deliverables.

Master Recommendation Key

Waste Characterization Study

MAT = Material

Donation Etiquette Analysis

BEH = Behaviour

End-Use Pathways Brief

MKT = Market



Recommendation Summary

HIGH PRIORITY

MAT-1 Engage concentrated companies in policy development

Sharing this study with the top parent companies could result in more engaged stakeholders.

MAT-2 Close EPR and stewardship infrastructure gaps

Mapping retail origins and market pathways could reduce accountability gaps.

MAT-3 Formally include textiles in waste strategies and audits

Defining textiles as a waste stream category could enable better tracking for future decisions.

MEDIUM PRIORITY

MAT-4 Consider fibre- and recycled-content procurement mandates

Exploring policy options could increase transparency and signal demand.

MAT-5 Explore consumer incentives

Tax incentives could increase consumer demand for repaired textiles.

MAT-6 Consider repair subsidies

Incentivizing paid repair practices could improve diversion outcomes and create jobs.

MAT-7 Address missing fibre content information

Supporting labelling standardization could improve routing to fibre-specific recycling pathways.

MAT-8 Explore eco-modulated producer fees

Financial incentives could increase use of recyclable content.

MAT-1 Engage concentrated companies in policy development**Priority:** High ▲**Audience:** Policymakers; Active industry partners; EPR program developers

A relatively small number of parent companies account for a large share of the textiles entering Nova Scotia's donation stream. Policy interventions aimed at improving textile design, labelling, or end-of-life accountability can therefore be targeted efficiently at a handful of producers rather than spread thinly across a fragmented brand landscape. Without their direct engagement, EPR and stewardship policy development risks being designed around an assumed market structure rather than the concentrated reality this study observed.

Evidence from TTNS

- Top 25 brand companies accounted for 34.1% of all items assessed, despite owning only 5.9% of identified brands
- Gap Inc., Walmart Inc., Loblaw Companies Limited, H&M Group, and Giant Tiger Stores Limited were among the parent companies most represented in the sample.
- This concentration held despite a highly fragmented brand landscape overall, indicating that brand count alone is a poor proxy for market influence.

Recommended Actions:

- Convene the identified top parent companies as a standing stakeholder group for EPR and stewardship policy development.
- Share this study's brand concentration findings directly with these companies to establish a shared evidence base for policy discussions.
- Formalize their participation in provincial EPR framework consultations as they develop.

Expected Outcomes:

- A defined, engaged group of high-impact producer stakeholders participating in brand-led EPR policy development.
- Policy design informed by actual market concentration rather than an assumed even distribution across brands.
- Stronger producer buy-in ahead of eventual regulatory requirements.

MAT-2 Close EPR and stewardship infrastructure gaps**Priority:** High ▲**Audience:** Policymakers; EPR program developers

EPR frameworks depend on clearly identifying who is responsible for a product at end of life. This study found that brand ownership is far more concentrated than the number of distinct brands would suggest, and that retailers commissioning private-label or licensed goods may not currently be captured as "producers" under existing EPR thinking. Left unaddressed, this ambiguity risks a stewardship policy that fails to hold true producers accountable.

Evidence from TTNS

- Retailers that commission private-label or licensed goods are not consistently captured as "producers" under current EPR thinking, despite contributing meaningfully to the waste stream.
- No consistent system currently exists for allocating stewardship fees or tracking brand representation across this concentrated ownership structure.

Recommended Actions:

- Map the retail origins and market pathways of branded and private-label goods identified in this study.
- Identify where current EPR and stewardship definitions fail to capture retailers commissioning private-label or licensed products as producers.
- Develop fee allocation and reporting traceability mechanisms that reflect actual brand ownership concentration.

Expected Outcomes:

- A clearer, evidence-based definition of "producer" for EPR purposes that captures private-label and licensed goods.
- Fee and reporting structures that reflect actual market concentration.
- Reduced risk of accountability gap in future stewardship policy.

MAT-3 Formally include textiles in waste strategies and audits**Priority:** High ▲**Audience:** Provincial and municipal governments;
Stewardship organizations; NACTR

Textiles cannot be managed as a priority waste stream if they are not consistently counted or defined within the systems provincial and municipal governments already use to set goals and track waste. Without a harmonized definition, Nova Scotia's data risks being incompatible with other Canadian jurisdictions, undermining the province's ability to benchmark progress or contribute to national policy development and datasets.

Evidence from TTNS

- This study is Nova Scotia's first dedicated textile waste characterization effort, indicating textiles have not historically been tracked with the same rigour as other waste streams.
- Existing Canadian textile waste characterization studies use varying methodologies and definitions, creating a need for harmonization across jurisdictions.
- NACTR is positioned as a natural convening body for defining textiles consistently across audits, given its national mandate.

Recommended Actions:

- Explicitly name textiles as a material category in provincial and municipal circular economy and waste reduction strategies.
- Include textiles as a defined category in future waste audits.
- Work with NACTR to adopt a standardized definition of textiles for audit purposes, aligned with other Canadian jurisdictions.

Expected Outcomes:

- Textiles formally recognized as a tracked material stream in provincial and municipal policy.
- Waste audit data that can be compared across Canadian jurisdictions.
- A stronger evidence base for future textile-specific policy and investment decisions.

MAT-4 Consider fibre- and recycled-content procurement mandates**Priority:** Medium ▲**Audience:** Provincial and municipal governments

Government procurement is one of the few demand-side levers available before broader producer responsibility policy is in place. Requiring fibre-content transparency or recycled content in publicly funded purchasing could create early, stable demand for better-labelled and more circular textile products, supporting the market conditions that make later EPR policy more effective.

Evidence from TTNS

- Fibre-content labels were unavailable for 21.7% of items, and fibre content could not be determined at all for 6.2%, indicating current market practice does not reliably support content-based purchasing decisions.
- No procurement mandates currently exist in Nova Scotia requiring fibre-content or recycled-content disclosure.
- Producer accountability mechanisms recommended elsewhere in this study depend on the standardized fibre-content reporting that procurement policy could help drive.

Recommended Actions:

- Explore procurement policy options that require fibre-content disclosure for textile purchases made with public funds.
- Consider phased recycled-content minimums for applicable government purchases.
- Align procurement requirements with the labelling and traceability mechanisms recommended in MAT-7.

Expected Outcomes:

- Increased fibre-content transparency among suppliers to government.
- An early demand signal for recycled-content textile products.
- Procurement practices aligned with future EPR requirements.

MAT-5 Explore consumer incentives**Priority:** Medium ▲**Audience:** Federal and provincial governments

Consumer-facing incentives can influence upstream purchasing and end-of-life behaviour without waiting for producer-level policy to take effect, offering a near-term lever to reduce the volume and improve the quality of textiles entering the waste and donation stream.

Evidence from TTNS

- An estimated 30-50% of textile donations are appropriate for resale (*NACTR, 2023; Weber et al., 2023*), indicating a meaningful share of value is lost when items are discarded rather than resold or repaired.
- Canadian labour costs make refurbishment and repair economically unfeasible on a large scale without incentives (*Martin & Ulasewicz, 2025*).
- No consumer tax incentives currently exist in Nova Scotia to encourage the purchase or resale of used textiles.

Recommended Actions:

- Explore a sales tax exemption on used textile purchases.
- Assess other consumer-facing incentive or disincentive mechanisms, such as tax credits or repair rebates.
- Evaluate the fiscal and behavioural impact of candidate incentives before implementation.

Expected Outcomes:

- Increased consumer demand for used and repaired textiles.
- Reduced volume of resaleable items sent for disposal.
- A stronger business case for resale and repair retail models.

MAT-6 Consider repair subsidies**Priority:** Medium ▲**Audience:** Provincial and municipal governments;
Resale organizations

This study found a meaningful share of donated items are recoverable with intervention rather than immediately resaleable or entirely unsuitable for reuse, but Canadian labour costs currently make repair and refurbishment economically unfeasible at scale. Targeted subsidies could unlock this recoverable-but-not-resaleable portion of the stream while supporting local job growth.

Evidence from TTNS

- This study identifies a distinct “recoverable with intervention” category within the textile stream, separate from immediately resaleable and unsuitable-for-reuse items.
- Export, recycling, and disposal remain the default pathways for surplus donations in the absence of a viable repair economy.

Recommended Actions:

- Consider subsidies that incentivize paid repair practice for textiles.
- Pilot repair subsidies in partnership with existing charitable and for-profit textile recovery organizations.
- Monitor job creation and diversion outcomes from pilot projects to build the case for scaling.

Expected Outcomes:

- Increased repair activity and reduced disposal of recoverable items.
- Skilled job creation in the repair sector.
- A tested model for scaling repair subsidies provincially.

MAT-7 Address missing fibre content information**Priority:** Medium ▲**Audience:** Federal and provincial governments; Industry; Manufacturers; Research Institutions; Standards organizations

Recycling pathways are often fibre-dependent, so the inability to reliably determine what a garment is made of is a direct barrier to routing recovered textiles into appropriate end markets. This is one of the clearest, most concrete data gaps this study identified, and closing it would strengthen nearly every other recommendation in this report.

Evidence from TTNS

- Fibre-content labels were unavailable for 21.7% of items assessed, and fibre content could not be determined at all, even through inspection, for 6.2%.
- 23.8% of textiles assessed contained elastane, a blend component that creates recycling challenges when not accurately disclosed.
- 84.8% of items contained only one or two fibre types, indicating that improved labelling accuracy would support feedstock characterization for a large majority of the stream.

Recommended Actions:

- Support labelling standardization efforts for fibre content.
- Explore digital product passports as a longer-term traceability solution.
- Develop producer accountability mechanisms that tie fibre-content accuracy to stewardship obligations.

Expected Outcomes:

- A measurable reduction in the share of items with missing or unreliable fibre-content information.
- Improved ability to route recovered textiles to fibre-specific recycling pathways.
- A stronger evidence base for producer accountability mechanisms under future EPR.

MAT-8 Explore eco-modulated producer fees**Priority:** Medium ▲**Audience:** Provincial governments; Industry; Manufacturers; EPR program developers

Flat producer fees do not distinguish between garments that are easy to recycle and those that are not, so they do little to discourage the blend complexity and material mixing that make textiles harder to recover. Eco-modulated fees would tie financial responsibility to how recyclable a product actually is, creating a direct design incentive for producers.

Evidence from TTNS

- 84.8% of items contained only one or two fibre types, suggesting that a fee structure rewarding simpler compositions would apply meaningfully across the sample.
- Fibre-content information necessary to apply blend-based fee structures is not currently standardized (see *MAT-7*).

Recommended Actions:

- Explore eco-modulated fee structures that account for blend complexity or number of materials.
- Design fee reductions or rewards for the use of recycled content.
- Align fee structures with the fibre-content standardization work recommended in MAT-7.

Expected Outcomes:

- Financial incentives for producers to design simpler, more recyclable garments.
- Increased use of recycled content and reduced use of blended fibres in new textile products.
- A fee structure that reflects actual end-of-life recyclability rather than a flat rate.

5.1 Limitations

The coding process involved some potential for interpretive bias, particularly when assigning condition grades and evaluating attributes related to aesthetic or utilitarian value. Because clothing functions both as a means of social expression and as a practical tool supporting a wide range of human activities, assessments of its value-adding and value-detracting attributes, as well as the severity of certain defects (e.g., holes or tears), may vary somewhat across individuals. To reduce this potential variation, all coders completed training in item classification, condition assessment, fibre identification, and data-recording procedures before beginning data collection. Coders also worked in close physical proximity to the research team throughout the sorting process, allowing questions, ambiguous cases, and inconsistencies to be discussed and resolved as they arose. Standardized grading criteria and data-collection protocols were used across the study, and photographs were taken to support the verification of classifications and condition assessments.

The study relied on fibre-content information obtained from garment labels and near-infrared spectroscopy (NIRS). Although NIRS is increasingly used in textile-characterization research and feedstock preparation, its relatively high cost can limit its widespread adoption, particularly among smaller research teams, charitable organizations, and textile-sorting facilities. The technology also has several recognized technical limitations (*Mak et al., 2025; McQueen et al., 2026*). In particular, NIRS may not reliably identify more than two fibre types within the same item, detect fibres comprising less than approximately 10% of a blend, analyze fibres obscured by coatings or multiple fabric layers, or consistently distinguish among certain natural fibres. Conversely, reliance on fibre content labels can also have its limitations. In a recent EU report, 37% of fibre content labels did not accurately represent the fibre content of the samples tested (*European Commission, 2026*).

These constraints may have reduced the accuracy of some fibre classifications and are consistent with limitations identified in previous textile characterization studies (*Mak et al., 2025; McQueen et al., 2026*). More broadly, the limited availability of affordable and reliable fibre-identification tools created an efficiency challenge for this study and may continue to constrain the ability of researchers and industry actors to conduct fibre analysis at scale.

The regional sampling approach introduced some potential for sampling error. Textile composition within each of Nova Scotia's seven waste regions was estimated using randomly selected sample boxes assembled by staff at participating charitable retail stores. Although stores were instructed to provide representative samples of ragout and rejected textiles for **Sort 1** and credential donations for **Sort 2**, the boxes were not uniform in weight, and staff may not always have been fully briefed on the distinction between the two streams. There was some evidence that individual boxes contained items from the incorrect stream, including credential items in the ragout sort and ragout or rejected items in the credential sort. Although efforts were made to apply a consistent sampling approach across regions, these inconsistencies may have affected the representativeness of some regional, stream-level, and item-level comparisons.

Future studies should provide clearer written and verbal instructions to participating staff, supported by examples of eligible and ineligible items, standardized collection procedures, and additional check-ins during the sampling period.

For practical reasons, the study did not collect item-level weight, volume, or colour data. Although the variables included in the analysis were selected to address the study's primary objectives, additional item-level measures may become increasingly important as reuse, recycling, and manufacturing pathways develop within Canada.

A related limitation concerns the absence of fully standardized definitions for condition grades, item classifications, fibre compositions, and repair requirements. This study followed the same general A-to-F grading approach used by *Weber et al. (2023)* and adapted for thrift donations by *Sterling et al. (2026)*, including the classification of D-grade items as unsuitable for resale in their current condition. However, the distinction between Grade D2 and Grade E represents a relatively recent refinement of the A-to-F model. Under this distinction, D2 items may potentially be restored to rewearable condition through more substantial intervention, whereas E-grade items are considered unwearable but may remain suitable for fibre recovery or another form of repurposing.

Because the boundary between substantial repair and unwearability can involve some judgment, differences in how this distinction was operationalized may have contributed to variation across studies. For example, Grade E items accounted for 18.0% of the present sample, compared with 2.1% in *Sterling et al., (2026)*, while Grade D2 items represented 13.3% of the present sample, compared with 19.0% in *Sterling et al., (2026)*.

These differences should not necessarily be interpreted as evidence of inconsistent grading practices, as they may also reflect genuine variation in the textile streams. Nevertheless, they reinforce the importance of developing shared operational definitions and decision rules so that findings from independent studies can be compared and, where appropriate, combined.

Greater consistency is also needed in distinguishing between major and minor defects or repair requirements. For example, a minor repair might be defined as replacing a button, laundering or de-linting, closing a small seam opening, or removing a localized stain through routine laundering. A major repair might involve replacing a zipper, repairing a large tear, reconstructing a damaged seam, removing extensive staining, or addressing damage that requires specialized equipment or skilled labour. Clear thresholds should also consider the time, cost, skill, and materials required to restore an item, rather than relying solely on the physical size of the defect. Establishing common definitions for these categories would improve estimates of how many damaged items could realistically be restored to rewearable condition.



Limitations and Mitigations Summary

The coding process has potential for bias

All coders received training and worked in close proximity to the research team using standardized protocols.

The study relied on fibre-content information obtained from garment labels and NIRS

MAT-7 would increase the accuracy and efficiency of future studies.

The regional sampling approach has potential for sampling error

Future studies should ensure staff are provided with clear and consistent written and verbal instructions.

The study did not collect item-level weight, volume, or colour data

Additional resources would need to be allocated in future studies to achieve this level of granularity as this data becomes increasingly important to diversion pathways.

There is a lack of fully standardized definitions for grading and classifications

Developing shared operational definitions and decision rules would ensure more accurate comparisons between independent studies; MAT-3 would help facilitate this process.

6.0 Conclusion

This study provides a province-wide characterization of post-consumer textiles by examining donated and discarded items collected across all seven SWR of Nova Scotia. By combining regional sampling with detailed assessments of item classification, condition, fibre composition, construction, brand ownership, and value characteristics, the study establishes an important evidence base for advancing textile circularity in the province and more broadly across Canada.

Several findings point to substantial recovery potential within the existing textile stream. The large majority of items contained only one or two fibre types, suggesting considerable readiness for mechanical recycling and emerging chemical recycling technologies that favour simpler fibre compositions. Nearly half of the items were immediately suitable for resale, while many others could potentially be restored through cleaning or repair. In particular, the prevalence of dust, odour, minor staining, and other cleanliness-related issues indicates that relatively simple pre-donation practices could preserve item value and reduce processing burdens. Public education campaigns focused on laundering, inspecting, and appropriately storing textiles before donation could therefore improve the quality of donated material with comparatively little intervention.

The brand analysis also provides encouraging evidence for the potential feasibility of EPR. Although the sample contained a large number of individual brands, a substantial share of the items was associated with a comparatively small number of parent companies. The 25 most frequently represented parent companies accounted for 1,590 items or 34.1% of the full sample, despite owning only 70 of the 1,181 identified brands (5.9%). This concentration suggests that responsibility for a meaningful share of the post-consumer textile stream may be distributed across fewer corporate

actors than the diversity of consumer-facing brand names initially implies. An EPR system may therefore be more administratively feasible than first assumed, particularly if producer obligations are assigned at the parent-company or retailer level rather than separately to every individual label. The inclusion of retailers is especially important because companies that place private-label, licensed, or diffusion-brand products on the market may also qualify as producers.

The findings further demonstrate substantial opportunities for technological and organizational innovation. Accurate and affordable fibre-identification tools, automated sorting systems, and standardized grading and characterization protocols could support higher-volume processing and direct materials toward their most appropriate reuse, recycling, or repurposing pathways. These opportunities will depend on collaboration among charitable organizations, collectors, recyclers, manufacturers, retailers, technology providers, researchers, and governments. Greater knowledge sharing, common data standards, and coordinated investment could reduce duplication, improve market confidence, and accelerate the development of viable circular end uses.

Overall, the study identifies significant opportunities to strengthen economic, environmental, and social resilience through textile waste reduction. Action can occur at multiple levels: individuals can improve donation practices, communities and charitable organizations can expand repair and reuse systems, industry can invest in sorting and recycling infrastructure, and governments can develop coordinated policy instruments such as EPR. Taken together, these findings demonstrate that Nova Scotia's textile stream is not simply a waste-management challenge, but a resource base with substantial potential for reuse, recovery, innovation, and shared value creation.



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Textile Transformation Nova Scotia Phase II

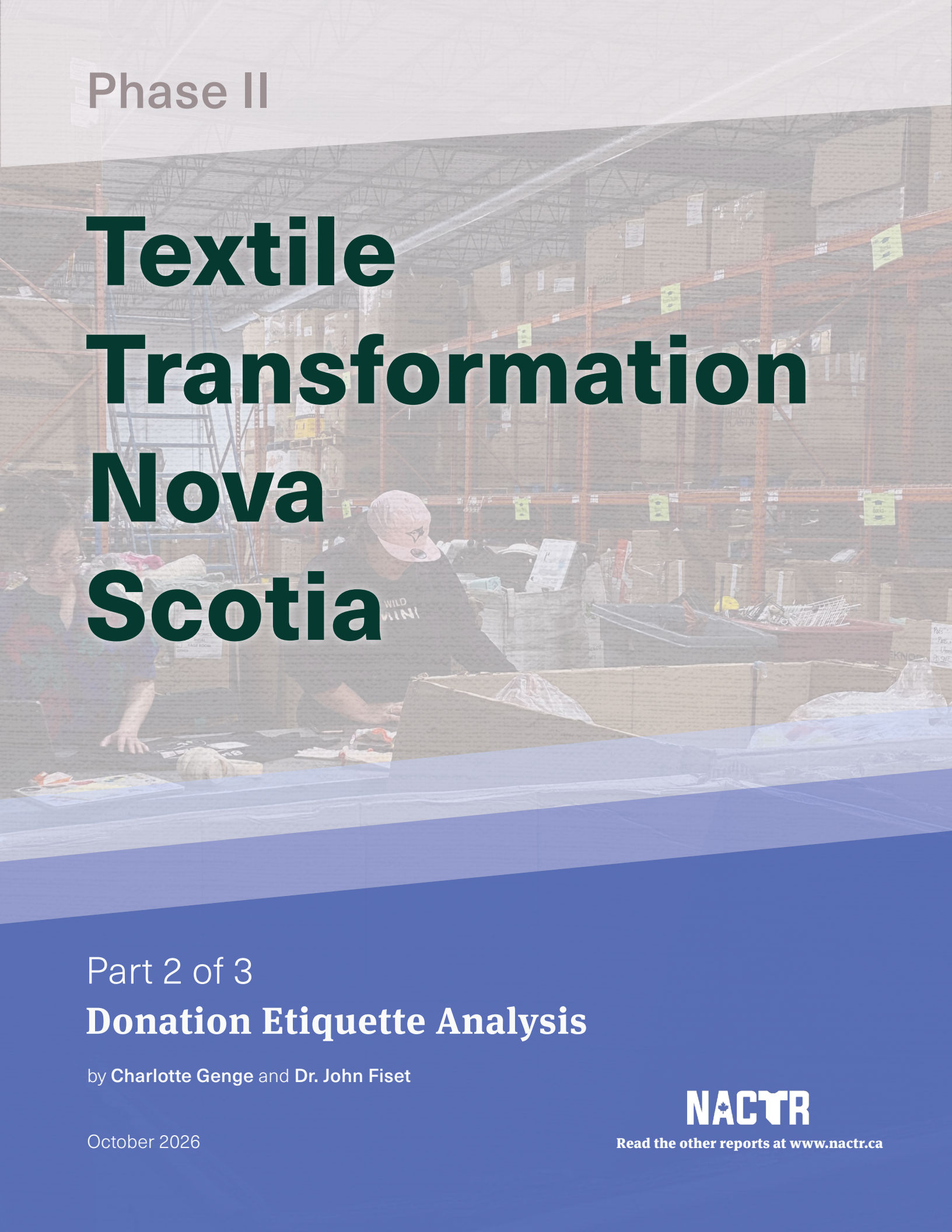
0 Master Report

1 Waste Characterization Study

2 Donation Etiquette Analysis

3 End-Use Pathways Brief

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Phase II

Textile Transformation Nova Scotia

Part 2 of 3

Donation Etiquette Analysis

by Charlotte Genge and Dr. John Fiset

October 2026

NACTR

Read the other reports at www.nactr.ca

Textile Transformation Nova Scotia (TTNS) Phase II

Textile Waste Characterization Study, Donation Etiquette Analysis, & End-Use Pathways Brief

Prepared for:

The National Association for Charitable Textile Recycling (NACTR)



Prepared by:

EnsembleCo Consulting



In collaboration with:

The University of Alberta, Department of Human Ecology,
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Report Authorship

This volume brings together three deliverable reports plus the master document prepared under TTNS Phase II. Authorship, contributions, and reviewers for each report are listed below.

No.	Report	Authors	Reviewers & Contributors
0	Master Report	Charlotte Genge	Dr. John Fiset, Sasha Barnard
1	Waste Characterization Study	Charlotte Genge, Claire Theaker-Brown, Dr. John Fiset	Dr. Rachel McQueen, Tonny Colyn, Sasha Barnard
2	Donation Etiquette Analysis	Charlotte Genge, Dr. John Fiset	Dr. Rachel McQueen, Claire Theaker-Brown, Tonny Colyn, Sasha Barnard
3	End-Use Pathways Brief	Charlotte Genge	Dr. John Fiset, Tonny Colyn, Sasha Barnard

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Genge, C. (2026). End-use pathways brief. In Textile Transformation Nova Scotia (TTNS) Phase II. Prepared for National Association for Charitable Textile Recycling.

This report is one of three integrated deliverables produced through **TTNS Phase II**. Together, the reports examine Nova Scotia's textile system from material, behavioural, and market perspectives. The overall project context and relationship among the reports are presented in the **TTNS Phase II Master Report**. The present **Donation Etiquette Analysis** focuses specifically on how donor behaviours influence the quality and rewear potential of post-consumer textiles.

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0.0 Executive Summary

The quality of Nova Scotia's textile recovery system is shaped well before garments reach a sorting facility, beginning with the decisions donors make about what and how they donate. Most Canadians report a strong understanding of appropriate donation practices, however, preventable contamination, inadequate preparation, and misconceptions about what charities can reasonably manage, continue to limit the share of donated textiles suitable for rewear.

This report examines how donation behaviours shape the quality and resale potential of post-consumer textiles, drawing on a national survey of 1,607 respondents, observations from the 4,664 donated items assessed in the **Waste Characterization Study**, and interviews with experts working across the textile collection and resale sector. Together, these sources provide the first comprehensive evidence base for donation etiquette in Canada.

Why this matters

Rewear delivers the highest environmental and economic value in the textile circular economy. Every preventable stain, moisture-damaged garment, or unsuitable donation reduces the likelihood that an item will be reworn or resold, and adds pressure to charities already managing rising donation volumes and shrinking downstream markets.

Improving donation quality is therefore one of the fastest and most cost-effective ways to advance textile circularity in the province, and one that can begin immediately without requiring new infrastructure or policy change.



Key findings

Donors are motivated, but under-informed about what happens after they give:



Strong intent. Respondents reported **strong environmental motivation** for donating, with reducing landfill waste and “doing the right thing” the strongest drivers, and expressed high agreement with core etiquette practices such as donating clean, functional clothing and avoiding the donation of contaminated items.



Donors define etiquette clearly. Open-ended responses showed Canadians overwhelmingly define good donation etiquette in terms of cleanliness, physical condition, usability, and thoughtful decision-making, offering a **strong foundation for a messaging campaign** to build on.



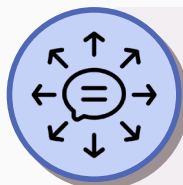
A post-donation knowledge gap. Respondents were considerably less familiar with what happens after donation than with what organizations accept; many viewed donation as the end of the process rather than **the start of a system** involving sorting, grading, resale, export, recycling, and disposal.



Collection context shapes quality. Donations from unattended community bins contained substantially higher proportions of low-quality material than donations received at staffed locations, with **bin-collected items graded E or F at roughly 2.4 times the rate of staffed-centre donations.**

Recommendations

The report identifies **behavioural-level (“BEH”) priorities** for strengthening Nova Scotia’s textile recovery system. The following recommendations are drawn from the full analysis; codes in brackets (e.g., BEH-1) correspond to the numbered recommendations in the report:



Deliver a coordinated, province-wide donation etiquette campaign with consistent messaging.
(BEH-1, BEH-6)



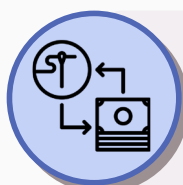
Support future Extended Producer Responsibility policy through public education that reinforces shared responsibility across consumers, charities, and producers.
(BEH-2)



Use community collection events and partnerships with schools, libraries, and municipalities to reinforce best practices over time.
(BEH-3)



Build standardized sector data and reporting on disposal volumes, rejection rates, and downstream losses to track progress and strengthen the case for change.
(BEH-4)



Explore repair-to-resale infrastructure for Grade D1 items as a complementary, sector-level investment.
(BEH-5)



Expand public education on what happens to donated textiles, and the impact of better donation etiquette, to close the post-donation knowledge gap.
(BEH-7)



Reform donation bin practices through clearer signage and the enforcement of a Code of Conduct to help reduce the quality gap between donation bins and those received at staffed donation centres.
(BEH-8)

Improving donation quality is not a standalone solution to Nova Scotia’s textile waste volumes, but it is one of the **fastest, lowest-cost interventions** available while larger investments in sorting infrastructure and recycling capacity are developed.

1.0 Introduction

The issue of post-consumer textile waste in Nova Scotia, and across Canada more broadly, is growing rapidly and requires urgent attention. Although textiles have not traditionally been considered a priority waste stream by many municipalities because of well-established donation and diversion networks, growing disruptions and uncertainty in downstream textile markets are calling the long-term viability of these systems into question. Even where effective collection systems exist, the success of textile reuse depends heavily on the quality of donated items. Garments that arrive clean, functional, and suitable for resale can remain in circulation for many years, whereas preventable damage, contamination, or poor donation decisions may shift otherwise reusable textiles into lower-value recycling, recovery, or disposal pathways. Understanding these behaviours is therefore an important component of improving textile circularity.

To address these concerns, the National Association for Charitable Textile Recycling (NACTR), supported by Divert NS and Environment and Climate Change Canada, conducted the **Textile Transformation Nova Scotia (TTNS) Phase I: Landscape Scan**. Importantly, Phase I identified donation etiquette, defined as the socially acceptable practices that shape behaviour in the context of textile donation, including how items are prepared, where they are donated, and how donation decisions are made, as a potentially important mechanism influencing the quality, usability, and ultimate fate of donated materials. Building on this finding, one component of **TTNS Phase II** was designed to explore donation etiquette in greater depth. Specifically, the present **TTNS Phase II Donation Etiquette Analysis** generates the quantitative and behavioural data needed to better understand how donation practices affect the reuse stream and the extent to which preventable donor behaviours contribute to otherwise reusable garments becoming waste.

Thus, the purpose of the present analysis is to examine textile donation habits of the general public and their effect on reuse potential by addressing the central research question:

How do donation behaviours contribute to preventable textile waste?

The analysis combined multiple complementary data sources. First, a random sample of textile donations collected through The Salvation Army Thrift Store network was assessed, with donations representing all solid waste-resource management regions of Nova Scotia. Second, a national survey was administered to examine public attitudes, behaviours, and awareness related to responsible textile donation practices. Finally, interviews with Subject Matter Experts (SMEs) in the textile collection, sorting, and thrift retail sectors were conducted to establish industry-informed definitions of donation etiquette and identify the practices most likely to preserve or diminish textile rewearability and reuse potential. Together, the findings of this analysis help quantify preventable textile loss and provide critical insights into consumer awareness.

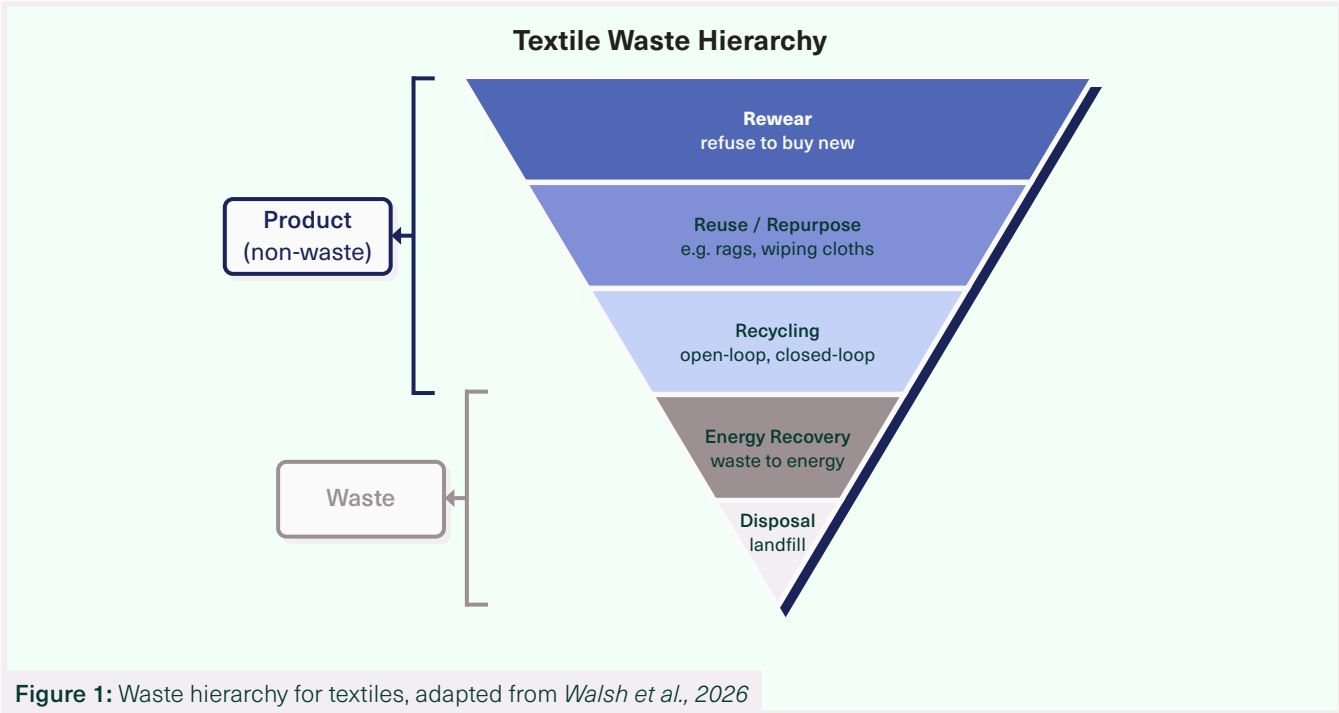
1.1 Donation Behaviour Context

A central principle of textile circularity is that not all diversion pathways deliver the same environmental, social, or economic value. Circular economy frameworks generally prioritize strategies that keep products in use at their highest value for as long as possible before lower-value recovery options are considered (Figure 1, adapted from Walsh et al., 2026).

The circularity framework applied in this report is drawn from Fashion for Good's Sorting for Circularity initiative, a multi-stakeholder project developed in collaboration with industry partners, civil society organizations, and academic advisors (Walsh et al., 2026). This sector-specific framework was selected over broader circular economy models, such as the R-strategies framework (also known as the R-ladder; Malooly & Tian, 2023), for two reasons. First, it was built from and for the textile sorting and reuse industry, grounding its categories in the operational realities of how post-consumer garments move through collection, sorting, and diversion systems. Second, it reflects a collaboration across industry, NGO, and academic stakeholders, lending it both practical credibility and broader legitimacy as a sector reference.

At the top of this hierarchy is prevention, and rewear falls into this tier. **Rewear** refers to a set of activities that extends clothing lifetime, allowing garments to continue to be used as clothing in their original form, either by the original owner or by another user through donation, resale, repair, swapping, gifting, or redistribution (Walsh et al., 2026), ostensibly reducing the demand for new items. Rewear preserves the greatest amount of embedded environmental and economic value within a garment, including the labour, energy, water, and raw materials required for its production.

Extending the life of clothing through continued wear has been identified as one of the most effective ways to reduce the environmental impacts associated with textile production and consumption (Walsh et al., 2026). The **TTNS Phase II** framework, therefore, places strong emphasis on preserving textiles within rewear pathways wherever possible. The project proposal specifically identifies “scaling up garment reuse” and “keeping garments in circulation for as long as possible” as foundational priorities for Nova Scotia’s emerging circular textile system (Genge, 2025).

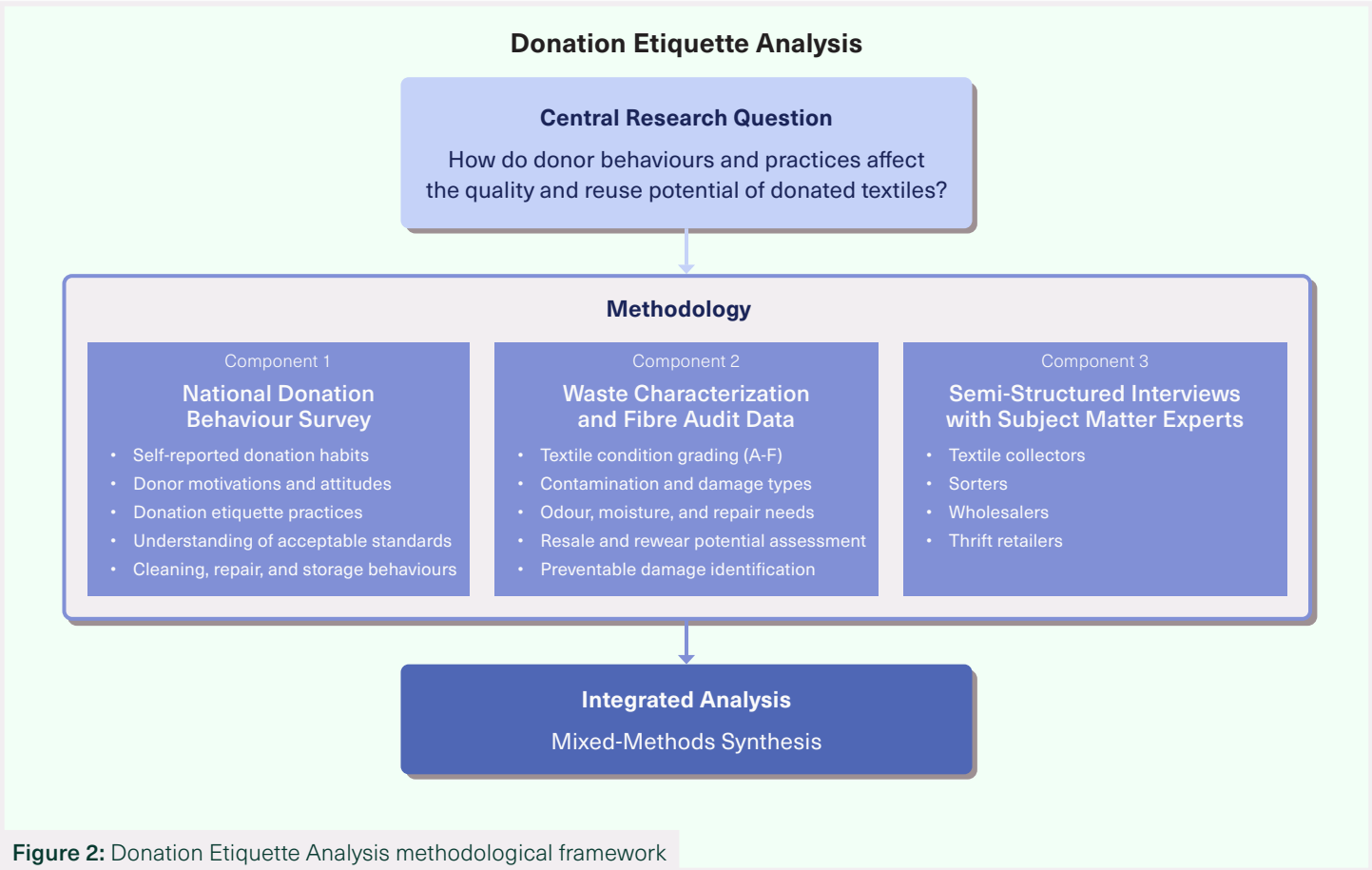


The second level of the hierarchy is **reuse**, or using clothes again, encompassing secondary applications for textiles that are no longer suitable for direct wear. Examples include converting textiles into industrial wiping cloths, cleaning rags, craft materials, and more. While reuse extends material life and diverts textiles from landfill, it generally represents a lower-value outcome because the garment requires additional processing and no longer functions in its original intended form.

The third level is **recycling**, which involves mechanically, chemically, or otherwise processing textiles into raw material feedstocks for new products such as nonwovens (e.g., insulation, carpet underlay, padding, foam, felt, acoustic paneling), furniture and automotive stuffing, animal bedding, yoga props, recycled yarn, and more. Recycling remains an important diversion pathway, particularly for unwearable textiles; however, it is often associated with fibre degradation, downcycling, contamination challenges, high processing costs, and underdeveloped or saturated end-markets.

The fourth tier is **recovery**, which includes waste-to-resource and other energy recovery operations. Finally, the lowest level is disposal in a landfill. It also includes incineration without energy recovery.

For this reason, preserving garment quality before donation is critically important. Once garments become contaminated through mildew, moisture exposure, odours, stains, pet hair, or preventable damage, they may lose their rewear potential and instead enter lower-value reuse, recycling, recovery, or disposal pathways. Importantly, this report approaches textile waste not solely as an infrastructure problem but also as a **behavioural and systems-level issue**. Improving donation practices, therefore, represents an important opportunity to strengthen textile circularity, reduce pressure on charitable organizations, and support future reuse-focused policy development in Nova Scotia and in Canada. It must be noted, however, that research shows that unless overproduction is reduced at the producer level, the benefits of rewear and reuse remain limited (Walsh et al., 2026).



This analysis employed a mixed-methods research design integrating survey-based behavioural research, quantitative textile sorting data, and interviews with SMEs to examine how donation practices contribute to preventable textile waste within charitable and for-profit reuse systems (**Figure 2**). The approach was designed to connect the physical condition of donated textiles with the behaviours, motivations, attitudes, and decision-making processes that influence donation quality and reuse outcomes.

The analysis combined three primary methodological components:

- A national donation behaviour survey
- Integration of waste characterization and fibre audit data, including defect and contamination observations
- Semi-structured interviews with textile collection, sorting, recycling, thrift retail, and wholesale experts

The survey component examined self-reported textile donation habits, motivations, and attitudes toward charitable donation, cleaning and repair behaviours, donation etiquette practices, and public understanding of acceptable textile donation standards or best practices.

Observational analysis was conducted concurrently with the **TTNS Phase II Waste Characterization Study**.

During the sorting process, project staff assessed surplus and excess stock (ragout and rejects) and raw donations (credential) given to The Salvation Army Thrift Store and documented textile condition, contamination, damage types, odour, moisture, repair needs, and overall resale potential. Particular attention was paid to identifying forms of damage that may have been preventable through alternative donation behaviours, such as laundering, repair, proper storage, or separation of unusable items prior to donation.

Importantly, the waste characterization data was used within this report only insofar as it informed behavioural analysis related to donation quality and preventable textile loss. Detailed fibre composition trends, regional material composition, and broader waste stream analysis are examined more comprehensively within the **TTNS Waste Characterization Study**. A complete report of the methodology on how the item condition was determined, and definitions of each grade can be found in **Section 2.3 - Condition of the Waste Characterization Study**.

Analysis Methodology



National Donation
Behaviour Survey



Integration of Waste Characterization
and Fibre Audit Data



Semi-Structured
Interviews

2.0 Methodology

2.1 Survey Sampling Approach

The Donation Behaviour Survey was created in Qualtrics and was administered nationally using a combination of organic and paid recruitment methods, with particular emphasis placed on obtaining responses from Nova Scotia residents. Participation was open to Canadian residents, regardless of their prior experience with donating clothing or other textiles, with the goal of capturing a broad range of perspectives.

The **survey instrument** was specifically designed to examine behaviours that influence textile reuse outcomes and the preservation of rewearability. Specifically, it explored donation practices that may affect whether garments remain suitable for continued use, including:

- Laundering items prior to donation,
- Separating wearable and unwearable textiles,
- Assessing garment condition before donation, and
- General donation decision-making practices

The survey also explored public understanding of donation etiquette, which was defined within the instrument as “a set of socially acceptable practices that define behaviour in the context of textile donation.” By examining these behaviours alongside textile condition data collected through the material audit and incorporating expert perspectives on responsible donation practices, the study sought to better understand how preventable damage, contamination, and donor decision-making contribute to textile loss within charitable reuse systems.

Survey recruitment consisted of both organic and paid approaches. **Organic recruitment** included distribution through:

- Partner organization email newsletters,
- Social media channels,
- Community networks, and
- Word of mouth sharing

To improve participation and geographic representation, **paid advertising** was conducted through Meta platforms (Facebook and Instagram). Recruitment was implemented in three stages:

- May 4 - June 3, 2026: Advertisements were targeted primarily to residents of Nova Scotia
- Final week of data collection (May 28 - June 3, 2026): The target audience was expanded to include all Atlantic Canadian provinces to improve regional representation
- Final two days of data collection (June 2 - June 3, 2026): Advertising was further extended to residents of the Yukon and Northwest Territories after monitoring indicated that no responses had yet been received from those jurisdictions

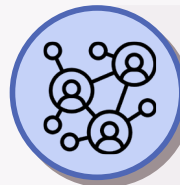
A list of survey questions can be found in **Appendix B1 in the Master Report**. A sample survey advertisement is provided in **Appendix B2 in the Master Report**.

Summary: Survey Sampling Approach



Survey Instrument Design

Formulated to examine behaviours that influence textile reuse outcomes and the preservation of rewearability



Organic Recruitment

Distributed through email newsletters, social media channels, community networks, and word of mouth



Paid Advertising

Promoted on Meta platforms to improve participation and increase geographic representation

2.2 Waste Characterization Data Collection

Observational analysis from the survey above was conducted concurrently with the **TTNS Phase II Waste Characterization Study**, an in-person analysis of 4,664 total items donated to Nova Scotia thrift locations. The research period, which spanned February to April 2026, yielded robust data on textile condition, contamination, damage types, odour, moisture, repair needs, and overall resale potential. Particular attention was paid to identifying forms of damage that may have been preventable through alternative donation behaviours, such as laundering, repair, proper storage, or separation of unusable items prior to donation. Other data collected, including detailed fibre composition trends, regional material composition, and broader waste stream analysis are examined more comprehensively within the **TTNS Phase II Waste Characterization Study**.

Items were sourced from two distinct samples of textiles from Nova Scotia's seven solid waste-resource management regions (SWR). **Sample 1** was composed of pallet boxes containing unsold, excess, and surplus donated items from Salvation Army Thrift Stores. These items would typically be routed to the "bale stream", meaning they are baled and sold to brokers who sort and export items to overseas commodity markets. These are the items that would be at risk of being sent to landfill if export markets were disrupted. **Sample 2** was composed of pallet boxes containing raw, unsorted donations to Salvation Army Thrift Store locations. The items remained in their original donated state. Also included in **Sample 2** was a sub-sample of items collected from community donation bins operated by Big Brothers Big Sisters of Great Halifax; this sub-sample served to provide a comparison in product quality between donation streams (in-store donations versus unstaffed donation bin drop-offs).

In total, 4,664 textile items were assessed across Sample 1 and Sample 2. The sampling design sought to ensure roughly equal representation from each of Nova Scotia's seven SWR, with approximately 300 items examined per region within each sorting exercise. Additional information about the sampling approach and the province's SWR is provided in **Section 2.0 - Methodology of the Waste Characterization Study**.

Data was collected using manual forms in **Sort 1** and via an electronic form in **Sort 2**, with photographs taken of each item in both sorts for future reference.

During data collection, trained research team members assessed the condition of each garment before assigning a grade (A, B, C, D1, D2, E, and F). Grades A, B, and C indicated immediate resalability; D1 and D2 denoted resale potential pending minor (D1) or major (D2) repair interventions; E was assigned to items with fibre recycling potential; and F was applied to contaminated items with no likelihood of value recovery.

A full explanation of the grading system is available in the **Section 2.3 - Condition of the Waste Characterization Study**. Research team members also recorded the presence and severity of specific defects; examples include staining, odour, holes, missing components (e.g., buttons or zippers), pilling, stretching, fibre degradation, moisture damage, and other factors affecting resale potential.

2.3 Subject Matter Expert Interview Structure

To add practical context to the survey and sort data, interviews were conducted with thrift collection and retail organizations to assess preferred donation behaviours. 12 interviews were conducted using a semi-structured format, drawing from the same pool of interviews conducted for the broader End-Use Pathways Brief; organizations interviewed are listed in Appendix B3. Interviewees were asked to define good donation behaviour or donation etiquette in their own words, and were asked about the types of items organizations most frequently find themselves unable to resell or redirect.

Interviews were conducted remotely via video conference, typically lasting around 30 minutes. Responses were reviewed thematically to identify areas of convergence and divergence across organization types and regions, and findings are integrated throughout the results and recommendations sections to provide operational grounding for the survey and sort data.

3.0 Findings

3.1 Survey

In total, we received 1,680 English responses and 14 French responses for a total of 1,694 responses. After evaluating responses for potential bots, we removed 87 responses from the final dataset (5.5%) for a total of 1,607 valid responses.

Of the 1,607 respondents, 1,573 (97.9%) reported **donating, selling, repurposing, repairing, or disposing of textiles within the past 12 months**. The sample also consisted largely of individuals who regularly engage with the second-hand sector. Thrift store shopping was common among respondents, with 93.6% reporting that they had shopped at a thrift store at least once during the previous year, and almost one-quarter (24.8%) reported **shopping at thrift stores more than 20 times**. As a result, the findings reflect the perspectives of people who are highly familiar with textile reuse, donation, and second-hand shopping practices.

The majority of respondents resided in:

Nova Scotia (n=658, 41%),
Alberta (n=315, 20%), and
Ontario (n=274, 17%).

The survey sample was predominantly composed of women. Nearly nine in ten respondents identified as women (89.7%), while 6.2% identified as men and 2.9% identified as non-binary or a third gender. A further 1.2% preferred not to disclose their gender. **Figure 3** shows an overview of the sample.

Respondents represented a broad range of age groups, although the sample skewed older. The largest proportion of respondents were:

65 years of age or older (29.3%), followed by
55-64 (17.8%),
35-44 (17.4%), and
45-54 (14.9%).

Respondents aged **25-34** accounted for 12.9% of the sample, while those aged **18-24** represented 5.7%.

An additional 2.0% of respondents **preferred not to disclose their age**. Overall, 64.4% were aged 45 years or older, indicating that the survey sample was composed primarily of middle-aged and older adults.

Respondents were generally well educated. The largest proportion reported holding a

Bachelor's degree (32.5%), followed by a
Master's degree (19.0%),
Trade/technical/vocational training (11.4%), and
some college credit without a degree (10.8%).

Smaller proportions reported having a **professional degree** (6.7%), **high school diploma or equivalent** (6.4%), **doctorate degree** (4.9%), **associate degree** (4.3%), or **some high school with no diploma** (0.9%). An additional 3.0% **preferred not to disclose their educational attainment**.

Overall, 63.1% of respondents held at least a bachelor's degree, while 74.7% had completed some form of post-secondary credential.

In terms of the maximum distance that respondents were willing to travel to donate clothes,

over half (53%) were **willing to travel more than 11 kilometers**, and
 15% were **willing to travel more than 20 kilometers**.

This is of note because 68% of respondents indicated that they were within 5 kilometers of the nearest textile donation location (store or bin).

Respondents reported a wide range of annual household incomes. The largest income category was **\$61,000-\$90,000** (16.0%), followed closely by **\$31,000-\$60,000** (15.4%) and **\$91,000-\$120,000** (13.5%).

Approximately one in ten respondents reported household incomes of **\$0-\$30,000** (9.9%), **\$121,000-\$150,000** (9.2%), or **\$176,000 and above** (10.2%).

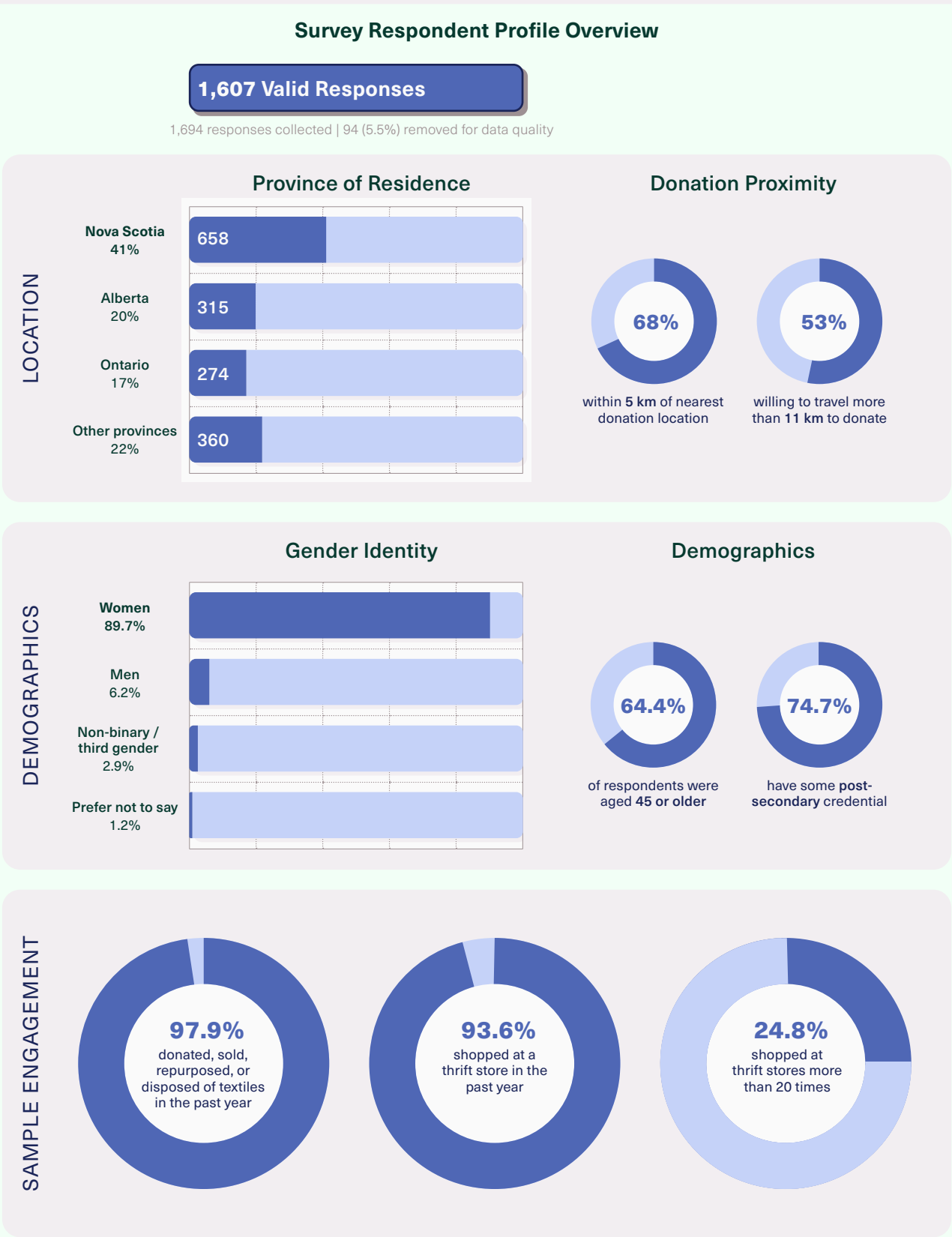


Figure 3: An overview of the Donation Etiquette survey respondent sample

Smaller proportions reported incomes between **\$151,000 and \$175,000** (5.6%). A substantial proportion of respondents (20.2%) **preferred not to disclose their household income**. Among those who provided an income estimate, 45.2% reported annual household incomes above \$90,000, while 20.0% reported incomes of \$30,000 or less, suggesting that the sample included respondents from a broad range of socioeconomic backgrounds.

Finally, respondents reported living in households with an **average of 2.01 adults** (SD=0.83), including themselves, and **0.81 children** (SD=1.02). **Figure 4** outlines the respondent profile of the sample.

Most respondents reported using each donation method at least once in the past year.

Handing items directly to store staff was the most common behaviour (78.3%), followed by **dropping items off at a thrift store donation centre** (64.3%).

Nearly half of respondents (46.5%) had **placed items in a donation bin**, while 35.2% had **donated through a community collection event or drive**.

Mailing donations was relatively uncommon, with only 1.7% reporting having done so.

Frequent use (8 or more times) was also highest for **handing items directly to staff** (15.7%) and **dropping items off at a donation centre** (9.4%), while all other methods were used regularly by fewer than 5% of respondents.

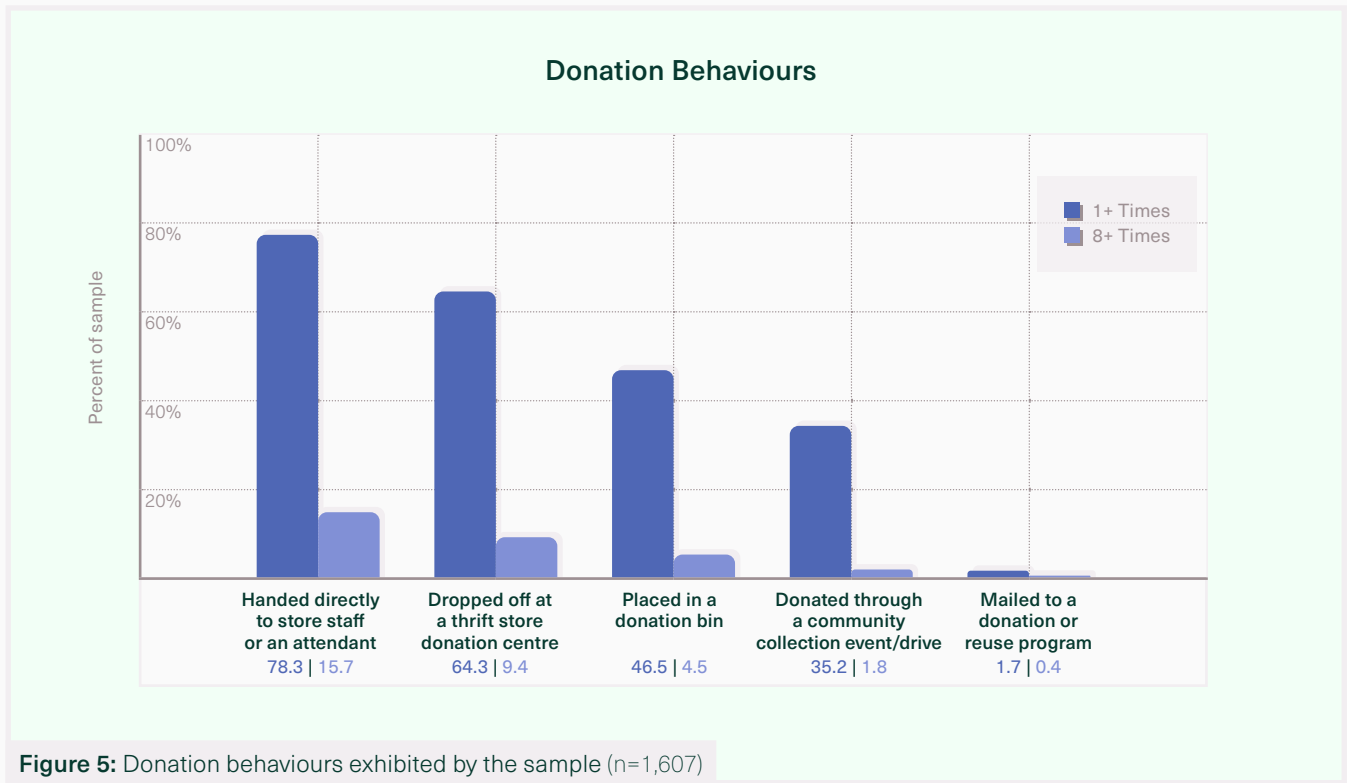
Figure 5 shows specific donation behaviours and their popularity among respondents.

Respondents reported engaging in a variety of non-donation behaviours to manage unwanted clothing and textiles over the course of the past year (**Figure 6**).

The most common practice was **giving items to family members or friends**, with 89.4% of respondents having done so at least once.

Similarly, 87.9% reported **mending or repairing items**, while 78.6% had **discarded textiles in the trash**, and 77.5% had **repurposed items for another use**.

Reselling clothing was less common but still reported by 41.8% of respondents.



Survey Respondent Profile Details

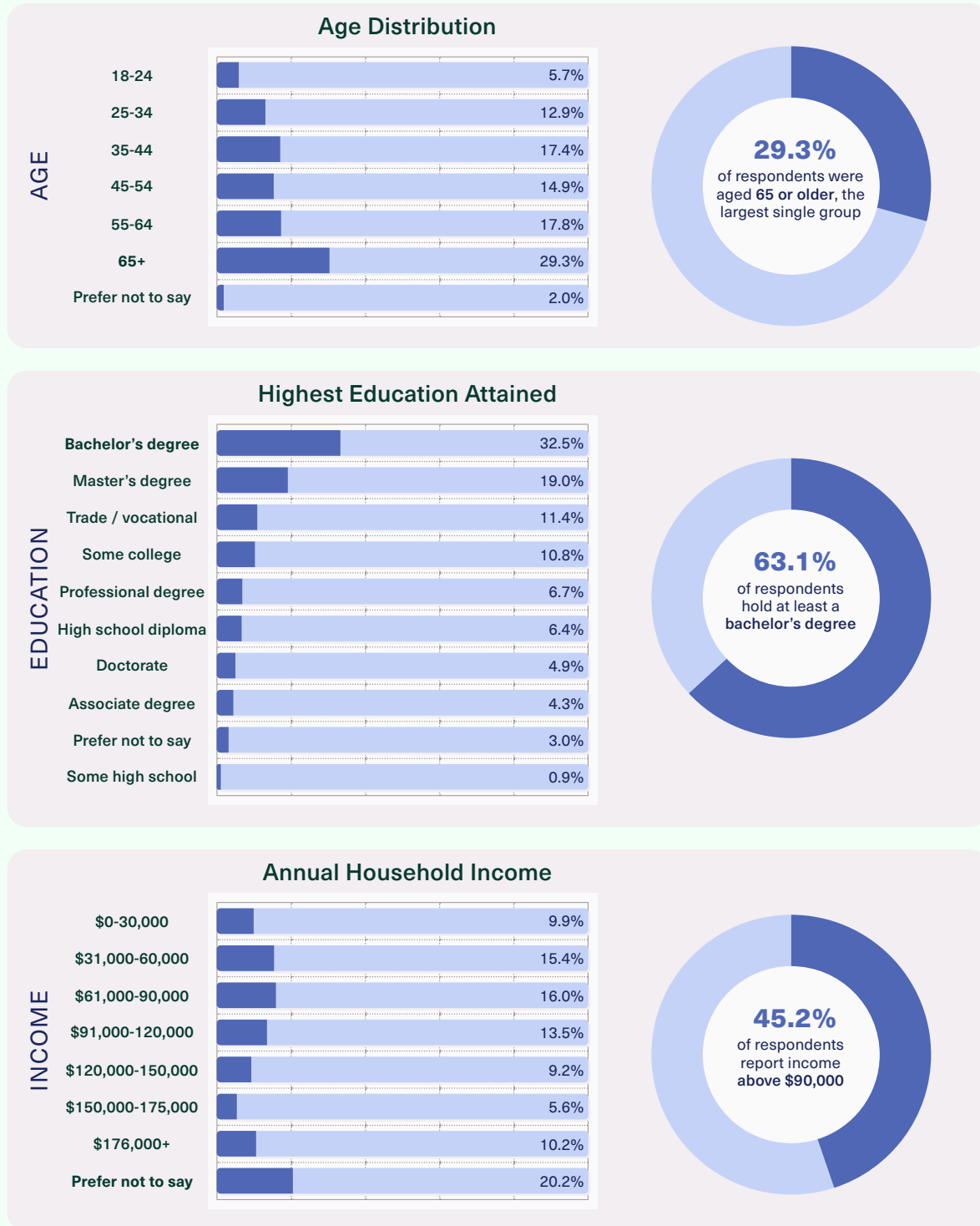


Figure 4: Survey respondent profile

Frequent engagement in these behaviours (eight or more times) was highest for:

- mending or repairing items (14.7%) and
- giving items to family or friends (13.0%), followed by
- repurposing (11.4%),
- reselling (7.7%), and
- discarding items in the trash (6.7%).

These findings suggest that respondents commonly rely on a range of reuse and life-extension strategies in addition to donation, although disposal through the waste stream remains a widespread practice.

The most frequently donated textile categories are shown in Figure 7, and were

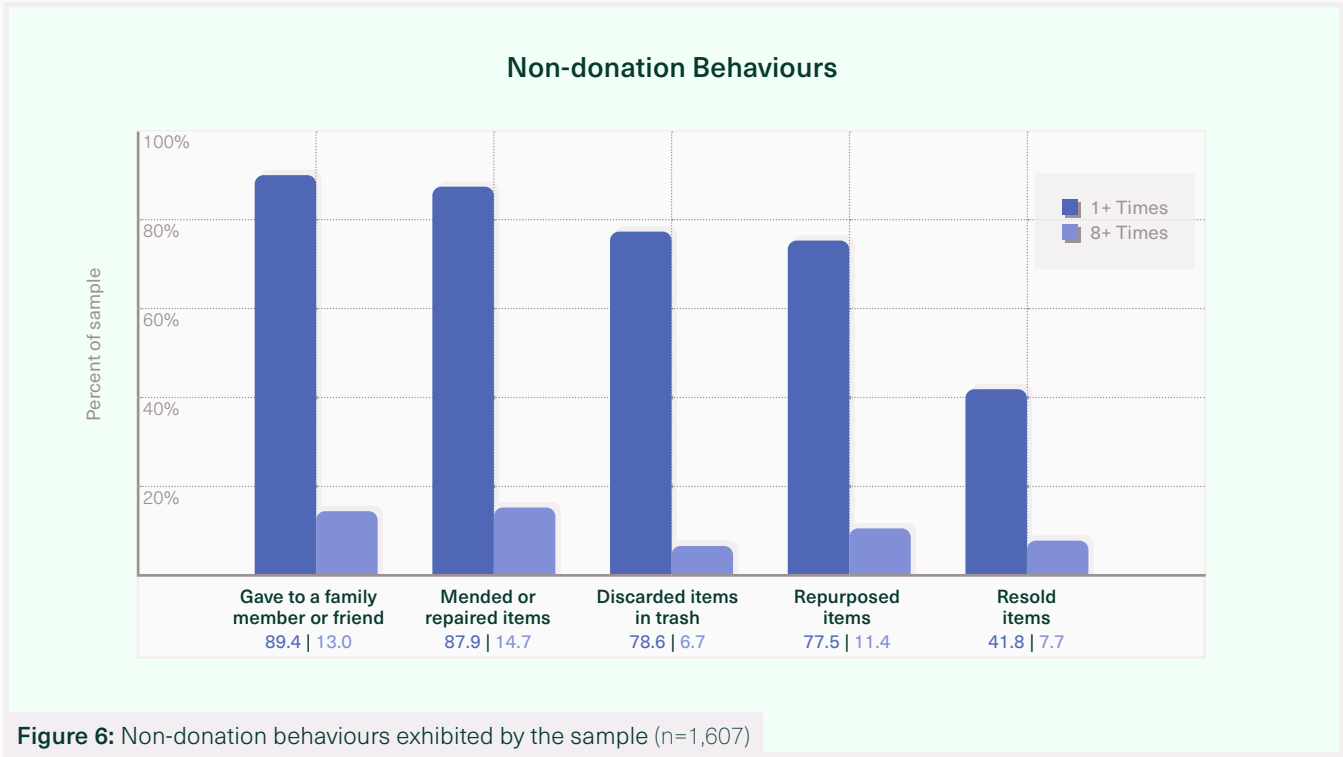
- pants (n=1,307; 81.3%),
- t-shirts (n=1,297; 80.7%),
- shirts (n=1,267; 78.8%),
- sweaters (n=1,195; 74.4%), and
- footwear (n=1,122; 69.8%).

In contrast, the least frequently donated

categories were:

- scarves (n=512; 31.9%),
- socks (n=422; 26.3%),
- bras (n=330; 20.5%),
- soft toys (n=310; 19.3%), and
- underwear bottoms (n=139; 8.7%).

Despite the sample consisting largely of individuals who regularly engage with the second-hand sector, the results suggest that important knowledge gaps remain. Respondents reported a relatively strong understanding of **what charities can and cannot accept** (M=5.45, SD=1.29), indicating that most felt reasonably confident about donation guidelines. However, the understanding of **what happens to textiles after they are donated** was notably lower (M=4.54, SD=1.54). This finding suggests that even among frequent thrift store shoppers and active participants in textile reuse, there is still considerable opportunity to improve public education about the post-donation journey of textiles and the realities of sorting, reuse, recycling, and disposal within the second-hand sector.



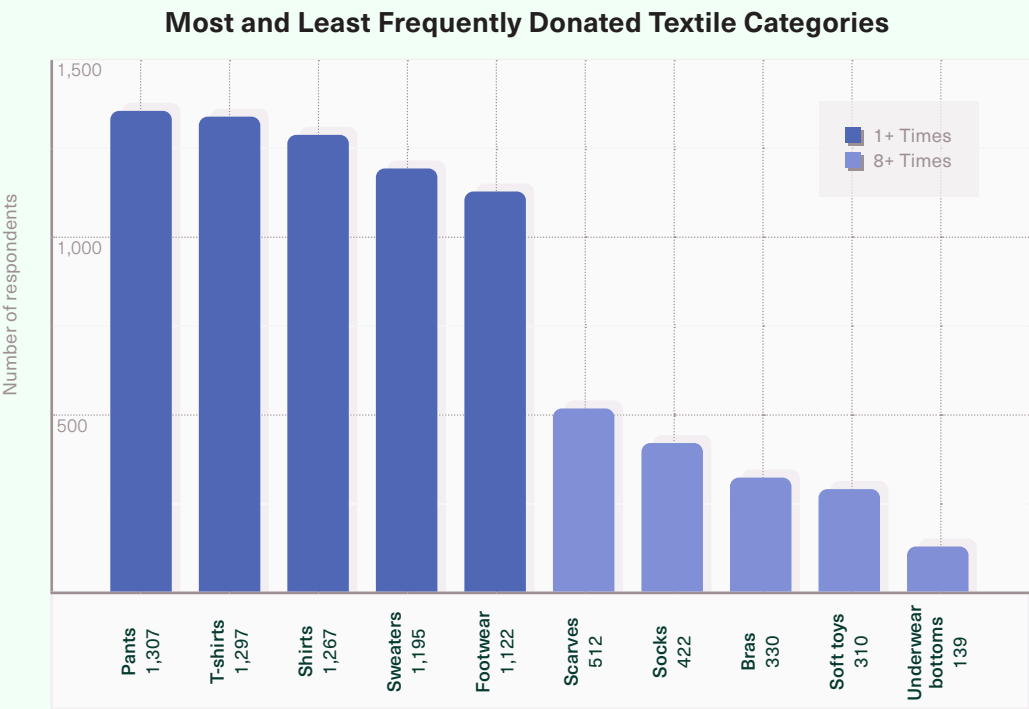


Figure 7: The most and least frequently donated textile categories as reported by survey respondents

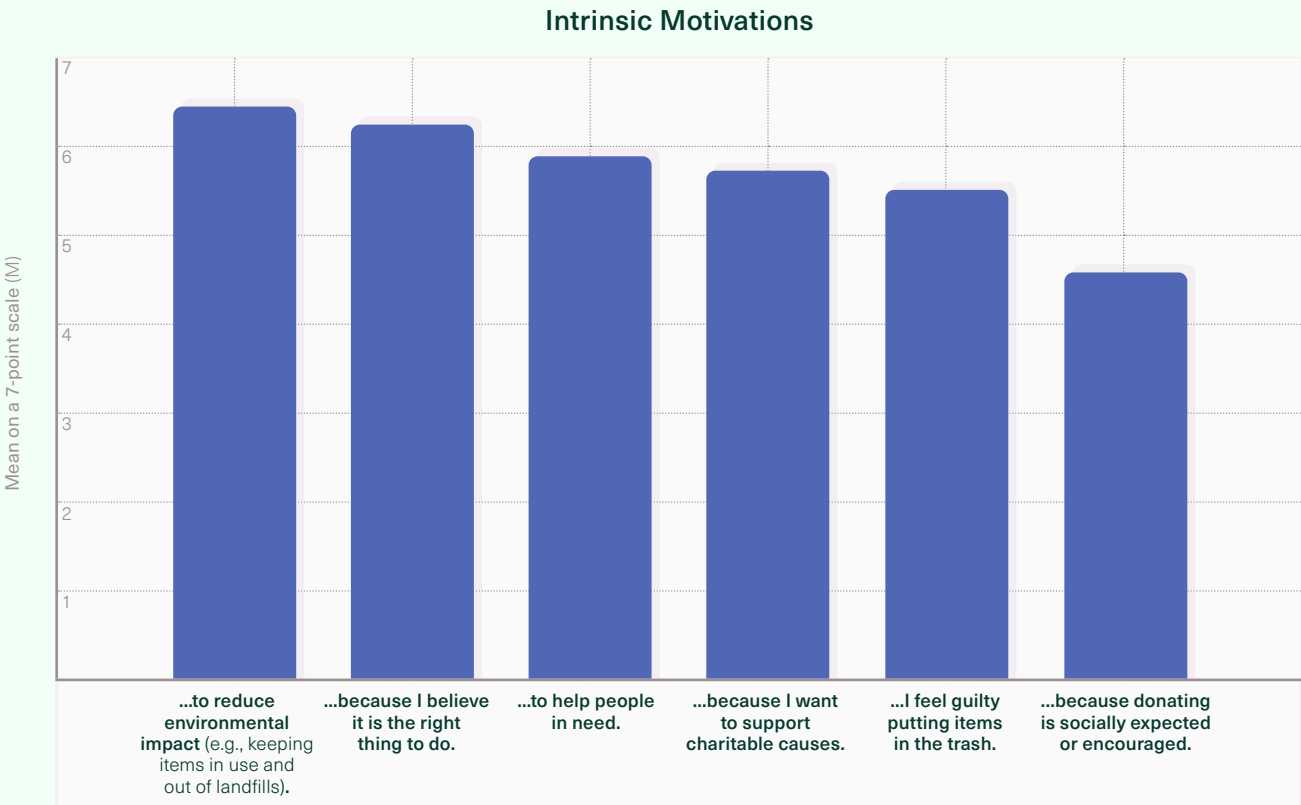


Figure 8: Intrinsic motivations for donating as reported by survey respondents

To better understand why people donate textiles, respondents were asked about both intrinsic motivations (i.e., motivations driven by personal values, beliefs, and emotions) and extrinsic motivations (i.e., motivations driven by practical considerations, convenience, or external rewards).

Among the intrinsic motivations, respondents expressed the strongest agreement with:

- reducing environmental impact by keeping items in use and out of landfills (M=6.40, SD=1.07),
- followed closely by the belief that donating is the right thing to do (M=6.23, SD=1.13).

Socially oriented motivations were also important, including:

- helping people in need (M=5.87, SD=1.32) and
- supporting charitable causes (M=5.71, SD=1.36).

Respondents also agreed that feelings of guilt associated with throwing items in the trash motivated their donation behaviour (M=5.49, SD=1.66).

The lowest-rated intrinsic motivation was donating because it is **socially expected or encouraged** (M=4.60, SD=1.64).

Intrinsic motivations are shown in Figure 8.

Extrinsic motivations received more mixed levels of support. The strongest extrinsic motivation was **decluttering the home** (M=6.16, SD=1.08), indicating that practical household management is an important driver of donation behaviour.

Respondents also moderately agreed that donating is the **easiest or most convenient way to get rid of unwanted items** (M=4.92, SD=1.78).

In contrast, they were less likely to donate because **they were already visiting a thrift store to shop** (M=3.83, SD=1.94), and **incentives such as coupons, discounts, or tax benefits** received the lowest level of agreement overall (M=3.12, SD=1.95).

Extrinsic motivations are shown in Figure 9.

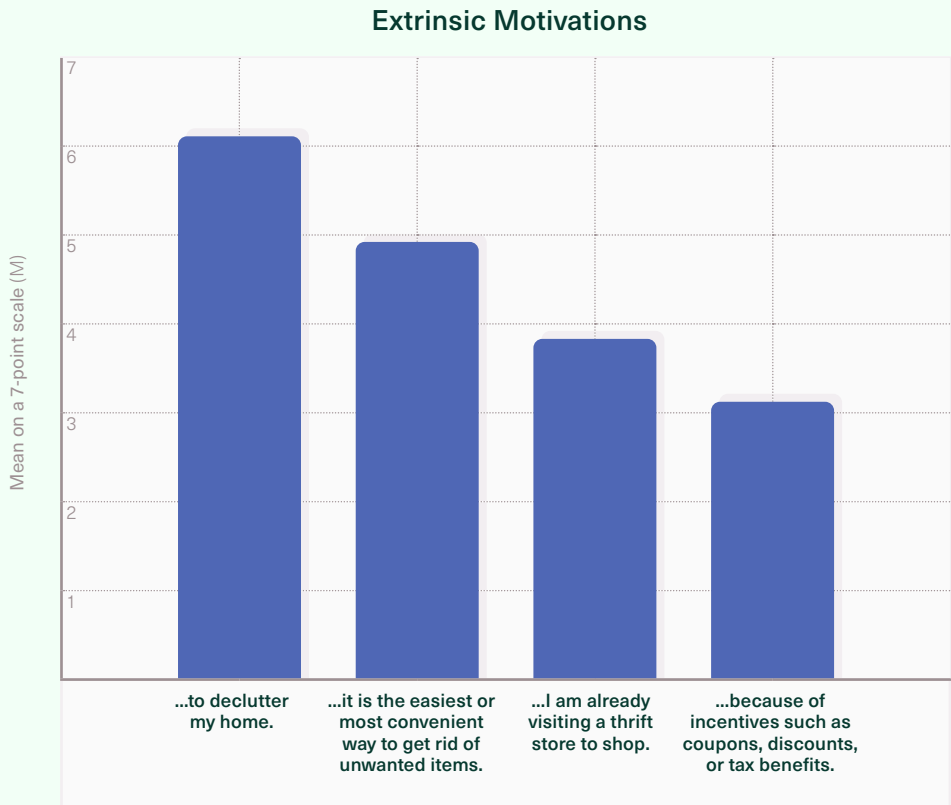


Figure 9: Extrinsic motivations for donating as reported by survey respondents

Overall, the findings suggest that textile donation is motivated primarily by intrinsic factors. Environmental stewardship, moral responsibility, and the desire to help others received consistently high levels of support, while incentives and other external rewards were comparatively weak motivators. Although practical considerations such as decluttering and convenience clearly play a role, respondents appear to view textile donation as more than a simple disposal activity. Rather, it is a behaviour that allows them to align their actions with their environmental values, social concerns, and personal sense of responsibility.

Respondents were asked to evaluate the effectiveness of various awareness-raising and educational strategies designed to improve textile donation practices on a 7-point scale (1=extremely ineffective; 7=extremely effective). Ratings were remarkably similar across all approaches on the 7-point scale.

Partnerships with schools, libraries, and community organizations received the highest rating ($M=5.58$, $SD=1.12$), closely followed by **municipal initiatives** ($M=5.56$, $SD=1.17$) and **word-of-mouth promotion** ($M=5.51$, $SD=1.22$).

The remaining strategies, including **signage** ($M=5.49$, $SD=1.16$), **marketing campaigns** ($M=5.46$, $SD=1.01$), **clear instructions** ($M=5.46$, $SD=1.34$), **donation incentives** ($M=5.36$, $SD=1.28$), and **information resources** ($M=5.33$, $SD=1.21$), received similarly favourable evaluations.

Overall, the narrow range of mean scores suggests that respondents viewed all of these awareness-raising approaches as relatively effective, with no single strategy standing out as substantially more important than the others.

In the open-ended section of the survey, participants were asked to identify the most important considerations related to donation etiquette.

Specifically, they were asked:

“Based on the idea of donation etiquette, which we define as a set of socially acceptable practices that define behaviour in the context of textile donation, what do you think people should keep in mind when donating clothing and other textiles?”

In total, we received 1,572 eligible responses. The open-ended responses were analyzed using an inductive content analysis approach. The lead author and a research assistant independently reviewed and coded all responses.

Consistent with an iterative coding process, an initial set of codes was developed after reviewing a subset of responses and was subsequently refined as additional responses were analyzed. New codes were created when novel themes emerged, while existing codes were combined, expanded, or subdivided to better reflect patterns observed in the data (see **Figure 10**).

Upon independently completing the coding process, the two coders met to compare their coding decisions. In instances of disagreement, the coders discussed their interpretations and revisited the coding definitions until full consensus was reached.

In total, thirteen codes emerged from participants' responses regarding textile donation etiquette (See **Appendix B3 in the Master Report**). These codes were subsequently grouped into four second-order themes that capture how individuals conceptualize appropriate donation practices.

Four Dimensions of Donation Etiquette

Survey Question

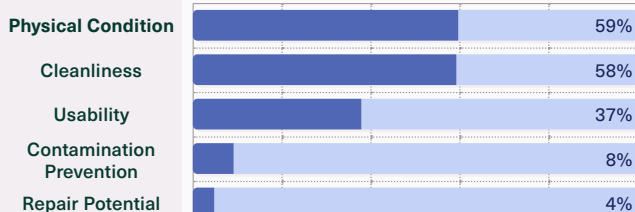
"Based on the idea of donation etiquette, which we define as a set of socially acceptable practices that define behaviour in the context of textile donation, what do you think people should keep in mind when donating clothing and other textiles?"

Analytical Approach

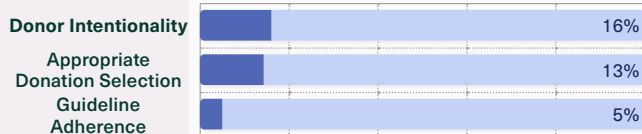
- Inductive content analysis
- Independent coding by lead author and research assistant
- Iterative process: codes developed, refined, combined, expanded, or subdivided as additional responses were analyzed

1,572 Eligible Open-Ended Responses Analyzed

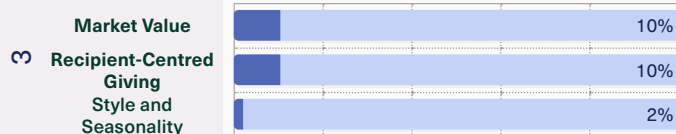
Ensuring donated items are suitable for reuse



Exercising responsible donor judgment



Considering recipient needs and preferences



Facilitating efficient donation processing



Figure 10: Dimensions of donation etiquette found through analyzing open-ended survey question (n=1,572)

The most prominent of these themes concerned **ensuring that donated items are suitable for reuse**. Participants frequently emphasized the importance of donating items that were:

- in good **Physical Condition** (n=944, 59%),
- the **Cleanliness** of items (n=923, 58%), and
- their **Usability** (n=583, 37%).

Participants also highlighted the importance of

- Contamination Prevention** (n=127, 8%), emphasizing that donors should avoid donating contaminated items and protect donations from damage, as well as consider the
- Repair Potential** (n=63, 4%) of damaged items before donation.

Together, these findings suggest that respondents viewed donation etiquette primarily through the lens of maintaining the quality, safety, and functional value of donated textiles.

The next second-order theme focused on **exercising responsible donor judgment**. Participants emphasized the importance of thoughtful decision-making throughout the donation process, reflecting the view that donation is an intentional act that requires consideration and responsibility. This theme included references to:

- Donor Intentionality** (n=258, 16%), which captured the importance of considering where, how, and why items are donated;
- Appropriate Donation Selection** (n=210, 13%), which emphasized excluding unsuitable items from donation streams; and
- Guideline Adherence** (n=85, 5%), which reflected the importance of following the policies and accepted practices of receiving organizations.

Collectively, these responses suggest that participants viewed donation etiquette not only as a matter of item quality but also as a function of the donor's willingness to make informed and responsible decisions throughout the donation process.

The third second-order theme focused on **considering recipient needs and preferences**.

This theme included references to:

- Market Value** (n=163, 10%), which captured considerations related to item quality, desirability, and resale potential;
- Recipient-Centred Giving** or following the "Golden Rule" (n=161, 10%), which reflected the belief that donors should consider whether they themselves would be happy to receive the item; and
- Style and Seasonality** (n=42, 2%), which reflected the importance of donating items that align with current fashion trends and seasonal demand.

Finally, the fourth second-order theme focused on **facilitating efficient donation processing**. Participants highlighted the importance of preparing donations in ways that reduce the burden on receiving organizations and improve the efficiency of sorting and redistribution activities.

This theme included references to:

- Donation Sorting** (n=72, 5%), such as separating reusable and non-reusable items or organizing different categories of donations, as well as
- Donation Preparation** (n=67, 4%), including bagging, folding, checking pockets, and otherwise preparing items for collection and handling.

Following the open-ended questions, participants responded to 17 statements related to textile donation etiquette. These items were drawn from a variety of sources, including charity and thrift store websites, blogs, educational materials, and practitioner-oriented articles discussing recommended donation practices.

To facilitate interpretation and comparison with the qualitative findings, the items were grouped into the same four themes that emerged from the thematic analysis: ensuring that donated items are suitable for reuse, exercising responsible donor judgment, considering recipient needs and preferences, and facilitating efficient donation processing.

Responses indicated particularly strong agreement with behaviours related to ensuring that donated items are suitable for reuse (see **Figure 11**).

Donation Etiquette Practices: Survey Items

Survey Items

17 Likert-scale statements drawn from charity and thrift store websites, blogs, educational materials, and practitioner-oriented articles on recommended donation practices. Items are grouped into the same four themes as the qualitative findings.

Response Scale

- Bars show the mean score for each item
- 1 = Strongly Disagree
- 7 = Strongly agree



Ensuring donated items are suitable for reuse

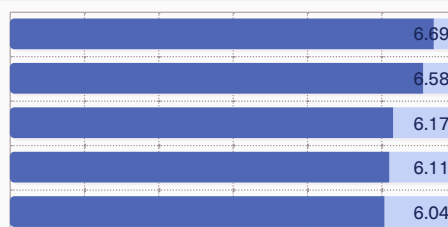
Do not leave donations unattended outside

No stains, odours, or animal hair

No rips, tears, pilling, or stretching

Launder or clean items before donating

Check that items are functional



Exercising responsible donor judgment

Separate non-wearable from reusable items

Encourage others to donate textiles

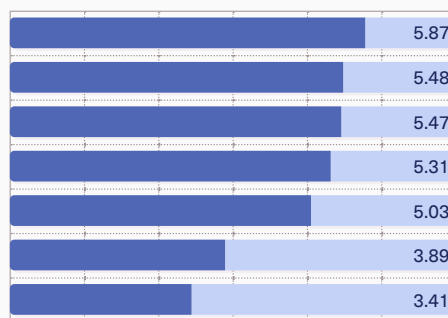
Care about which org receives donations

Be intentional about where to donate

Confirm which organization a bin supports

Donate differently depending on items

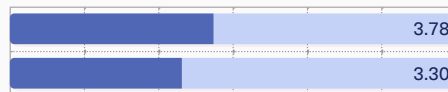
Contact orgs to confirm item acceptance



Considering recipient needs and preferences

Donate high-end or brand-name items

Only donate seasonally appropriate items



Facilitating efficient donation processing

Check pockets and remove personal items

Ensure donation bags are not overloaded

Fold items before donation

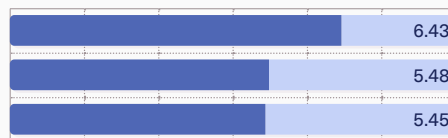


Figure 11: Donation etiquette practices reported from Likert-scale survey questions

Respondents strongly agreed that they:

do not leave donations unattended outside when bins are full or donation centres are closed (M=6.69, SD=0.80),

do not donate items with stains, odours, or animal hair (M=6.58, SD=0.91); and

do not donate items with rips, tears, pilling, or stretching (M=6.17, SD=1.15).

Respondents also reported:

laundering or cleaning items before donation (M=6.11, SD=1.33) and

checking that items are functional (M=6.04, SD=1.29).

These findings closely mirror the qualitative results, where cleanliness, physical condition, and usability emerged as the most frequently discussed aspects of donation etiquette.

Items related to exercising responsible donor judgment received more moderate levels of agreement.

Respondents reported:

separating non-wearable items from those that could be reused (M=5.87),

encouraging others to donate textiles (M=5.48, SD=1.68),

caring about which organizations receive their donations (M=5.47, SD=1.62), and

being intentional about where they donate (M=5.31, SD=1.66).

Verification behaviours received lower ratings, including:

confirming what organization a donation bin supports (M=5.03, SD=1.91),

donating to different organizations depending on the items being donated (M=3.89, SD=1.82), and

contacting organizations to confirm they can accept specific items (M=3.41, SD=2.06).

These findings suggest that while respondents generally value responsible donation practices, fewer engage in more time-intensive information-seeking behaviours.

Items related to considering recipient needs and preferences received the lowest overall ratings.

Respondents reported only moderate agreement that

they donate high-end or brand-name items (M=3.78, SD=1.41) and that

they only donate items appropriate for the current season (M=3.30, SD=1.67).

This contrasts somewhat with the qualitative findings, where participants frequently emphasized the importance of considering the needs of recipients and donating items that others would value.

Finally, respondents expressed strong agreement with behaviours intended to facilitate efficient donation processing.

Checking pockets and removing personal items before donating received one of the highest ratings in the study (M=6.43, SD=1.04), followed by

ensuring that donation bags are not overloaded (M=5.48, SD=1.54), and

folding items before donation (M=5.45, SD=1.82).

These findings suggest that respondents recognize the importance of preparing donations in ways that reduce the burden on receiving organizations.

Overall, the quantitative findings align closely with the themes that emerged from the open-ended responses (see **Appendix B3 in the Master Report**). Respondents expressed the strongest agreement with behaviours related to maintaining the quality, cleanliness, and usability of donated textiles, as well as preparing donations in ways that facilitate efficient processing.

In contrast, items related to considering recipient needs and preferences consistently received the lowest ratings across the four themes. Taken together, these findings suggest that respondents primarily understand donation etiquette as ensuring that donated items are clean, functional, and suitable for reuse, while placing comparatively less emphasis on tailoring donations to the specific needs, preferences, or circumstances of recipients and receiving organizations.

3.2 Observed Donation Quality

To complement the self-reported findings from the donation behaviour survey, we also present findings from the analysis of donated textile samples. We assessed two distinct samples of textiles from seven SWR in Nova Scotia.

Sample 1: Pallet boxes consisting of unsold, excess, and surplus donated product from The Salvation Army Thrift Stores located throughout Nova Scotia. These items typically end up in the “bale stream”, meaning they are baled and sold to brokers, who then sort and export items to overseas commodity markets. These are the items that would be at risk of being sent to landfill if export markets were disrupted.

Sample 2: Pallet boxes consisting of raw, unsorted/unprocessed donations to Salvation Army Thrift Store locations in each of the seven SWR. The items remained in their original donated state. An eighth “region”/box was included in the **Sort 2** data, consisting of items collected from community donation bins operated by Big Brothers Big Sisters of Greater Halifax.

In total, 4,664 textile items were assessed across the two samples. The sampling design sought to ensure roughly equal representation from each of Nova Scotia’s seven solid-waste management regions, with approximately 300 items examined per region within each sorting exercise. Additional information about the sampling approach and the province’s SWR is provided in **Section 2.0 - Methodology of the Waste Characterization Study**.

When assessing the condition of a garment, a grade between A - F was assigned to the item, with grades A-C indicating immediate resale potential, D1 and D2 denoting minor or severe repair interventions needed before resale can be considered, and E and F denoting end of life. A full explanation of the system is available in the **Section 2.3 - Condition of the Waste Characterization Study**.

In addition to assigning an overall condition grade, project staff recorded the presence of specific defects and contamination issues observed during the sorting process. Defects were grouped into categories including staining, odour or mildew, structural damage, missing components (e.g., buttons or zippers), pilling, stretching, fibre degradation, moisture damage, and other factors affecting resale potential.

The survey and sorting datasets were analyzed in tandem to identify potential relationships between self-reported donation behaviours and the defects observed within donation streams. Findings from both datasets were subsequently contextualized through consultations with subject matter experts from the textile collection, sorting, reuse, wholesale, and thrift retail sectors to ensure that the study’s interpretations of donation quality, rewearability, and donation etiquette aligned with industry practice and operational realities. For example, survey questions examining laundering practices, donation of stained or damaged items, storage behaviours, and understanding of donation etiquette were compared against the prevalence of contamination, repair-related defects, and other quality issues identified during sorting.

While causal relationships cannot be established from observational data alone, integrating these data sources and validating interpretations through expert consultation enabled the study to identify common behavioural patterns, misconceptions, and knowledge gaps that may contribute to preventable textile loss and reduced rewearability within charitable reuse systems. This approach also helped identify areas where public perceptions and behaviours may be misaligned with industry expectations regarding acceptable donation practices and textile quality standards.

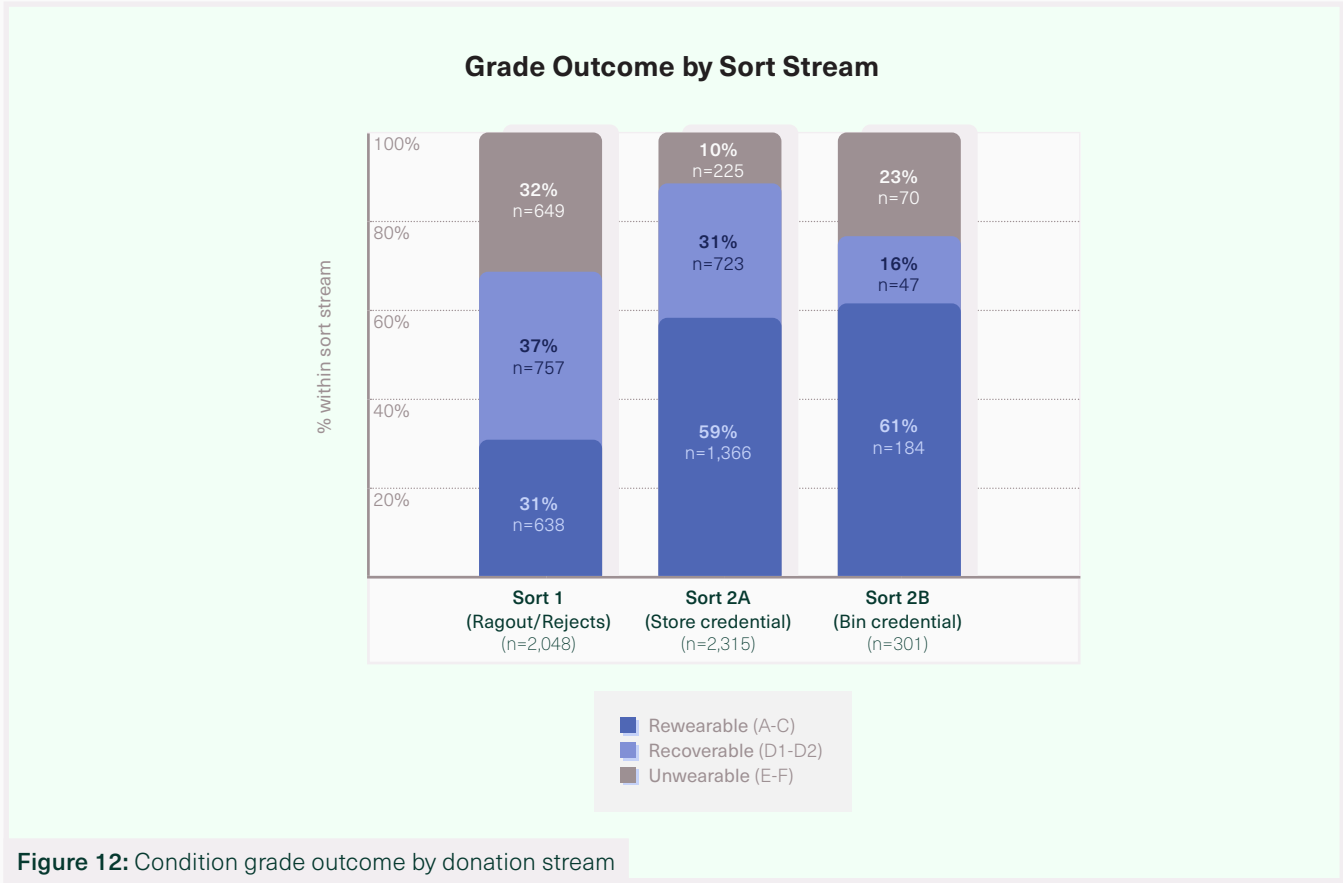
3.2.1 Condition

To better understand the quality of textiles entering Nova Scotia’s reuse system, each item in the sample was assigned a condition grade between A-F based on its overall state and potential for continued use.

Because the study examined three distinct donation streams, including surplus and excess product (“ragout” and “rejects”) that had already passed through the charitable reuse system (**Sort 1**), raw unprocessed donations (“credential”) received directly from donors at store locations (**Sort 2A**), and raw unprocessed donations collected through donation bins (**Sort 2B**), the results are presented both separately and in aggregate to facilitate meaningful comparisons across streams.

Figure 24 in Section 3.5 - Condition of donated items of the TTNS Phase II Waste Characterization Study presents the distribution of condition grades across all 4,664 items assessed. It is recreated here as Figure 12 for ease of reference.

Across the combined sample, 46.7% of items (n=2,178) **received a grade of C or higher**, indicating that they were immediately rewearable and suitable for resale with little or no intervention. These findings compare favourably with those reported by *Walsh et al. (2026)*, who found that only 37% of 8,280 garments sampled from second-hand markets across four European countries showed no observable damage. While the methodologies are not directly comparable, both studies suggest that a substantial proportion of textiles circulating through reuse systems remain suitable for continued wear. An additional 19.4% of items (n=906) **received a D1 grade**, indicating that they remained recoverable but would likely require minor cleaning, stain removal, repair, or refurbishment before they could be resold. This finding highlights a significant opportunity to increase textile reuse through relatively modest interventions, as nearly one in five items fell just below resale standards and could potentially be returned to the reuse market through minor cleaning, repair, or refurbishment rather than being diverted to lower-value pathways.



While these results point to opportunities for recovering additional value from textiles through minor interventions, they also highlight the scale of the challenge facing the sector. Overall, over half of the items (53.3%; n=2,471) were **not immediately suitable for resale**, having received a grade of D1 or lower. This finding is particularly important because the current textile management system has limited scaled pathways for recovering value from these materials. As a result, many of these items are directed toward wholesale markets, export channels, or disposal rather than being repaired, refurbished, or otherwise prepared for re-entry into local reuse markets. 15 items received an “Unknown” grade and were not included in the grading analysis.

When the results are separated by sorting stream, several noteworthy patterns emerge (see **Figure 12**). Most notably, the proportion of D1 items remained remarkably consistent across both **Sort 1** and **Sort 2**. Approximately one in five items in each sample required only minor intervention before they could potentially re-enter the reuse stream. This consistency is particularly interesting given the fundamentally different nature of the two samples. **Sort 1** consisted primarily of surplus, excess, and unsold inventory (ragout and rejects) that had already passed through the charitable retail system, whereas **Sort 2** consisted of raw, unprocessed donations (credential) received directly from donors, either at store locations (**Sort 2A**) or through unattended donation bins (**Sort 2B**). One possible explanation is that D1 items represent a category of textiles that charities frequently lack the resources, infrastructure, or economic incentive to process.

Minor stains, missing buttons, pilling, wrinkles, or small repairs may render an item unsuitable for immediate placement on the sales floor. Even when such items do make it onto store shelves, these defects may reduce their attractiveness to consumers, making them less likely to be purchased. As a result, many D1 items remain fundamentally wearable but struggle to successfully move through the reuse system.

The comparison between raw donations received directly at stores and those collected through community donation bins also produced notable differences.

Figure 12 compares the distribution of condition grades between these collection methods.

The most striking finding is the substantially higher proportion of non-recoverable material found in community donation bins. Nearly one-quarter (23.3%) of items collected from donation bins **received a grade of E or F**, compared with only 9.7% of items donated directly to stores or donation centres.

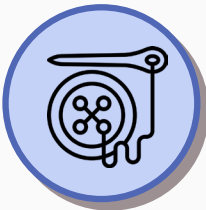
Taken together, these findings suggest that while a substantial proportion of donated textiles remain suitable for continued wear, a considerable share of the stream requires some degree of cleaning, repair, or refurbishment before it can successfully re-enter reuse markets. They also suggest that the quality of donations may vary considerably depending on how and where items are donated, providing important context for understanding the behavioural drivers of preventable textile loss.

Common D1 Defects

Preventable / Repairable Issues that Reduce Resaleability



Minor Stains



Missing Buttons



Pilling



Wrinkles



Small Repairs

Finally, in comparing this data with data collected from other regions in Canada, we see a high degree of agreement. *Sterling et al. (2026)* found that, in their sample of raw thrift store donations from across three provinces (Alberta, Ontario, and Saskatchewan, n = 9,333), **54.8% (n=5,112) of items were suitable for immediate resale (grades A-C).** Of the items determined to be unsaleable, **23.9% (n=2,228)** were given a grade of D1, while **19.0% (n=1,774)** were given a grade of D2. Finally, a relatively low proportion of the sample was given a grade of E (2.1%, n=197) or F (0.2%, n=22). The findings are compared in **Figure 13**.

There is a high degree of alignment between the A-C grade category and the D1 category between

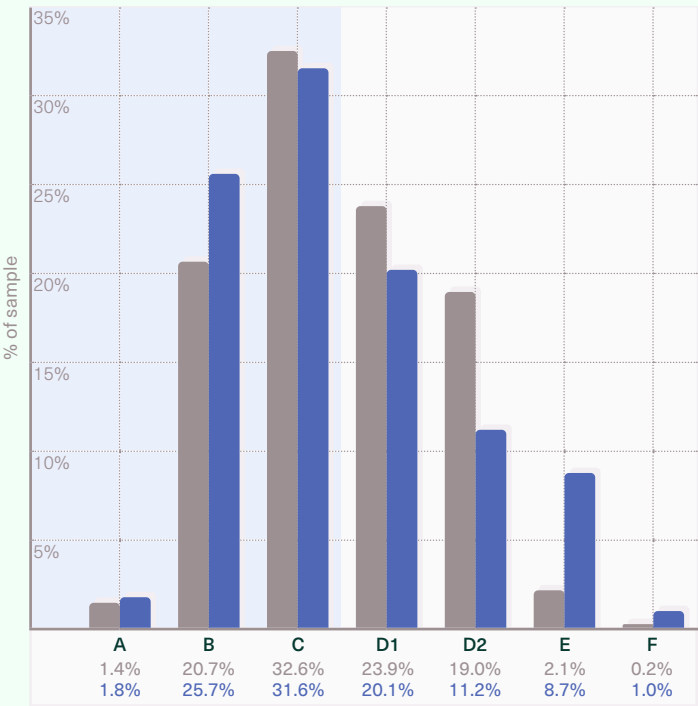
the two studies. This suggests that the overall proportion of resaleable items donated to charity thrift stores is relatively constant across the four Canadian provinces. It also suggests that a similar volume of items requiring minor repair or maintenance intervention, such as laundering, is present in the donation stream across samples.

There is a larger variation amongst the lower grades, with NS reporting a lower percentage of D2 items in the sample but a larger volume of grades E and F. This could be due to differences in sorter interpretations between D2 and E categories. However, these discrepancies are of little practical importance, since most of these items are rejected for reuse (*Berry, 2022; Sterling et al., 2026*).

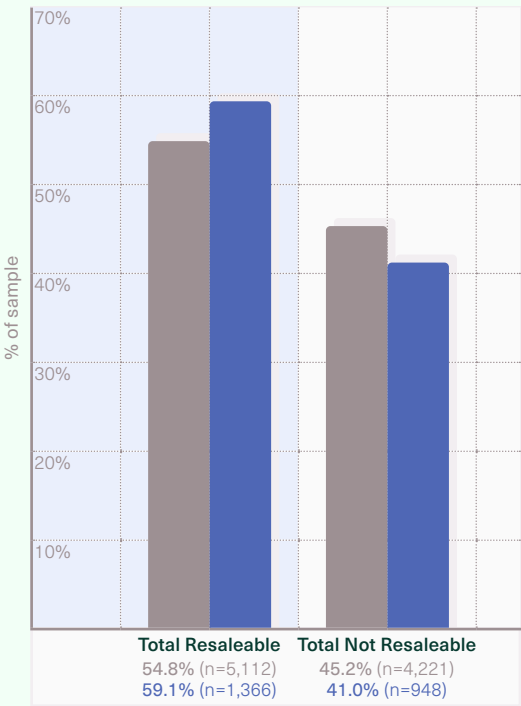
How This Study Compares to *Sterling et al. (2026)*

Condition grade distribution for raw thrift store donations: the present study's Sort 2A sample vs. *Sterling et al.*'s combined Alberta, Ontario, and Saskatchewan sample.

Condition Grade, A through F



Overall Resaleability



■ Sterling et al. (2026) – (n=9,333)
■ Present Study, Sort 2A – (n=2,315)

Sterling, A. et al. (2026).
Both samples reflect raw thrift store donations prior to sorting.
Grades A-C are considered immediately resaleable; D1-F are not.

Figure 13: Comparison of condition grade data from the present study with that of *Sterling et al., 2026*

3.3 Interviews

Finally, to add practical context to the survey and sort data, interviews were conducted with thrift collection and retail organizations to assess preferred donation behaviours. 12 interviews were conducted with organizations across Canada, a full list can be found in **Appendix A10 in the Master Report**.

Experts whose work is directly related to the collection and resale of post-consumer textiles overwhelmingly identified donation quality and donor education as critical factors influencing the success of textile reuse systems. Across interviews, stakeholders consistently linked poor donation practices to increased contamination, higher processing and disposal costs, and reduced diversion outcomes.

When asked directly to describe, “**What does good donation behaviour, or ‘etiquette,’ look like to you?**” The following key messages emerged:

- **Donate only reusable items**
- **Keep donations clean and dry**
- **Do not leave items outside**
- **Separate textiles from breakables**
- **Charities are not disposal services**

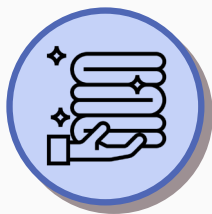
These perspectives help contextualize the differences observed between store-based donations and donations collected through community bins that were mentioned above. Many interviewees reported that community donation bins are frequently used as disposal sites for unwanted textiles and other household waste. Unlike staffed donation centres, where donations are made in a monitored environment and may involve some degree of interaction with personnel, donation bins provide a highly convenient and anonymous drop-off option. The absence of these social cues and accountability mechanisms may increase the likelihood that individuals use bins to dispose of items they know are unsuitable for reuse.

Consistent with these observations, the sample analysis found a substantially higher proportion of unusable material in donation bins than in donations received directly at stores. Together, these findings suggest that collection method can influence donation quality and underscore the importance of both public education and collection-system design in supporting responsible donation practices and maximizing textile diversion.

Interview Results: Key Good Donation Etiquette Messages



Donate Only
Reusable Items



Keep Donations
Clean & Dry



Do Not Leave
Items Outside



Separate Textiles
from Breakables



Charities are Not
Disposal Services

4.0 Discussion

The findings of this study suggest that donor behaviour plays an important role in determining whether textiles remain suitable for resale. Many of the issues observed in the sample, including contamination, staining, odours, moisture damage, and the mixing of reusable and non-reusable items, are consistent with behaviours that can occur before donation. The results therefore highlight the importance of donation etiquette, particularly practices such as ensuring items are clean, dry, and wearable, and separating textiles intended for resale from those that are no longer suitable for continued wear. Consequently, efforts to improve textile diversion should focus not only on downstream processing and recycling infrastructure, but also on supporting donors in making informed decisions that help preserve the circular potential of textiles before they enter the charitable collection system.

A key part of empowering donors to make higher-quality donations is considering the messaging used to attract donations, and whether that messaging aligns with collection organizations' present operational goals and capacity. Since the emergence of charitable thrift retail in the late nineteenth century, organizations such as The Salvation Army have worked diligently to promote the message that clothing should always be donated rather than discarded (*The Salvation Army, May 7, 2024*). Many donors have been taught for decades that thrift stores and textile collection organizations are an appropriate destination for virtually all unwanted clothing, including items that are stained, damaged, or otherwise unsuitable for resale.

This approach has offered several advantages. It simplified public messaging, maximized diversion, and reduced the likelihood that potentially reusable items would be discarded because donors incorrectly assumed they were unacceptable. When reliable downstream markets were in place for surplus, unsold, and lower-quality materials, it made sense for organizations to receive all unwanted textiles before determining internally how best to extract their value, whether through resale (domestic or export), reuse, recycling, or recovery.

However, the context in which these organizations operate has changed dramatically. The rapid growth of fast fashion has led to unprecedented volumes of clothing entering the resale system, much of it of low material and construction quality prone to damage.

While encouraging donation remains important, the sheer quantity of textiles now being generated places significant operational and financial pressure on collection and resale organizations, particularly smaller charities and social enterprises that lack the scale, infrastructure, and downstream market access available to larger operators.

For these organizations, processing, sorting, storing, and disposing of unsaleable materials can represent a substantial burden. This creates a challenging tension for the sector. On one hand, introducing additional barriers or restrictions on donations risks discouraging participation and undermining decades of successful public education efforts. Convenience remains one of the strongest motivations for donation, and donors generally do not engage in detailed information-seeking behaviours before deciding where to take unwanted textiles. On the other hand, accepting all materials positions organizations to perform a waste-management function without compensation.

This raises an important policy question: should organizations that collect and manage end-of-life textiles be expected to bear the associated costs themselves, or should they receive support for the environmental services they provide?

One potential solution is an Extended Producer Responsibility (EPR) framework for textiles, under which producers would contribute financially to the collection, sorting, recycling, and disposal of post-consumer textiles. This could create an operationally sustainable way for charities and social enterprises to maximize diversion rates without assuming end-of-life costs.

The challenge, therefore, lies in improving donation quality while avoiding confusion or discouraging participation altogether.

Complicating matters further, collection organizations vary considerably in their capacity to process and recover value from non-rewearable materials. Some have access to downstream markets that provide revenue streams, while others incur disposal costs; in other words, one organization's trash may be another's treasure, making it difficult to develop a universal message regarding what should and should not be donated.

Future efforts to improve donation etiquette will need to balance the goals of:

- maximizing textile diversion,
- preserving high-value circularity opportunities, and
- recognizing the differing capabilities of organizations across the collection and reuse sector.

Whether through enhanced donor education, expanded repair and refurbishment initiatives, improved sorting infrastructure, or policy mechanisms such as EPR programs,

the objective should be to improve textile outcomes while maintaining a system that remains accessible and convenient for donors.

Summary: Donation Etiquette Goals



Maximizing Textile Diversion



**Preserving High-Value
Circularity Opportunities**



**Recognizing the Differing
Capabilities of Organizations
Across the Collection and
Reuse Sector**

5.0 Recommendations

The recommendations that follow are identified with the prefix “**BEH**” to distinguish them from recommendations presented in the other TTNS Phase II deliverables.

Master Recommendation Key

Waste Characterization Study

MAT = Material

Donation Etiquette Analysis

BEH = Behaviour

End-Use Pathways Brief

MKT = Market



Recommendation Summary

HIGH PRIORITY

BEH-1 Coordinated sector messaging updates

Developing a standardized framework could lead to more consistent donor expectations.

BEH-2 Textile EPR framework advocacy

Engaging governments and advocacy groups could shift costs from charitable organizations.

BEH-3 Donation etiquette education through community collection events

Organizing collection drives could improve donation quality and normalize thoughtful sorting.

BEH-4 Sector data and reporting infrastructure

Building standardized reporting could improve benchmarking and best-practice sharing.

MEDIUM PRIORITY

BEH-5 Repair-to-resale infrastructure for D1 items

Exploring investment in accessible repair could reduce costs and create new potential revenue.

BEH-6 Pre-donation self-assessment tools

Developing visual guides could improve donor understanding of item suitability.

BEH-7 Post-donation journey transparency

Developing transparent public communications could improve visibility of donation consequences.

BEH-8 Donation bin reform

Enforcing NACTR Donation Bin Operator Code of Conduct could reduce low quality donations.

BEH-1 Coordinated Sector Messaging Updates**Priority:** High ▲**Audience:** NACTR and Member Organizations

The charitable textile reuse sector is under significant strain, absorbing growing volumes of donated material of which an increasing share is unsaleable. Because the sector helped establish the longstanding “donate anything” norm, individual charities have little incentive to challenge it alone, since donors can simply redirect unaccepted items elsewhere. NACTR is uniquely positioned to coordinate a sector-wide messaging reset that improves donation quality without disadvantaging any single member or discouraging donation participation overall.

Evidence from TTNS

- Volumes of donated material continue to grow, and an increasing proportion of what arrives at collection points is unsaleable.
- This study identified four dimensions of donation etiquette: suitability for reuse, responsible donor judgment, recipient needs and preferences, and efficient donation processing.
- Survey findings show donors are strongly motivated by reducing environmental impact and helping people in need, supporting a quality-as-generosity message frame.
- Survey respondents identified partnerships with schools, libraries, community organizations, and municipalities as the most effective awareness-raising channels.

Recommended Actions:

- Develop a consistent national messaging framework, draft language, signage standards, and condition guidelines that member organizations can adapt to their own donor communications.
- Organize messaging around the four donation etiquette dimensions, allowing individual charities to tailor emphasis to their capacity and donor base.
- Frame donation quality as a form of generosity tied to environmental impact and helping people in need, rather than as a list of restrictions.
- Partner with schools, libraries, community organizations, and municipalities to deliver messaging through the channels donors trust most.

Expected Outcomes:

- Consistent donor expectations across member organizations without competitive disadvantage to any single charity.
- Reduced intake of unusable materials and lower sorting and disposal costs for members not equipped to process high volumes.
- A credible baseline (TTNS Phase II data) for evaluating the effectiveness of a funded campaign or pilot.

BEH-2 Textile EPR Framework Advocacy**Priority:** High ▲**Audience:** NACTR, Provincial Governments, Stewardship Organizations, and Future PROs

NACTR member organizations currently absorb the disposal costs of products they did not produce, a burden that longstanding public messaging encouraging unconditional donation has helped create. A textile EPR framework would shift financial responsibility for end-of-life management to producers while compensating collection and processing organizations for the environmental services they already provide.

Evidence from TTNS

- 53% of assessed items were not immediately suitable for resale.
- Charitable collectors currently absorb the costs associated with managing E- and F-grade materials, rather than producers.
- Longstanding public messaging has encouraged donors to believe thrift stores and charitable collectors will accept virtually any item, regardless of condition.
- Export markets are becoming less reliable as fast-fashion donation volumes rise, increasing pressure on domestic disposal costs.

Recommended Actions:

- Use TTNS Phase II evidence, including the 53% resale-ineligibility finding and E/F-grade management costs, to advocate nationally for a textile EPR framework.
- Pursue near-term municipal or provincial cost-sharing arrangements to offset transportation and disposal costs for unsaleable material while a full EPR framework is developed.
- Engage provincial governments, stewardship organizations, and future Producer Responsibility Organizations (PROs) as advocacy partners.

Expected Outcomes:

- Financial responsibility for end-of-life textile management shifted toward producers.
- Reduced disposal costs currently absorbed by charitable collectors.
- Near-term cost relief through municipal or provincial cost-sharing while EPR is developed.

BEH-3 Donation Etiquette Education Through Community Collection Events

Priority: High ▲

Audience: Secondary Schools, Post-Secondary Institutions, Municipalities, and Active Industry Partners

Donors need clear, practical guidance on what makes an item suitable for reuse and how to prepare donations responsibly. Structured community collection events, delivered in partnership with schools and municipalities, offer a low-risk way to build this understanding using a model already proven for other recycling behaviours.

Evidence from TTNS

- High schools, colleges, and universities are settings where participants are more likely to make independent clothing decisions and engage directly in donation behaviour.
- The TTNS Phase II grading framework (A-C, D1-D2, E-F) provides a ready-made tool for tracking whether education improves donation quality over time.
- The four donation etiquette dimensions identified in this study provide a ready-made messaging foundation for event materials.
- School-based blue-bin recycling education demonstrates that clear sorting rules and repeated participation can normalize source-separation behaviour.

Recommended Actions:

- Organize periodic textile collection drives in high schools, colleges, and universities in partnership with municipalities and active industry partners.
- Distribute pre-event materials covering item suitability, condition assessment, sorting rewearable from unwearable items, packaging, and collector information.
- Use the TTNS Phase II A-C, D1-D2, E-F grading framework to evaluate condition and contamination levels at participating events.
- Pilot the model with several institutions before broader adoption.

Expected Outcomes:

- Improved donation quality among participating institutions over time.
- A tested, low-risk model for broader adoption across the province.
- Normalized thoughtful textile sorting akin to established recycling habits.

BEH-4 Sector Data and Reporting Infrastructure

Priority: High ▲

Audience: NACTR and Member Organizations

NACTR member organizations collectively manage enormous volumes of textile material, but no standardized way currently exists to track disposal volumes, rejection rates, processing costs, or downstream losses across the sector. Building this reporting capacity would strengthen the case for EPR, support benchmarking, and provide the longitudinal data needed to evaluate future interventions.

Evidence from TTNS

- No standardized way currently exists to track or report disposal volumes, rejection rates, processing costs, or downstream losses across NACTR's membership base.
- TTNS Phase II data provides a starting baseline for sector-wide measurement, but this baseline does not yet extend beyond a single snapshot.
- Quantifying the disposal costs the sector absorbs annually would strengthen NACTR's case for EPR.

Recommended Actions:

- Build standardized sector-wide reporting on disposal volumes, rejection rates, processing costs, and downstream losses.
- Use this reporting to benchmark member organizations against industry averages and identify best practices.
- Extend the TTNS Phase II baseline into an ongoing measurement practice rather than a one-time snapshot.

Expected Outcomes:

- A quantified, defensible case for EPR based on sector-wide disposal cost data.
- Improved benchmarking and best-practice sharing among member organizations.
- Longitudinal data to evaluate future policy and campaign effectiveness.

BEH-5 Repair-to-Resale Infrastructure for D1 Items**Priority:** Medium ▲**Audience:** NACTR, Member Organizations, and Active Industry Partners

D1 items are fundamentally wearable and often need only minor intervention to reach resale quality, but member organizations typically lack the staffing, time, space, and downstream incentive to make those investments themselves. This is a system-wide gap in available pathways, not a processing issue specific to individual organizations, and is best addressed through sector-level investment.

Evidence from TTNS

- No standardized way currently exists to track or report disposal volumes, rejection rates, processing costs, or downstream losses across NACTR's membership base.
- D1 items are fundamentally wearable and could often be restored to resale quality through relatively minor interventions.
- Unsold D1 items create a recurring storage, handling, and disposal cost for member organizations.

Recommended Actions:

- Explore sector-level investment in accessible repair infrastructure for D1 items, potentially through partnerships with vocational training programs, social enterprises, or community repair initiatives.
- Pilot the model with one or two member organizations, evaluated against the D1 baseline established in this study.
- Track reductions in storage, handling, and disposal costs, and potential revenue generation, to build the case for broader adoption.

Expected Outcomes:

- Reduced storage, handling, and disposal costs associated with unsold D1 items.
- A potential new revenue stream from repaired, resold items.
- More items retained in the rewear market rather than export or disposal channels.

BEH-6 Pre-Donation Self-Assessment Tools**Priority:** Medium ▲**Audience:** NACTR and Member Organizations

Donors are already receptive to quality-focused guidance, but currently lack clear, accessible, and consistent prompts throughout the donation process. Low-cost self-assessment tools can close this gap at both the point of preparation at home and the point of giving.

Evidence from TTNS

- Survey respondents already view physical condition, cleanliness, and usability as central to donation etiquette.
- Donors are receptive to quality-focused guidance but currently lack clear, accessible, and consistent prompts throughout the donation process.
- Low-cost tools, such as visual guides, checklists, and QR-linked resources, can be deployed digitally, at staffed donation centres, and on community bin signage.

Recommended Actions:

- Develop low-cost, donor-facing tools such as a visual quality guide, a rewearability checklist, or QR-linked resources.
- Deploy these tools through digital channels, at staffed donation centres, and on community bin signage.

Expected Outcomes:

- Improved donor understanding of item suitability at the point of donation.
- Higher average donation quality with minimal cost to member organizations.

BEH-7 Post-Donation Journey Transparency

Priority: Medium ▲
Audience: NACTR and Member Organizations

Survey data show donors understand far less about what happens to textiles after donation than about what charities accept, a knowledge gap that likely reinforces the misconception that donating an unsuitable item is still better than discarding it. Making the sorting, reuse, recovery, export, and disposal journey visible would improve individual donation decisions and build public support for policy change.

Evidence from TTNS

- Survey data shows understanding of what happens to textiles after donation was substantially lower than understanding of what charities accept.
- This knowledge gap likely contributes to the misconception that donating an unsuitable item is still better than discarding it.
- Donors who do not understand that poor-quality donations may still be landfilled, or that charities bear the disposal cost, are not equipped to act on their stated values.

Recommended Actions:

- Develop transparent public communications describing the sorting, reuse, recovery, export, and disposal journey of donated textiles.
- Use this transparency to build public support for policy changes, including EPR, that NACTR members need.

Expected Outcomes:

- Improved individual donation quality as consequences become visible to donors.
- Stronger public support for EPR and related policy changes.

BEH-8 Donation Bin Reform

Priority: Medium ▲
Audience: NACTR, Donation Bin Operators, Municipalities

Community donation bins produce a disproportionately high share of low-quality material, likely because their anonymity reduces donor accountability. Unlike many donation-quality challenges that depend on changing entrenched donor habits, bin misuse is a governance and design issue that can be addressed more quickly through targeted policy and operational changes.

Evidence from TTNS

- 23.3% of items collected from community donation bins received an E or F grade, compared with 9.7% of items collected from staffed donation centres, approximately 2.4 times higher.
- The anonymity of donation bins may reduce donor accountability, making lower-quality disposal through this channel more likely.
- Bin misuse is a governance and design issue that may be addressed more quickly through targeted policy and operational changes than habit-dependent challenges.

Recommended Actions:

- Enforce the NACTR Donation Bin Operator Code of Conduct (NACTR, 2026), including clear signage specifying acceptable items, consequences for misuse, and organizational contact information.
- Require that municipal textile collection service providers be NACTR members or maintain formal partnerships with NACTR members.

Expected Outcomes:

- Reduced share of low-quality, E/F-grade material collected through bins.
- Reduced dumping at bin sites.
- More consistent Code of Conduct enforcement across all municipal collection points.

5.1 Limitations

Several limitations should be noted when interpreting the findings of this work. First, the survey relied on self-reported data and is therefore subject to recall bias and social desirability bias. **Respondents may not accurately remember their donation behaviours or may overreport behaviours perceived as socially desirable, such as laundering items before donation, while underreporting behaviours perceived negatively, such as donating stained or damaged items.** As a result, reported donation practices may not perfectly reflect actual behaviour. Additionally, while the survey was administered nationally, recruitment efforts intentionally emphasized Nova Scotia to support the objectives of the TTNS project. As a result, the findings may overrepresent attitudes, behaviours, and donation practices common within Nova Scotia relative to other regions of the country.

Second, the grading system was developed to assess the physical condition and rewearability of textiles rather than their market desirability. **While Grades A through C were classified as immediately rewearable and suitable for resale attempts, this does not necessarily mean that an item would be accepted for sale or purchased by consumers.** For example, many socks, undergarments, promotional items, and low-value goods may receive grades indicating excellent physical condition but are rarely placed on retail sales floors due to operational policies or limited consumer demand. Consequently, the study's estimates of rewearability should be interpreted as indicators of physical suitability for reuse rather than guaranteed resale potential.

Third, the degree to which observed defects were preventable was not systematically coded during data collection. Although the analysis differentiates between conditions that were likely influenced by donor behaviour (e.g., contamination from dust or pet hair) and those more likely associated with normal wear or end-of-life garment degradation

(e.g., fabric failure or tearing), **these classifications were developed retrospectively during the analytical phase rather than being formally recorded in the field.** As a result, some judgment was required when estimating the extent to which observed defects may have been attributable to donor behaviour.

This challenge is compounded by the fact that many condition issues, including stains, tears, odours, moisture damage, and other forms of deterioration, can arise from multiple sources. **In many cases, it is difficult to determine with certainty whether a defect occurred before donation, during storage, transportation, handling, or subsequent processing.** This limitation is particularly important given the study's objective of examining the relationship between donor behaviour and textile quality outcomes. Future research would benefit from the development and application of a dedicated preventability coding framework to more systematically distinguish between avoidable and unavoidable forms of textile degradation.

Finally, although the study integrated survey findings, observational data, and expert interviews, the methodology does not allow causal relationships to be established. **The analysis can identify associations between reported behaviours and observed defects, but it cannot definitively determine whether a particular behaviour directly caused a specific condition outcome.** The findings should therefore be interpreted as indicative of potential behavioural contributors rather than direct evidence of causation. Similarly, while interviews with textile collection, sorting, recycling, wholesale, and thrift retail experts were used to contextualize findings and establish industry-informed definitions of donation etiquette, these perspectives reflect professional experience and operational realities and may not fully represent the views or practices of all organizations operating within the textile reuse and recycling sector.

6.0 Conclusion

The findings of the TTNS Phase II Donation Etiquette Analysis confirm what many charitable textile collectors have long observed on the sort floor: a substantial proportion of donated textiles cannot be resold, and a meaningful share cannot be diverted from landfill at all. Of the 4,664 items assessed across sort streams in Nova Scotia, 53% were not immediately suitable for resale, and 18.3% were graded E or F, representing textiles at the end of their useful life with no viable reuse or recycling pathway. Items collected from unattended donation bins showed disproportionately high rates of end-of-life material, with 23.3% graded E or F compared to 9.7% at staffed donation centres, a gap that reflects the absence of donor-facing guidance and oversight at the point of collection. These figures are not anomalies of the Nova Scotia context. Comparison with *Sterling et al. (2026)*, whose dataset of 9,333 items across Alberta, Ontario, and Saskatchewan found 54.8% resaleable and similar distributions across D1 and D2 grades, suggests that the patterns observed here are consistent across the Canadian charitable textile sector.

The survey component of this study adds an important dimension to these findings by revealing that poor donation quality is not primarily a problem of donor indifference. Respondents reported strong intrinsic motivations for donation, including a desire to reduce environmental impact and contribute to community need, and most expressed genuine commitment to donating items in good condition. The challenge is one of knowledge and habit rather than intent. Donors understand what organizations accept at a higher level than they understand what happens to textiles after donation, and many operate under the assumption that donating an unsuitable item is still preferable to discarding it, a misconception with real cost consequences for member organizations. The four dimensions of donation etiquette identified through inductive content analysis of 1,572 open-ended responses provide a structured framework for translating donor motivation into consistent, quality-conscious behaviour.

The four dimensions of donation etiquette are:

- Ensuring that donated items are suitable for reuse,
- Exercising responsible donor judgment,
- Considering recipient needs and preferences, and
- Facilitating efficient donation processing.

Taken together, these findings make the case that improving donation quality is achievable through coordinated effort, and that the returns on that effort are significant. Reducing the proportion of non-resaleable intake lowers sorting and disposal costs for member organizations and lowers contamination rates thereby keeping more textiles circulating within the reuse economy. Charitable textile reuse organizations have sustained this work for over a century, and behaviour change at the scale required does not happen quickly. The recommendations put forward here are grounded in that reality: they prioritize supporting member organizations in continuing to do this work effectively while building the infrastructure, policy conditions, and public understanding needed to manage the volumes of unwearable material that will persist even as donation quality improves.

The recommendations arising from this analysis are designed to be pursued in combination rather than in isolation. Messaging, infrastructure, policy, data, and education interventions each address a different point in the donation lifecycle, and their effects are cumulative. NACTR is well-positioned to lead and coordinate this work as a policy advocate for a sector that currently absorbs significant public environmental costs without commensurate public support. The evidence gathered through TTNS Phase II demonstrates the scale of the challenge, confirms the consistency of the national pattern, and documents the goodwill donors already bring to the process. Translating that goodwill into measurable improvements in donation quality, and advocating effectively for the policy conditions that allow the sector to manage the material that falls outside the reuse stream are the central tasks ahead.



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Textile Transformation Nova Scotia Phase II

0 Master Report

1 Waste Characterization Study

2 Donation Etiquette Analysis

3 End-Use Pathways Brief

To read all reports, visit www.nactr.ca

Phase II

Textile Transformation Nova Scotia

Part 3 of 3

End-Use Pathways Brief

by Charlotte Genge

October 2026

NACTR

Read the other reports at www.nactr.ca

Textile Transformation Nova Scotia (TTNS) Phase II

Textile Waste Characterization Study, Donation Etiquette Analysis, & End-Use Pathways Brief

Prepared for:

The National Association for Charitable Textile Recycling (NACTR)



Prepared by:

EnsembleCo Consulting



In collaboration with:

The University of Alberta, Department of Human Ecology,
and the Salvation Army Thrift Store



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Report Authorship

This volume brings together three deliverable reports plus the master document prepared under TTNS Phase II. Authorship, contributions, and reviewers for each report are listed below.

No.	Report	Authors	Reviewers & Contributors
0	Master Report	Charlotte Genge	Dr. John Fiset, Sasha Barnard
1	Waste Characterization Study	Charlotte Genge, Claire Theaker-Brown, Dr. John Fiset	Dr. Rachel McQueen, Tonny Colyn, Sasha Barnard
2	Donation Etiquette Analysis	Charlotte Genge, Dr. John Fiset	Dr. Rachel McQueen, Claire Theaker-Brown, Tonny Colyn, Sasha Barnard
3	End-Use Pathways Brief	Charlotte Genge	Dr. John Fiset, Tonny Colyn, Sasha Barnard

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Genge, C., & Fiset, J. (2026). Donation etiquette analysis. In Textile Transformation Nova Scotia (TTNS) Phase II. Prepared for National Association for Charitable Textile Recycling.

Genge, C. (2026). End-use pathways brief. In Textile Transformation Nova Scotia (TTNS) Phase II. Prepared for National Association for Charitable Textile Recycling.

This report is one of three integrated deliverables produced through **TTNS Phase II**. Together, the reports examine Nova Scotia's textile system from material, behavioural, and market perspectives. The overall project context and relationship among the reports are presented in the **TTNS Phase II Master Report**. The present **End-Use Pathways Brief** focuses specifically on identifying investment opportunities capable of retaining greater value from Nova Scotia's post-consumer textile stream.

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0.0 Executive Summary

Nova Scotia has sufficient textile volume to support a circular economy, but currently lacks the infrastructure needed to realize its full value. As downstream export markets grow increasingly unstable, charitable thrift organizations are accumulating larger volumes of surplus textiles while facing rising disposal costs and fewer recovery options, creating both an urgent challenge and a significant economic opportunity.

This report evaluates the end-use pathways best able to retain value from Nova Scotia's post-consumer textile stream, drawing on the **TTNS Phase II Waste Characterization Study and Donation Etiquette Analysis**, interviews with 27 industry stakeholders, and relevant research literature. The objective is to identify investments capable of reducing landfill disposal while creating green jobs and strengthening Nova Scotia's emerging circular economy.

Why this matters

No single recycling technology can manage Nova Scotia's textile stream. Different materials (e.g., cotton, polyester) require different recovery pathways, and all of them depend on consistent sorting, feedstock preparation, and stable end markets to function.

The greatest current constraints are therefore the lack of coordinated infrastructure to prepare recyclable materials for downstream users and the limited development of viable end markets.



Key findings

The analysis identifies a portfolio of complementary opportunities rather than a single solution:



Reuse and Sorting Hub. The most immediate investment priority is **a centralized facility that could aggregate surplus textiles** from thrift retailers across the province, extend the life of wearable garments through outlet and pay-by-the-pound retail, sort remaining materials into consistent feedstock for downstream markets, and leverage economies of scale to negotiate more favourable terms with buyers and processing partners.



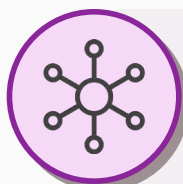
Denim recovery and insulation manufacturing. The strongest manufacturing opportunity is a **staged pathway beginning with pilot-scale denim shred production for existing manufacturers**, before progressing toward in-province insulation manufacturing; a confirmed buyer of Canadian-sourced recycled denim insulation already exists.



A broader pathway portfolio. Industrial wiping cloths, technology-enabled fibre sorting, nonwoven manufacturing, mechanical and chemical textile-to-textile recycling, environmental applications, and engineered fuels round out the opportunity set, though nearly all depend on the **sorting infrastructure and coordinated data** described above.

Recommendations

The report identifies **market-level (“MKT”) priorities** for strengthening Nova Scotia’s textile recovery system. The following recommendations are drawn from the full analysis; codes in brackets (e.g., MKT-1) correspond to the numbered recommendations in the report:



Establish a provincial Reuse and Sorting Hub as the first-priority investment.
(MKT-1)



Launch a staged denim-to-insulation R&D initiative and pilot, supported by confirmed market demand.
(MKT-2)



Commission a provincial textile capacity and economic baseline study to support future investment decisions.
(MKT-3)



Introduce a green procurement policy that creates reliable domestic demand for recycled textile content.
(MKT-4)



Establish a textile value chain coordination body to set common grading standards, feedstock specifications, and matchmaking between producers and processors.
(MKT-5)



Advocate for and prepare for a mandatory provincial textile stewardship program, building the data and infrastructure ahead of a future EPR framework.
(MKT-6)

Taken together, these investments provide a practical roadmap for transforming Nova Scotia’s growing textile surplus from a disposal problem into a source of **employment, manufacturing, and circular economic development**.

1.0 Introduction

Nova Scotia's textile recovery system is entering a period of transition. Interviews conducted throughout **TTNS Phase II** consistently identified growing instability within downstream reuse and export markets, leaving charitable organizations with increasing volumes of surplus textiles, rising disposal costs, and fewer viable recovery options. These developments reinforce the need to expand domestic reuse, recycling, and manufacturing capacity.

Similar transitions are occurring internationally, as governments and industry increasingly invest in domestic textile circularity through Extended Producer Responsibility (EPR), recycled-content requirements, improved sorting infrastructure, and new recycling technologies. These examples demonstrate that strengthening domestic textile systems is becoming an international priority rather than an isolated provincial challenge.

The central question that this report seeks to answer is:

Where should Nova Scotia invest to maximize textile landfill diversion, create green jobs, and establish the foundation of a circular textile system?

To address this question, the brief draws on findings from the **TTNS Phase II Waste Characterization Study** and **Donation Etiquette Analysis**, alongside interviews with industry leaders and relevant secondary literature. The resulting analysis is intended to support policymakers, industry stakeholders, municipalities, charities, textile collectors and retailers, researchers, and entrepreneurs seeking to contribute to textile circularity solutions in Nova Scotia.

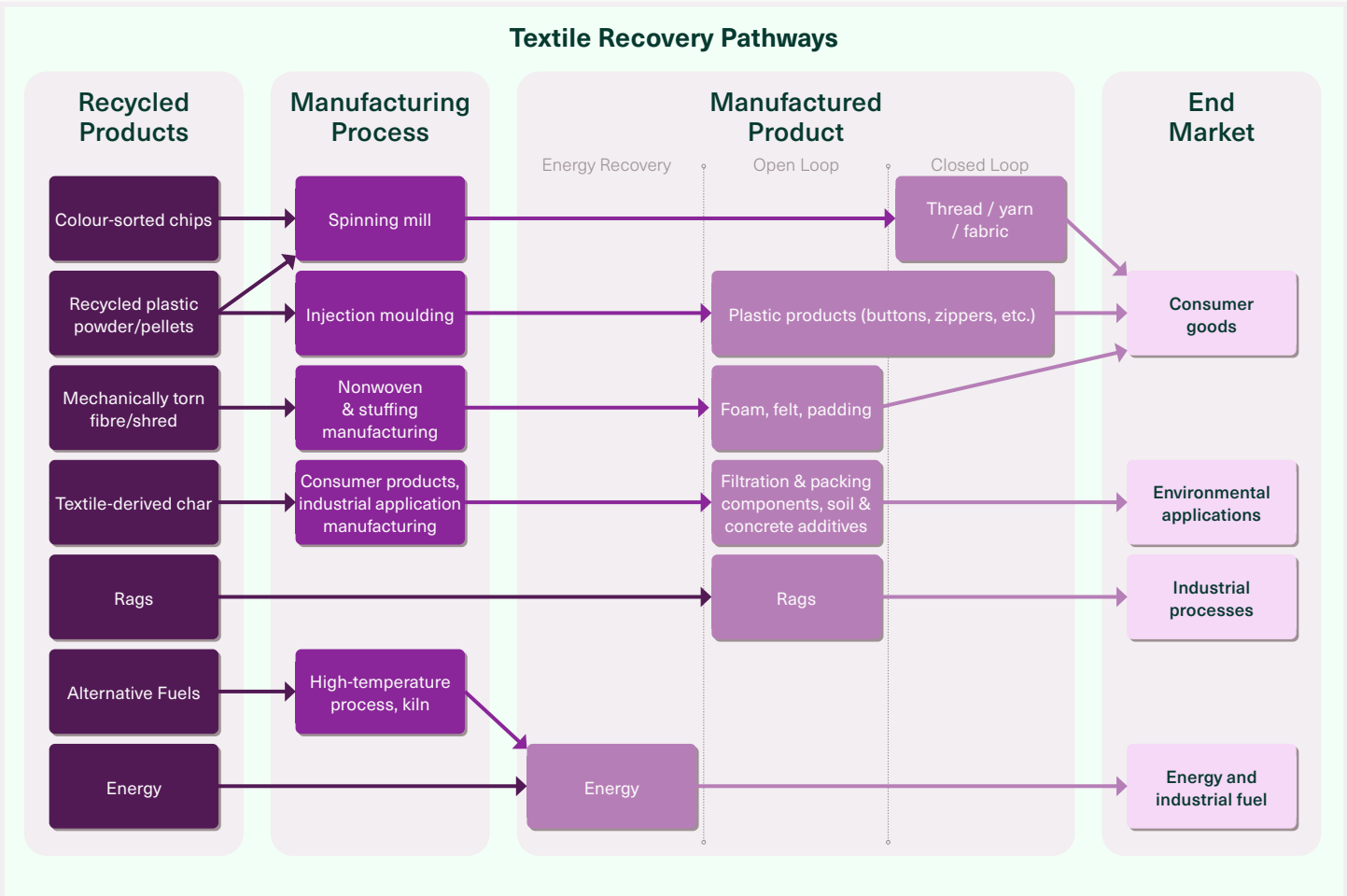


Figure 1: Existing global end-use markets for recycled products derived from post-consumer textiles. Adapted from Heinrich et al., 2026.

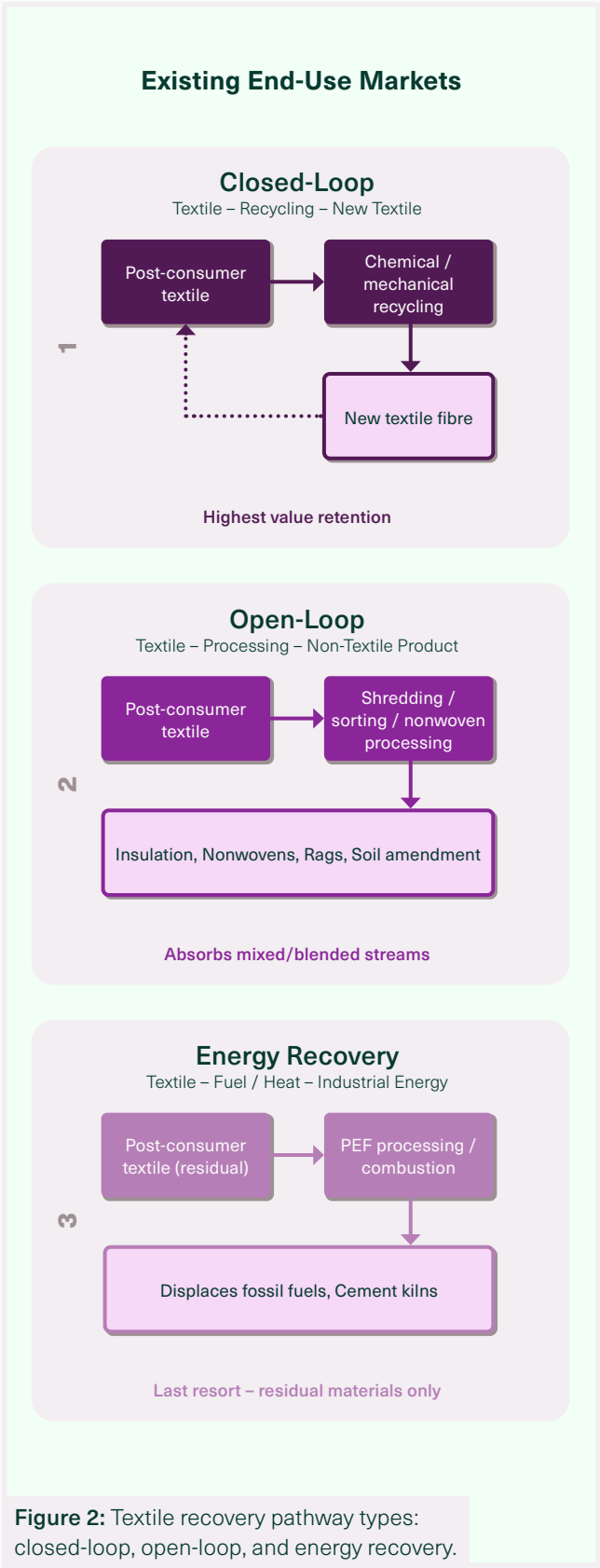
1.1 Existing Market Opportunities

There are a number of existing markets in Canada for products and commodities utilizing processed end-of-life textiles. These include consumer goods (textiles, nonwoven products like padding and felt), environmental applications (water filtration, packaging, soil amendments) (*Fashion Takes Action, n.d.*), energy and industrial fuel (alternative fuels for industrial applications, waste-to-energy), and industrial processes (rags).

These markets are supplied with end-of-life textiles via three main pathways: closed-loop pathways, open-loop pathways, and energy recovery pathways. Closed-loop pathways keep materials within the textile value chain, while open-loop pathways direct materials to other markets (*Heinrich et al., 2026*). Energy recovery pathways are used when materials cannot be used in higher-value recycling.

Figure 1 on the previous page shows existing global end-use markets for recycled products derived from end-of-life post-consumer textiles. Figure 2 shows textile recovery pathway types: closed-loop, open-loop, and energy recovery.

Although publicly available data remain limited, a small share of post-consumer textiles in Nova Scotia is recycled domestically into industrial wiping rags (*Acadian Wipers, n.d.*), while some exported material is reportedly recycled overseas, although its final use is not clearly captured in available data (*Hussain et al., 2025; Shah, 2026*). Most textiles appear to be disposed of, with estimates suggesting that between 460,000 and 1 million tonnes enter Canadian landfills each year (*Cheminfo Services, 2022; Weber et al., 2023*). Given the volume and diversity of these materials, no single pathway can manage the entire waste stream. A portfolio of complementary solutions will be required, with each pathway serving a distinct role based on material characteristics, available infrastructure, and market demand (*Heinrich et al., 2026; Walsh et al., 2026*).



2.0 Methodology

This report used a multi-method approach to identify, evaluate, and prioritize end-use pathways for post-consumer textiles in Nova Scotia. The analysis considered both existing recycling technologies and the pathways most likely to support landfill diversion, green job creation, and bioeconomy development.

Potential pathways were identified through three sources. First, semi-structured interviews with stakeholders across the textile value chain provided insights into industry practices, market conditions, technology requirements, infrastructure gaps, and emerging opportunities. Participants included charitable and for-profit collectors and retailers, wholesalers, exporters, recyclers, manufacturers, equipment suppliers, researchers, and end-market users. Second, a review of industry reports, academic literature, company publications, conference proceedings, and government documents identified relevant technologies, business models, and case studies from Canada and abroad while helping validate interview findings. Third, the lead researcher attended the Textile Recovery Summit in San Diego, CA, US and the Textile Recycling Expo in Charlotte, NC, US. These events enabled direct engagement with technology developers, equipment manufacturers, textile processors, and circular economy practitioners, as well as firsthand observation of operating recovery systems and emerging technologies.

Pathway viability was assessed through a combination of technical, economic, and market considerations.

For each pathway, the analysis considered:

1. Feedstock fit
2. Capital cost
3. Job creation
4. Market demand
5. Diversion potential
6. Technology readiness

Where possible, organizations operating within the selected pathways, along with equipment manufacturers, technology providers, and product developers, were consulted to assess operational requirements, infrastructure needs, implementation barriers, and commercial feasibility. The analysis also incorporated findings from the **TTNS Phase II Waste Characterization Study**, using fibre composition, product category, and condition data to evaluate pathway suitability and the availability of potential feedstocks for future recycling, manufacturing, and circular economy initiatives in Nova Scotia.

2.1 Sampling Approach

Interviews were conducted with 27 stakeholders from across the textile value chain, from collection and reuse through to recycling infrastructure, manufacturing, and end-market demand. The semi-structured interview questions are provided in **Appendix C1 in the Master Report**, while a complete list of interviewees is provided in **Appendix C2 in the Master Report**. Additional sample details, including the stakeholder groups represented and their positions within the textile value chain, are provided in **Appendix C3 in the Master Report**. Because some organizations operate across multiple stages of the value chain, they are listed under each applicable stage.

While some segments of the value chain were more heavily represented in the interview sample than others, this concentration helped corroborate information across participants and strengthen confidence in recurring themes and observations. In contrast, representation from end-market purchasers was limited. Many organizations identified buyers of recycled textile products as commercially sensitive information, making it difficult to directly identify and engage potential purchasers. Nevertheless, interviews and secondary research helped identify several promising end-use sectors for recycled textile materials. Additional outreach was conducted to a number of potential buyers; however, these inquiries did not result in participation.

3.0 Findings

3.1 Current Textile Recovery Capacity in Nova Scotia

In Nova Scotia, infrastructure supporting viable end-use pathways for post-consumer textiles remains limited in both scale and sophistication. The province's textile recovery system is anchored by a network of charitable and for-profit thrift retailers, including The Salvation Army, Society of Saint Vincent de Paul, Bibles for Mission Foundation, Soul's Harbour Rescue Mission, Savers Value Village, Guy's Frenchys, and independent operators such as Hospice Halifax and the SPCA.

Collectively, these organizations receive significant volumes of donated textiles, conduct basic sorting to identify resaleable items, and move surplus material through downstream channels where available. A small number also consolidate unsold inventory into bales for brokers or wholesale buyers, while limited ragging activity exists.

It is worth noting that Nova Scotia possesses elements of a vertically integrated textile recovery system through Guy's Frenchys and its affiliated businesses. Publicly available information indicates the company operates an integrated network of IWK branded collection bins, transportation, retail stores, sorting facilities, wholesale operations, import/export activities, and textile wiping cloth manufacturing (*Acadian Wipers, n.d.; Guy's Frenchys, n.d.*).

While these operations are primarily oriented toward reuse and secondary markets, they provide an important foundation upon which future domestic textile recycling infrastructure could build. They declined to participate in this study.

Nova Scotia's limited infrastructure is under growing pressure as the downstream markets that local thrift organizations rely on become less stable. Representatives from several organizations described the loss or disruption of collection relationships with the National Diabetes Trust or Big Brothers Big Sisters, which had previously moved surplus textiles out of their facilities. As those channels have contracted, organizations have been left with rising disposal costs and few viable alternatives. The lack of downstream capacity represents both a market development issue and an immediate operational challenge affecting textile recovery organizations across the province.

At the same time, Nova Scotia does not have a systematic inventory of textile collection volumes, sorting throughput, material flows, processing capacity, or disposal costs. This makes it difficult to estimate feedstock availability, assess the scale of the current capacity gap, or size future infrastructure investments with confidence. Developing a provincial baseline inventory (**Recommendation MKT-3**) should therefore be an early priority. Without it, new infrastructure risks being either too small to achieve commercial viability or too large relative to the available material supply.

The **TTNS Phase II Waste Characterization Study** provides the best available indication of the types of materials moving through the system, including their condition, fibre composition, and suitability for different recovery pathways. **Figure 3** shows the movement of textiles from collection to end-use markets. **Appendix C4 in the Master Report** provides a detailed overview of each stage of the value chain in Nova Scotia.

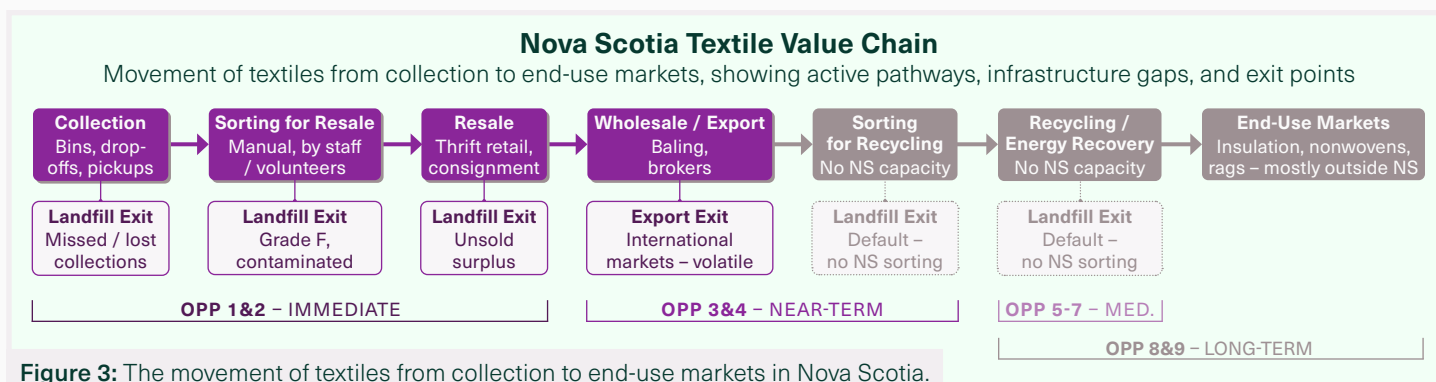


Figure 3: The movement of textiles from collection to end-use markets in Nova Scotia.



Case Study: Salvos (Salvation Army) Stores Textile Recovery Facility
Brisbane, Australia

In March 2026, Salvos Stores, the thrift retail arm of The Salvation Army in Australia, opened a dedicated Textile Recovery Facility in Brisbane, Queensland, representing a significant step beyond traditional thrift retail toward integrated textile circularity. The facility uses automated sorting systems to identify fibre composition and remove hard components such as zippers, buttons, and labels, producing pre-processed feedstock ready for downstream recycling. It has an annual processing capacity of up to 5,000 tonnes of textiles, including donations and commercial take-back streams such as decommissioned uniforms. The project was enabled by a \$4.97 million investment from the Queensland Government and was developed in partnership with Queensland University of Technology, local governments, and industry partners (*Enerva, 2026; Salvos Stores, 2024*).

The facility is directly relevant to the Nova Scotia context for two reasons. First, it demonstrates that a charitable thrift organization operating a reuse-first model can successfully expand into industrial-scale sorting and feedstock preparation when supported by government investment and external partners. Second, The Salvation Army is an active TTNS partner and one of Nova Scotia’s largest charitable textile collectors. The infrastructure gap identified in this section could therefore be addressed, at least in part, by an existing and trusted partner operating within an appropriate policy and funding environment.

The Salvos facility is presented as a proven model rather than a direct replication target, as Nova Scotia’s textile volumes and capital context differ from those in Queensland. Any comparable investment would need to be appropriately sized and scoped, but the example demonstrates that external partnerships can enable this infrastructure and that the charitable reuse sector can serve as a credible delivery partner.



What is feedstock?

Feedstock refers to the raw or pre-processed material inputs supplied to a manufacturing or recycling process.

In the context of this report, feedstock refers specifically to post-consumer textile materials, including garments and other recovered textile items, that have been **collected**, **sorted**, and **prepared** to serve as inputs for downstream recovery pathways such as insulation manufacturing, nonwoven production, industrial ragging, or mechanical and chemical recycling.

3.2 Nova Scotia's Post-Consumer Textile Feedstock

The viability of different end-use pathways depends on the volume, composition, and condition of materials available within Nova Scotia's post-consumer textile stream. The **TTNS Phase II Waste Characterization Study** provides the first comprehensive assessment of fibre composition, product category, and condition across the province's donation and waste streams. Readers are directed to that report for the full findings; the key data informing the investment recommendations in this report are summarized below.

3.2.1 Condition of items

Nearly half (46.9%) of the 4,664 items assessed were **immediately suitable for resale (Grades A, B, and C)**.

32.7% were considered **potentially recoverable through cleaning or minor repair (Grades D1 and D2)**.

18.0% were end-of-life for reuse but **suitable for fibre recycling (Grade E)**, and only

2.2% were **too contaminated for any recovery pathway (Grade F)**.

These findings reinforce that reuse should remain the primary objective of Nova Scotia's textile recovery system, with recycling reserved for materials that have genuinely exhausted their reuse potential.

3.2.2 Fibre composition

Polyester and cotton were the most prevalent fibres, appearing in 49.0% and 46.1% of items, respectively. Among monofibre items (items composed of one fibre type), **cotton** accounted for 44.9% and **polyester** for 41.0%. Overall, 84.8% of items contained **only one or two fibre types**, supporting easier sorting and compatibility with established recycling pathways.

Cotton-dominant items are well suited to mechanical recycling into nonwoven products such as insulation, acoustic panels, furniture padding, and industrial wiping cloths, and offer longer-term potential for fibre-to-fibre recycling as commercial capacity develops.

Polyester-dominant items represent a significant opportunity for chemical recycling as technology scales internationally.

3.2.3 Denim

Denim represented 3.1% of the overall sample and warrants particular attention because of its **high cotton content and strong alignment with the insulation manufacturing pathway** examined in this report (*Allahyari, Haghpourast, & Ahmadi, 2026; Islam et al., 2022*).

However, 67.4% of denim items in the sample contained elastane, which can disrupt mechanical recycling processes and complicate feedstock preparation (*Choudhury, Tsianou, & Alexandridis, 2024; Rodrigues et al., 2025*).

This finding highlights the need either to discourage even small percentages of elastane in denim manufacturing or to invest in processing technologies that can accommodate elastane-containing feedstock.

This consideration should inform the design of any denim recovery and insulation pilot. More broadly, elastane was present in 23.7% of all items assessed, indicating that it poses a significant recycling challenge across the textile industry rather than for denim alone (*Choudhury, Tsianou, & Alexandridis 2024; Rodrigues et al., 2025*).

3.3 Interview Themes

The interview findings centred on four interconnected themes: systemic pressures on the textile reuse sector, value retention and material recovery, domestic end-market development, and policy and market enablers. Full thematic results are provided in **Appendix C5 in the Master Report**.

A dominant concern was the growing instability of traditional downstream markets. Stakeholders described declining commodity values, reduced purchasing activity, export uncertainty, and mounting volumes of unsold textiles. Several charitable retailers noted that the contraction or disappearance of downstream collection, sorting, and resale partners has left them managing increasing volumes of surplus textiles with fewer viable outlets. International policy developments reinforce these observations. As of July 19, 2026, large companies operating in the European Union are prohibited from destroying unsold clothing, accessories, and footwear and must instead consider alternatives such as resale, donation, reuse, remanufacturing, or recycling, subject to limited exemptions (*Martin, 2026*). Such measures can increase the volume of unsold commercial textiles requiring legitimate reuse and recovery outlets, strengthening the need for corresponding investment in sorting, redistribution, inventory management, and downstream processing capacity.

The growing limitations of export-dependent pathways have strengthened calls for domestic end-market development and greater value retention through both reuse and recycling. Stakeholders emphasized Canada’s limited processing capacity and the need for localized solutions that reduce reliance on international markets.

Stakeholders consistently emphasized that policy intervention will be required to accelerate investment and provide a funding mechanism to scale textile circularity, as market forces alone are unlikely to generate sufficient demand for recovered materials or support the infrastructure needed for a circular textile economy.

Frequently cited measures included:

- Recycled-content mandates,
- Government procurement requirements,
- EPR programs, and
- Tax incentives supporting recovery, reuse, recycling, and domestic manufacturing.

Together, these mechanisms could help stabilize end markets and enable coordinated investment across collection, sorting, processing, and manufacturing rather than relying on any single recycling technology (*Saif et al., 2024*).

Interview Results: Themes



Systemic Pressures on the Textile Reuse Sector



Value Retention and Material Recovery



Domestic End-Market Development



Policy and Market Enablers

3.4 Comparative Assessment of End-Use Pathways

The pathways examined in the following sections were informed by stakeholder interviews and are outlined in Table 1. Each is assessed against six dimensions and ordered by implementation readiness.

End-Use Pathways								
		Pathway	Feedstock Fit	Capital Cost	Job Creation	Market Demand	Diversion Potential	Technology Readiness
IMMEDIATE	1	Surplus Reuse Hub & Sorting Centre	Very High	Low	High	Strong	High	Immediate
	2	Industrial Rags	Medium	Low	Medium	Stable	Medium	Immediate
NEAR-TERM	3	Tech-Enabled Sorting & Preprocessing	High	High	Medium	Emerging	High	Near-Term
	4	Recycled Denim Insulation	High	Medium	Medium	Strong	High	Near-Term Pilot
MEDIUM-TERM	5	Nonwoven Manufacturing	Medium	High	High	Emerging	High	Medium-Term
	6	Textile-to-Textile (Mechanical)	Low	High	Medium	Stable	Medium	Medium-Term
	7	Environmental Applications	Medium	Medium	Low	Low	High	Medium-Term
LONG-TERM	8	Textile-to-Textile (Chemical)	Low	Very High	High	Emerging	High	Long-Term
	9	Process Engineered Fuel	Medium	Medium	Medium	Stable	Medium	Long-Term / Residual Only

Legend by Column

More Desirable ↓ Less Desirable	Very High High Medium Low	Low Medium High Very High	High Medium Low	Strong Stable Emerging Low	High Medium	Immediate Near-Term Med-Term Long-Term
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Table 1: Comparative assessment of end-use pathways for post-consumer textiles in Nova Scotia							
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3.4.1 Cross-cutting Considerations

Before examining each pathway individually, four cross-cutting considerations apply across multiple opportunities:

1. **Effective sorting** is the essential first step in creating consistent, characterized, and reliably prepared feedstock. Without this foundation, downstream processors and manufacturers cannot source material from Nova Scotia at commercial scale, regardless of the technical promise of a given pathway.
2. **Nova Scotia currently lacks the sorting, shredding, and processing infrastructure** needed to supply recycling or manufacturing partners consistently. As outlined in **Section 3.1 - Current Textile Recovery Capacity**, this is the primary constraint affecting most near- and medium-term pathways.
3. **Some material streams will also require regional aggregation.** Denim and other cotton-rich textiles, for example, must be collected from multiple organizations to reach commercially viable volumes, as no single Nova Scotia organization generates sufficient feedstock independently.
4. **Finally, most pathways will require policy support to become commercially viable.** Measures such as procurement requirements, recycled-content mandates, and product stewardship programs including funding models should therefore be treated as enabling conditions rather than optional accelerants.



Opportunity Summary

IMMEDIATE	OPP-1 Surplus reuse & sorting hub Centralized aggregation, sorting, and redistribution of surplus textiles to extend garment life.
	OPP-2 Industrial rags Sorting cotton-rich and absorbent textiles into wiping cloths..
NEAR-TERM	OPP-3 Technology-enabled sorting & preprocessing for end-markets Sorting textiles into streams for automotive, manufacturing, construction, and institutional use.
	OPP-4 Recycled denim insulation Mechanical processing into acoustic and thermal insulation for construction.
MEDIUM-TERM	OPP-5 Nonwoven manufacturing Converting shredded and fibreized post-consumer textiles into engineered nonwoven materials.
	OPP-6 Textile-to-textile recycling (mechanical) Blending and respinning sorted and shredded fibre into new yarn and fabrics.
	OPP-7 Environmental applications Using textile shred as soil reinforcement, pavement additive, or char for agricultural use.
LONG-TERM	OPP-8 Textile-to-textile recycling (chemical) Breaking down fibres into molecular inputs to produce virgin-equivalent recycled fibre.
	OPP-9 Process engineered fuel Processing mixed residential textile waste into standardized fuel that displaces fossil fuels.

3.4.2 Opportunity 1: Surplus Reuse & Sorting Hub

Centralized aggregation, sorting, and redistribution of surplus textiles to extend garment life before any recycling pathway is considered.

Feedstock Fit	Capital Cost	Job Creation	Market Demand	Diversion Potential	Technology Readiness
Very High	Low	High	Strong	High	Immediate

A Surplus Reuse and Sorting Hub would provide centralized sorting, aggregation, and redistribution for textiles that cannot be sold through conventional thrift channels. The hub would prioritize reuse by directing wearable items into pay-by-the-pound retail, low-cost resale, bulk wholesale, and community redistribution programs before any material is directed to recycling or recovery. This reuse-first approach reflects the greater environmental, social, and economic value of resale and redistribution over material recycling (NACTR, 2023; Walsh et al., 2026). It also creates the aggregation function on which every downstream recycling pathway depends, making it the essential first node in any future circular textile system for Nova Scotia.

Infrastructure requirements are moderate: warehouse and sorting space, baling equipment, logistics systems, and retail or bulk-sale capacity. The hub can accept mixed textile streams and does not require advanced processing technology. By consolidating material from multiple organizations, it can achieve the volume and consistency needed

to access wholesale and downstream recycling markets that individual charities cannot reach independently. Existing models, including Goodwill Industries’ outlet and pay-by-the-pound operations in Ontario and Alberta, demonstrate that this approach can process high volumes, generate revenue, and create employment with relatively modest investment. An additional opportunity may emerge from the transition underway in Nova Scotia’s Material Recovery Facility (MRF) network, where existing smaller facilities could be adapted for textile aggregation and preprocessing at lower capital cost than purpose-built facilities (M. Goodick, personal communication, 2026).

Interviews confirmed the urgency. Nova Scotia charities across the province described growing inventories, limited storage, rising disposal costs, and the loss of reliable surplus collection outlets. The operational and financial barriers associated with establishing a hub are considerably lower than those of any recycling infrastructure investment, making this the most immediately actionable opportunity identified in this research.

Assessment for Nova Scotia
Priority: Immediate

Directly addresses the operational crisis affecting thrift retailers across the province. Modest capital requirements, immediate deployment potential, and dual function as both a reuse outlet and an aggregation node for downstream pathways make this the highest-priority investment in the system.

3.4.3 Opportunity 2: Industrial Rags

Sorting cotton-rich and absorbent textiles into wiping cloths
for automotive, manufacturing, and institutional use.

Feedstock Fit	Capital Cost	Job Creation	Market Demand	Diversion Potential	Technology Readiness
Medium	Low	Medium	Stable	Medium	Immediate

Industrial ragging converts absorbent textiles, particularly cotton-rich garments, towels, sheets, and flannels, into wiping cloths for automotive, manufacturing, marine, construction, and institutional settings (Acadian Wipers, n.d.; Cross Plains Trading, n.d.). The pathway is already active in Nova Scotia: several thrift organizations including Guy’s Frenchys currently sell cotton, microfibre, and linen items in bulk bags for cleaning use, generating modest revenue while reducing disposal costs. Infrastructure requirements are minimal, including sorting tables, cutting equipment, and bagging or baling capacity, and the pathway can be integrated directly into a Surplus Reuse and Sorting Hub as a secondary outlet for clean, absorbent materials unsuitable for resale.

Feedstock must be clean, dry, and free from significant contamination. Cotton-rich textiles are preferred for their absorbency, though microfibre and some synthetics may have value in niche markets.

Market demand is stable but modest: industrial wiping cloths compete with imported rags and disposable wipes, and low margins combined with labour-intensive sorting can undermine viability if feedstock quality is inconsistent.

The pathway cannot absorb Nova Scotia’s full textile surplus and should not be positioned as a primary circularity strategy.

Assessment for Nova Scotia
Priority: Immediate Supporting Pathway

A practical, low-cost supporting outlet for a specific material subset. Best integrated into a Surplus Reuse and Sorting Hub rather than operated as a standalone pathway. Diversion potential is moderate and its role is supplementary.

3.4.4 Opportunity 3: Technology-Enabled Sorting & Preprocessing for End-Markets

Sorting textiles into streams for automotive, manufacturing, and institutional use.

Feedstock Fit	Capital Cost	Job Creation	Market Demand	Diversion Potential	Technology Readiness
High	High	Medium	Emerging	High	Near-Term

Shared sorting and preprocessing infrastructure would create the consistent, characterized feedstock needed to access downstream markets for unwearable and non-reusable textiles. Without it, processors producing shoddy, stuffing, nonwovens, insulation, or other recycled products cannot reliably source material from Nova Scotia at commercial scale.

A shared facility would separate cotton-rich, polyester-rich, denim, wool, and blended streams, prepare them to buyer specifications, and aggregate volume from multiple organizations to reach the scale that individual charities cannot achieve independently. Outputs could include natural fibre streams for shoddy and stuffing production, denim and heavy cotton prepared as shred for insulation manufacturing, and characterized streams for nonwoven production.

Near-term implementation can rely on manual sorting with standardized protocols and basic shredding equipment. Interviews indicated that a pilot-scale shredder for pre-sorted feedstock represents an estimated capital investment of approximately \$200,000. Over time, near-infrared or hyperspectral fibre identification technology such as Refiberd’s hyperspectral imaging system (*Refiberd, n.d.*) or ANDRITZ’s Palanc sorter (*ANDRITZ, 2023*) could be incorporated to improve throughput, accuracy, and access to more demanding downstream markets. Co-location with the Surplus Reuse and Sorting Hub would minimize logistics costs and create an integrated intake node for the provincial system. This investment is not tied to a single downstream application, making it resilient to market fluctuations as feedstock can be redirected between pathways as conditions change.

Assessment for Nova Scotia
Priority: Near-Term

The essential infrastructure bridge between the collection system and any viable downstream end market. Without sortig and preprocessing capacity, no other recycling or manufacturing pathway can be reliably supplied. Priority is second only to the Surplus Reuse and Sorting Hub, and the two should be planned as a phased, integrated system.

3.4.5 Opportunity 4: Recycled Denim Insulation

Mechanical processing of denim and cotton-rich textiles into acoustic and thermal insulation for commercial and residential construction.

Feedstock Fit	Capital Cost	Job Creation	Market Demand	Diversion Potential	Technology Readiness
High	Medium	Medium	Strong	High	Near-Term Pilot

Denim insulation mechanically converts denim and other cotton-rich textiles into acoustic or thermal insulation batts, pads, or panels through sorting, hardware removal, shredding or fibreizing, and nonwoven web formation. The pathway connects textile diversion directly with growing demand for lower-carbon building materials in residential and commercial construction, and offers thermal performance comparable to traditional fiberglass (“glass wool”) insulation while supporting green building, LEED, and bioeconomy objectives (Read, 2021; Krippendorf, 2011).

Canada’s insulation market is projected to reach USD \$2.5 billion by 2033 (Grand View Research, 2025), with demand driven by building retrofits, energy efficiency requirements, and sustainable procurement standards increasingly embedded in architect and engineering firm practices.

The strongest evidence supporting this pathway is confirmed end-market demand. A Calgary-based manufacturer of prefabricated interior wall systems that was interviewed currently uses US-sourced recycled denim insulation and has expressed interest in sourcing domestically, noting that current logistics require shipping offcuts back to their US supplier at significant cost.

Quebec-based Jasztex produces comparable products commercially under its Blue Jeanious® brand, confirming that the pathway is beyond pilot stage in Canada (Jasztex, n.d.). Feedstock fit is favourable: denim is cotton-rich, durable, and mechanically processable, though high elastane content (present in 67.4% of denim items in the TTNS Phase II sample) complicates processing and must be managed through sorting or compatible processing technology. Infrastructure requirements and investment sequencing are described in **Opportunity 3**; implementation risk can be reduced by beginning with denim shred supply to existing manufacturers (Stage 1) before progressing to pilot-scale insulation manufacturing through a full-service textile R&D facility like Vestechpro (Montreal, QC) or a comparable contract R&D facility (Stage 2). Because denim represented approximately 3.1% of the TTNS Phase II Waste Characterization sample, regional aggregation from multiple organizations will be required to support commercial volumes.

The primary barriers are cost competitiveness with conventional glass wool insulation, certification requirements, and consistent feedstock supply at scale. Supportive procurement policy, such as minimum recycled textile content requirements in government construction and the built environment, would improve commercial viability.

Assessment for Nova Scotia
Priority: Near-Term Pilot

Nova Scotia’s strongest near-term manufacturing opportunity. Confirmed market demand, proven technology, alignment with green building procurement, and a clear two-stage route to commercialization make this the recommended priority pilot investment. Proposed next step: denim sorting protocol and Stage 1 shred supply to existing manufacturers.

3.4.6 Opportunity 5: Nonwoven Manufacturing

Converting shredded and fibreized post-consumer textiles into engineered nonwoven materials for automotive, construction, furniture, and appliance applications.

Feedstock Fit	Capital Cost	Job Creation	Market Demand	Diversion Potential	Technology Readiness
Medium	High	High	Emerging	High	Medium-Term

Nonwoven manufacturing converts shredded and fibreized post-consumer textiles into engineered materials through airlaying, carding, needle punching, and thermal bonding. Applications include automotive sound barriers and trunk liners, appliance insulation, carpet underpadding, cushioning, and construction products. The pathway is more scalable than industrial ragging and less fibre-specific than denim insulation, and can accommodate a broader range of blended feedstocks provided composition is known and consistent. This makes it particularly relevant for Nova Scotia's mixed textile stream (*Heinrich et al., 2026*). Interview findings consistently identified automotive, appliance, construction, and furniture products as the strongest end markets, with manufacturers such as Leigh Fibers, Cross Plains Trading, and Autoneum (which has Ontario facilities) already supplying recycled textile fibres into these sectors.

Infrastructure requirements are substantial. A commercial production line requires fibre opening, contaminant removal, precision blending, and quality control, with an estimated capital investment of approximately \$8-10 million to establish operations (*E. Hull, personal communication, June 2, 2026*). Shredding equipment alone ranges from approximately \$200,000 for pilot-scale to \$800,000+ for commercial units. European facilities demonstrate integrated systems combining automated sorting, fibre preparation, and nonwoven production in a single line (*ANDRITZ, 2023*). Because major automotive and appliance manufacturers are concentrated outside Atlantic Canada, near-term opportunities are more likely to lie in supplying intermediate materials for construction, marine, and packaging applications before expanding into larger North American markets. Success will depend on regional feedstock aggregation, pilot validation, and identification of anchor customers.

Assessment for Nova Scotia
Priority: Medium-Term Strategic Investment

One of the most promising medium-term opportunities in terms of market breadth and job creation potential. Capital requirements and feedstock consistency make this a second-stage investment after the reuse hub and denim insulation pilot are established. Infrastructure developed for denim insulation directly creates the foundation needed here.

3.4.7 Opportunity 6: Textile-to-Textile Recycling (Mechanical)

Sorting and shredding post-consumer textiles into fibre that is blended and respun into new yarn and fabrics, typically with added virgin fibre.

Feedstock Fit	Capital Cost	Job Creation	Market Demand	Diversion Potential	Technology Readiness
Low	High	Medium	Stable	Medium	Medium-Term

Mechanical textile-to-textile recycling processes sort monofibres or predictable blend streams into fibre that can be respun into new yarns, typically with virgin fibre added to compensate for the fibre shortening that occurs during mechanical shredding. The pathway requires considerably more precise feedstock than reuse, ragging, insulation, or nonwoven manufacturing: experts indicated that only a small share of post-consumer textiles are likely suitable for respinning, and that success depends on advanced fibre identification, trim removal, carding, spinning/remanufacturing capacity, and extensive quality testing.

This is infrastructure Nova Scotia does not currently possess. Near-term participation is therefore

more likely through feedstock aggregation and preprocessing than through full manufacturing, which would require regional partnerships, larger volumes, and substantial capital investment.

Market demand for mechanically recycled textile fibre is stable but constrained by cost, performance requirements, and the absence of mandated recycled content requirements. Without policy mechanisms such as EPR or recycled content mandates, the economics of this pathway remain challenging relative to reuse, sorting, insulation, and nonwoven production. It is best understood as a longer-term opportunity that becomes more viable as regional infrastructure matures and policy support develops.

Assessment for Nova Scotia

Priority: Long-Term Preparation / Medium-Term Partnerships

Not a near-term priority. Foundational investments in sorting, fibre identification, and aggregation infrastructure recommended in earlier opportunities will lay the groundwork for participation in mechanical textile-to-textile recycling as market conditions and policy support evolve.

3.4.8 Opportunity 7: Environmental Applications

Using textile shred as a soil reinforcement or pavement additive, or converting textile waste into char for agricultural use as a soil amendment.

Feedstock Fit	Capital Cost	Job Creation	Market Demand	Diversion Potential	Technology Readiness
Medium	Medium	Low	Low	High	Medium-Term

Two environmental applications are relevant in the Nova Scotia context. Research has demonstrated that small proportions of shredded polyester textile (0.75-1% by weight) can improve load-bearing capacity and toughness in road subbase materials (Guzman & Payano, 2023), while recycled cotton fibres incorporated at 0.3% into stone mastic asphalt can reduce binder drainage, improve moisture resistance, and increase resistance to deformation (Olaso-Cerveró et al., 2025). These applications could divert locally generated textile waste into road construction and maintenance with no specialized chemical processing required. However, field validation, fibre optimization, and compliance testing would be needed before broader adoption, and both studies identify this as pre-commercial.

The second application converts end-of-life textiles into char through pyrolysis or carbonization. A Canadian pilot commissioned by Fashion Takes Action, led by Fanshawe College and Western University, and involving Goodwill Ontario Great Lakes as a materials partner, found that char derived from poly/cotton hospital textiles approximately doubled leaf growth and increased both shoot and root biomass at low application rates (Fashion Takes Action, n.d.). This pathway is particularly relevant for blended textiles that cannot be directed to fibre recycling systems. Before broader adoption, further field trials across different crops and soil conditions, agricultural certification, and assessment of contamination risks from dyes and legacy chemicals would be required.

Assessment for Nova Scotia
Priority: Long-Term / Exploratory

Early-stage but directly promising for mixed or blended textiles that lack viable pathways elsewhere. Nova Scotia’s agricultural sector and active bioeconomy interest support future char pilot work. The pavement application has relevance given ongoing commercial deployment; both merit monitoring and exploratory partnership development.

3.4.9 Opportunity 8: Textile-to-Textile Recycling (Chemical)

Breaking down polyester or cellulosic fibres chemically into molecular inputs to produce virgin-equivalent recycled fibre for new textile manufacturing.

Feedstock Fit	Capital Cost	Job Creation	Market Demand	Diversion Potential	Technology Readiness
Low	Very High	High	Emerging	High	Long-Term

Chemical textile-to-textile recycling breaks fibres, particularly polyester or cellulosic materials, down to their molecular building blocks, which are then reconstituted into virgin-equivalent fibre (via pellets, powder, or chips) for new textile manufacturing. It represents the most technically advanced and capital-intensive pathway assessed, with the potential to produce high-quality, traceable recycled fibre for premium apparel supply chains. Leading commercial operators include Reju (polyester), Circ and Hybridworks (blended fibres), and Circulose (cotton/cellulosic). However, the pathway is not yet a realistic standalone investment priority for Nova Scotia.

Feedstock requirements are strict: Reju, for example, requires an average of 70% polyester content, material identification by partners, removal of hard points, and preprocessing into patches or pellets prior to processing (E. Joo, personal communication, June 16, 2026). Furthermore, elastane-containing feedstocks pose particular challenges.

Scale requirements are also a significant barrier: Reju’s regeneration hubs require approximately 60,000 metric tonnes of annual feedstock which is higher than what Nova Scotia alone could supply. A Nova Scotia-based plastic recycler, Sustane Technologies, also cautioned that textile feedstocks can be technically difficult, with nylon in particular causing processing problems. However, Sustane possesses pyrolysis facilities that are in theory capable of processing polyester textiles into light distillate used as a feedstock for plastic (Sustane Technologies, n.d.), and could be considered for a pilot or proof of concept project. Market demand is emerging but strongly policy-dependent: interviewees identified EPR legislation and recycled-content mandates in jurisdictions such as California and the EU as the primary drivers of near-term commercial viability. Without such mechanisms, brand demand remains uncertain and the cost premium of chemically recycled fibre over virgin materials remains a barrier (Heinrich et al., 2026).

Assessment for Nova Scotia

Priority: Long-Term / Regional Participation Only

A long-term opportunity rather than a near- or medium-term investment priority. Given the significant capital requirements, feedstock demands, and scale needed to support a viable chemical recycling facility, the province is likely better positioned to participate within broader regional or national recycling networks than to develop a standalone facility.

3.4.10 Opportunity 9: Process Engineered Fuel

Processing mixed residual textile waste into standardized fuel that displaces fossil fuels in industrial applications such as cement production.

Feedstock Fit	Capital Cost	Job Creation	Market Demand	Diversion Potential	Technology Readiness
Medium	Medium	Medium	Stable	Medium	Long-Term / Residual Only

Process Engineered Fuel (PEF) is produced by processing mixed dry residual waste, including contaminated, heavily blended, or otherwise unrecyclable textiles, into a standardized fuel for high-temperature industrial applications.

Textiles can enter PEF systems with minimal preparation, making it potentially useful for materials rejected from other pathways. The process recovers energy rather than material value, and should therefore be treated as a last-resort outlet rather than a primary diversion strategy.

PEF is commercially established in markets such as Japan and South Korea, where waste-derived fuels are used in cement manufacturing (*Heinrich et al., 2026*). Demand in Nova Scotia is currently unknown and would depend on the availability of suitable industrial users, local processing capacity, and the economics of transportation. Textiles must be managed carefully within PEF systems, as dyes and fillers can increase ash content and fibrous material can cause handling difficulties, limiting the proportion of textiles that can be incorporated (*ibid.*). Higher-value open- and closed-loop recycling pathways should take precedence wherever technically and economically feasible.

Assessment for Nova Scotia
Priority: Long-Term / Residual Only

Not a strategic investment priority. PEF may serve a practical residual role for materials that cannot be directed to any reuse or recycling pathway, but local demand is unconfirmed and further market scoping would be required before operationalization. Should be considered only after higher-value options have been exhausted.

4.0 Economic Opportunity

Reframing post-consumer textiles as a material resource rather than a waste stream creates a meaningful economic opportunity for Nova Scotia. **Figure 4** shows a snapshot of key statistics related to the economic opportunity in Nova Scotia. Note: Association for Textile Recycling (AFTeR) figures are from 2020 and reflect member organizations only (a subset of the full industry).

Table 2 on the following page outlines how developing domestic end-use pathways could support new industries, create jobs, and contribute to provincial economic and environmental goals and positive social outcomes.

4.1 Alignment with Provincial Economic Priorities

The investments described in this report align directly with several of Nova Scotia’s economic priorities as articulated in Budget 2026-27: Defending Nova Scotia (*Nova Scotia Finance and Treasury Board, 2026*). The budget identifies housing and construction as one of six priority sectors for strategic growth, a trend that strengthens the near-term market case for domestically produced recycled denim insulation.

More broadly, the budget’s emphasis on fiscal discipline and reducing dependence on a small number of economic drivers reinforces the case for building resilient, diversified local industries.

A circular textile economy built around Nova Scotia’s existing charitable infrastructure, green building demand, and Atlantic Canadian feedstock would contribute employment, manufacturing activity, and diversion value without requiring the scale of public investment that other priority sectors demand.

Key Economic Opportunities



Figure 4: Key statistics related to the economic opportunities presented by a circular textile economy in Nova Scotia

Economic, Employment, and Social Opportunities

Economic Opportunity	Employment Potential	Social Value
Building domestic textile recovery capacity displaces import dependence, reduces disposal costs, and supports new manufacturing activity.	The sector already generates substantial employment in Atlantic Canada. Infrastructure investment would expand this across a wider range of roles and skill levels.	Textile recovery creates environmental and social outcomes simultaneously in a sector well suited to Nova Scotia's social enterprise ecosystem.
\$2.5B projected value of Canada's insulation market by 2033 – a near-term domestic market for denim insulation products. <i>(Grand View Research, 2025 (USD))</i>	197.3 total jobs created by AFTeR member organizations across Atlantic Canada in 2020, without any dedicated recycling or manufacturing infrastructure. <i>(Genge, C., 2021)</i>	10+ tonnes of unwearable clothing decommissioned for recycling in Australia by BlockTexx, a chemical recycler, and Help Enterprises, a social enterprise providing supported employment for people living with disabilities. <i>(Help, 2023)</i>
Domestic processing retains both material value and economic activity within Nova Scotia rather than exporting it.	Accessible roles like sorting, baling, detrimming, and cutting that are suited to a wide range of workers including those facing barriers to employment.	Nova Scotia's charitable thrift sector and social enterprise network offer comparable conditions for the same kind of partnership as this international example.
Recovering textiles displaces virgin inputs in construction and automotive markets, reducing embodied carbon .	Skilled roles like equipment operation, quality control, logistics, and manufacturing management in denim insulation and nonwoven production.	Sorting, decommissioning, and preprocessing roles are structured, hands-on and well-suited to supported employment programs – the kind of work social enterprise partners are designed to deliver.
As landfilling increases, recovery infrastructure becomes an increasingly attractive long-term investment relative to disposal.	Technical roles spanning engineering, materials science, and fibre identification as sorting automation and chemical recycling infrastructure matures over the longer term.	Nova Scotia's social enterprise and supported employment ecosystem, including organizations connected to DirectionNS Council, could be integrated into textile recovery operations from the outset, strengthening both economic and social returns .
Nova Scotia-specific economic modelling quantifying job creation, diversion value, and manufacturing output is recommended as an early investment to strengthen the case for public and private capital.	Interviewees consistently identified job creation as central to the case for domestic processing over export.	Surplus reuse and redistribution programs would improve access to affordable clothing for lower-income Nova Scotians, creating a direct social equity benefit alongside environmental outcomes.

Table 2: Economic, employment, and social opportunities presented by a circular textile economy in Nova Scotia

5.0 Barriers and Enabling Conditions

Table 3 maps the structural barriers currently limiting textile recovery in Nova Scotia against the enabling conditions that would address them. In most cases these are directly related; the enabling condition is the active response to the barrier it faces. Where relevant, the corresponding recommendation from the next section of this report is identified.

Addressing these conditions in parallel with infrastructure investment is essential; no single pathway will succeed if the surrounding system conditions remain unchanged.

It is also important to note that EPR is the overall enabler as the model that would fund much of this work.

Economic, Employment, and Social Opportunities

Theme	Current Barrier What is limiting the system today?	Enabling Condition What would address it, and which recommendation delivers it?
Fragmented value chain & poor coordination	Collectors lack clear guidance on what downstream processors require. Processors and manufacturers have limited access to prepared Atlantic Canadian feedstock. Buyers have little visibility into what the provincial stream can supply. Product designs combining multiple fibre types further complicate end-of-life sorting and processing, and there is no coordinating body to align these actors.	A provincial textile value chain coordination body, housed within an existing organization such as Divert NS or NACTR, would establish common grading standards and feedstock specifications, facilitate matchmaking between surplus producers and downstream buyers, and develop material flow tracking frameworks. Standardized reporting would also strengthen the evidence base for future EPR and stewardship design. MKT-3 Baseline Study MKT-5 Value Chain Coordination Body
Absent processing infrastructure	Nova Scotia has no industrial-scale textile sorting infrastructure, no dedicated shredding or fibre-opening equipment, and no nonwoven or insulation manufacturing capacity. Organizations cannot supply downstream recyclers or manufacturers at commercial scale because the intermediate processing steps between collection and end-use do not exist in the province.	Near-term investments in a Surplus Reuse and Sorting Hub would create the foundational infrastructure the system currently lacks. Adaptive reuse of transitioning MRF facilities offers a lower-capital entry point. A pilot-scale shredder for pre-sorted denim feedstock (est. ~\$200,000) represents the most capital-efficient first manufacturing investment. Over time, fibre identification technology and nonwoven manufacturing capacity can be added as feedstock volumes, product validation, and market relationships are confirmed. MKT-1 Surplus Reuse Hub MKT-2 Denim Insulation Pathway

Table 3: Themes from interviews and associated barriers, enabling conditions, and recommendations

Theme	Current Barrier What is limiting the system today?	Enabling Condition What would address it, and which recommendation delivers it?
Feedstock quality & consistency	Post-consumer textiles are inherently heterogeneous. The growing prevalence of blended fibres, synthetic coatings, elastane, and embedded hardware makes processing more complex and costly. Without sorting and preprocessing infrastructure to prepare feedstock to downstream specifications, Nova Scotia cannot reliably supply any recycling or manufacturing partner at commercial scale.	Focusing near-term sorting on higher-quality, more consistent streams, particularly cotton-rich materials and denim, can produce reliable, lower-contamination feedstock for initial manufacturing pilots. Manual sorting with standardized grading protocols can achieve this in the near term; investment in NIR or hyperspectral fibre identification technology would improve throughput and accuracy over time. Upstream EPR design that eco-modulates fees based on fibre simplicity and recyclability would improve stream quality at the source over the longer term. MKT-2 Denim Insulation Pathway MKT-5 Value Chain Coordination Body MKT-6 Stewardship Program
High costs & limited commercially viable pathways	The current tipping fee at HRM's Otter Lake Waste Facility is \$135.50 per tonne (HRM, 2026), and Atlantic Canadian charitable textile organizations spent an average of \$35,336 on landfill hauling and tipping in 2020, a figure that has likely since increased (<i>Genge, 2021</i>). Recovery infrastructure requires upfront investment in sorting, equipment, labour, and warehousing. Recycled feedstock must also compete with lower-cost virgin materials, making most pathways commercially unviable without policy support. When charities can no longer absorb surplus textiles, disposal costs transfer to the municipal system rather than disappear.	Government infrastructure grants, green procurement requirements for recycled textile content in public construction would close the cost gap between recovery and disposal. Landfill volumes are expected to rise making recovery infrastructure an increasingly attractive long-term investment. A mandatory product stewardship scheme is the most comprehensive mechanism, shifting costs upstream to producers and generating sustained funding for collection, sorting, and processing across the value chain. MKT-4 Green Procurement Policy MKT-6 Stewardship Program
Limited end-markets & demand uncertainty	Domestic end-use markets for recovered textile materials remain nascent in Nova Scotia and Canada. Uptake is constrained by product quality variability, price competitiveness with virgin and imported alternatives, and underdeveloped demand signals. In the absence of policy requirements, potential buyers remain cautious and investment in supply-side infrastructure is difficult to justify.	Confirmed demand for Canadian-sourced recycled denim insulation represents an immediately actionable market entry point. Government green procurement requirements for recycled textile content in insulation and the build environment more broadly would create stable, policy-backed demand without waiting for EPR. A baseline economic study quantifying the provincial opportunity would strengthen the investment case for private capital. MKT-2 Denim Insulation Pathway MKT-3 Baseline Study MKT-4 Green Procurement Policy

Table 3, continued: Themes from interviews and associated barriers, enabling conditions, and recommendations

Theme	Current Barrier What is limiting the system today?	Enabling Condition What would address it, and which recommendation delivers it?
Policy gaps	No EPR or stewardship framework exists for textiles in Canada. Recycled content mandates and dedicated procurement policies for textile-derived materials are absent at both federal and provincial levels. Without these mechanisms, the funding mechanisms and market conditions needed to support commercial-scale textile recycling are unlikely to emerge organically. Policy development is not a background consideration, it is a precondition for the long-term viability of most pathways identified in this report.	Nova Scotia should position itself as an active participant in national textile policy development through engagement with ECCC's Zero Plastic Waste agenda and coordination with other provinces. Domestically, near-term mechanisms like infrastructure grants, green procurement requirements, and a provincial textile coordination body can begin shifting the economics of recovery without waiting for federal EPR. Advocacy for EPR design that protects and builds on existing reuse infrastructure, rather than displacing it, is equally important. MKT-4 Green Procurement Policy MKT-5 Value Chain Coordination Body MKT-6 Stewardship Program
Export market instability	Nova Scotia's textile recovery system remains heavily dependent on export and wholesale markets that are rupturing. Declining commodity prices, geopolitical disruptions, rising shipping costs, and tightening import restrictions in receiving countries mean that many charitable organizations can no longer find buyers for surplus textiles that previously moved out of their facilities at no cost, resulting in growing storage backlogs and rising disposal costs.	Developing domestic end-use pathways, beginning with a Surplus Reuse and Sorting Hub and denim insulation pilot, would reduce dependence on export channels over time by creating alternative outlets for surplus and unwearable textiles within Nova Scotia and Canada. Export markets should be maintained as a transitional channel while domestic alternatives are built, and bale quality improvements would maximize per-pound returns in the interim. Regional feedstock aggregation across Atlantic Canada would increase the scale and reliability of domestic supply chains, making them more attractive to domestic manufacturers than small-volume provincial streams alone. MKT-1 Surplus Reuse Hub MKT-2 Denim Insulation Pathway
Donation quality & public behaviour	High rates of contaminated, damaged, or non-resalable material enter donation streams, increasing sorting burden and disposal costs. Misclassification of wearable and unwearable items affects both reuse and recycling streams, and differing organizational standards make system-wide coordination difficult. For more detail, see the TTNS Phase II Waste Characterization Study and Donation Etiquette Analysis.	Donor education campaigns aligned with common messaging across charitable organizations can reduce contamination and improve the proportion of material suitable for resale or recycling. A centralized Surplus Reuse and Sorting Hub with standardized intake protocols would help regularize grading and reduce textiles sent to landfill across organizations. Upstream EPR policy that incentivizes producers to improve garment durability and simplify fibre constructions would reduce the volume of low-quality material entering the stream over time. MKT-1 Surplus Reuse Hub MKT-6 Stewardship Program

Table 3, continued: Themes from interviews and associated barriers, enabling conditions, and recommendations

6.0 Recommendations

The recommendations that follow are identified with the prefix “**MKT**” to distinguish them from recommendations presented in the other TTNS Phase II deliverables.

Master Recommendation Key

Waste Characterization Study
MAT = Material

Donation Etiquette Analysis
BEH = Behaviour

End-Use Pathways Brief
MKT = Market



Recommendation Summary

HIGH PRIORITY

- MKT-1

Establish a provincial textile aggregation, reuse, and sorting hub
Prioritizing a hub could reduce storage and disposal costs while creating consistent supply streams.
- MKT-2

Develop a denim recovery and insulation manufacturing pathway in two stages
Establishing capacity could validate viability and profitability.
- MKT-3

Commission a provincial textile capacity and economic baseline study
Quantifying collection volumes and disposal costs could create a defensible basis for investment.

MEDIUM PRIORITY

- MKT-4

Develop a provincial green procurement policy for recycled textile content in the built environment
Establishing minimum recycled textile content thresholds could signal demand.
- MKT-5

Establish a textile value chain coordination body and standardized data
Defining common standards could facilitate stronger supply relationships and frameworks.
- MKT-6

Advocate and prepare for a mandatory provincial textile stewardship program
Preparing for EPR textile waste reduction goals could position NS to participate effectively.

MKT-1 Establish a Provincial Textile Aggregation, Reuse, and Sorting Hub

Priority: High ▲

Audience: Bioeconomy incubators and accelerators; Provincial government; NACTR; Thrift retailers

Nova Scotia's charitable and independent thrift retailers are currently unable to move surplus inventory, generating accumulating storage costs and increasing landfill disposal, a crisis that cannot wait for recycling infrastructure to mature. A centralized reuse and sorting hub addresses this immediate operational pressure while simultaneously creating the aggregation function every downstream recycling and manufacturing pathway in this report depends on.

Evidence from TTNS

- Charitable retailers and thrift operators across the province are currently unable to move surplus inventory, generating accumulating storage costs and increasing landfill disposal.
- No existing facility performs the basic sorting and baling functions needed to create consistent feedstock streams for near-term recovery pathways.
- Every downstream recycling and manufacturing pathway identified in this research depends on a functioning aggregation point.
- Adaptive reuse of transitioning Materials Recovery Facilities (MRFs) was identified as a potentially lower-cost infrastructure option.

Recommended Actions:

- Commission a feasibility study and site assessment for the hub model.
- Engage The Salvation Army Thrift Store, NACTR member organizations, and other charitable and for-profit retailers as anchor partners.
- Explore adaptive reuse of transitioning MRF facilities as a lower-cost infrastructure option.
- Conduct a logistics assessment and develop a sustainable operating model that does not depend on continued commodity price recovery.
- Prioritize garment life extension through outlet and pay-by-the-pound retail formats before directing material to downstream sorting and wholesale.

Expected Outcomes:

- Reduced accumulating storage costs and landfill disposal for charitable and independent retailers.
- A functioning aggregation and baling function supplying consistent feedstock to downstream pathways.
- Extended garment life through additional retail channels before material moves downstream.

MKT-2 Develop a Denim Recovery and Insulation Manufacturing Pathway in Two Stages**Priority:** High ▲**Audience:** Provincial government; Manufacturers; Entrepreneurs; Bioeconomy incubators and accelerators; NACTR

A phased approach lets Nova Scotia validate feedstock quality and commercial demand for denim recycling before committing to capital-intensive manufacturing, reducing investment risk while generating early revenue and the material knowledge needed to design a viable in-province insulation product.

Evidence from TTNS

- A pilot-scale single-rotor shredder suitable for pre-sorted denim feedstock represents an estimated capital investment of approximately \$200,000, the most capital-efficient manufacturing entry point identified in this research.
- A current commercial buyer of denim insulation has confirmed active demand for Canadian-sourced recycled denim insulation and has expressed willingness to source domestically.
- This buyer currently incurs unnecessary logistics costs returning offcuts to its US supplier – costs that a domestic supply chain would reduce.
- Existing North American denim insulation manufacturers, including potentially Jashtex and BluePoint, could serve as Stage 1 buyers for specified denim shred.

Recommended Actions:

- Establish denim collection, sorting, and shredding capacity within or adjacent to the Reuse and Sorting Hub (MKT-1).
- Supply specified denim shred of known fibre composition and acceptable elastane content to existing North American insulation manufacturers.
- Pursue a funded Stage 2 pilot with Vestechpro or a similar contract R&D firm to validate product performance, certification requirements, and market pricing.
- Design the Stage 2 pilot in collaboration with the confirmed commercial buyer identified through this research.
- Assess Scientific Research and Experimental Development (SR&ED) tax credit eligibility for Stage 2 product development, and build a business case comparing domestic production costs against the current US supply chain.

Expected Outcomes:

- Early revenue generation that offsets collection and sorting costs.
- Validated feedstock quality and commercial attractiveness ahead of product development investment.
- Established commercial viability of denim insulation manufacturing, supporting future private investment in Nova Scotia.
- A replicable model for broader nonwoven textile applications as the system matures.

MKT-3 Commission a Provincial Textile Capacity and Economic Baseline Study**Priority:** High ▲**Audience:** Provincial government; NACTR; Divert NS; Researchers

Investment decisions in textile recovery cannot be reliably sized, justified, or sequenced without foundational data on what Nova Scotia's system currently handles and is capable of handling. This is simultaneously a research gap and a policy gap: without it, government cannot evaluate infrastructure proposals, funders cannot assess return on investment, and manufacturers cannot assess feedstock supply reliability.

Evidence from TTNS

- No systematic inventory of collection volumes, processing capacity, or disposal costs currently exists at the provincial level.
- The AFTeR Impact Report (*Genge, 2021*) provides a partial baseline for employment and diversion from 2020 but requires updating and expansion to reflect current conditions and a broader set of organizations.
- Government, funders, and manufacturers each currently lack the data needed to evaluate infrastructure proposals, return on investment, and feedstock supply reliability.

Recommended Actions:

- Quantify collection volumes by organization, including both for-profit and non-profit where possible, and map key material flows between value chain stages.
- Quantify disposal costs incurred by collectors, thrift retailers, and wholesalers, and the economic activity currently generated by the reuse sector.
- Model the economic and employment impacts of the investment scenarios in this report, including job creation, avoided disposal costs, landfill diversion value, and manufacturing output.
- Partner with NACTR, Divert NS, municipal waste authorities, and post-secondary research partners.
- Align the study's methodology with the **TTNS Phase II Waste Characterization** methodology and supporting work, and publicly release findings.

Expected Outcomes:

- A defensible, quantified baseline for sizing and sequencing future textile recovery investment.
- Government, funders, and manufacturers each equipped with the data needed to evaluate proposals and supply reliability.
- An updated, expanded successor to the AFTeR Impact Report reflecting current provincial conditions.

MKT-4 **Develop a Provincial Green Procurement Policy for Recycled Textile Content in the Built Environment**

Priority: Medium ▲

Audience: Federal and provincial government

Government procurement is one of the most powerful and immediately available demand-side levers available to Nova Scotia. Requiring recycled textile content in government purchases of insulation would directly address the barrier stakeholders cited most frequently: the absence of reliable downstream demand that would justify investment in sorting, processing, and manufacturing infrastructure.

Evidence from TTNS

- Stakeholder interviews conducted for this research most frequently cited the absence of reliable downstream demand as the barrier to investment in sorting, processing, and manufacturing infrastructure.
- Government purchases of thermal and acoustic insulation represent a demand channel that the province directly controls.
- A domestic denim insulation supply chain, supported by this kind of demand signal, is already sought by a confirmed commercial buyer (see **MKT-2**).

Recommended Actions:

- Establish minimum recycled textile content thresholds for insulation products used in government-funded construction and retrofit projects.
- Phase implementation timelines to allow domestic supply capacity to develop before compliance is required.
- Build clear verification and reporting mechanisms, and explicitly recognize Canadian-sourced recycled textile content to support regional industry development.

Expected Outcomes:

- A stable, predictable demand signal for recycled textile content in the built environment.
- A meaningfully changed investment calculus for domestic manufacturers and recyclers.
- Increased viability of in-province denim insulation manufacturing (see **MKT-2**).

MKT-5 Establish a Textile Value Chain Coordination Body and Standardized Data

Priority: Medium ▲

Audience: Divert NS; NACTR; Active industry partners

Nova Scotia's textile recovery system is fragmented in a way that infrastructure investment alone cannot resolve. A coordination function is needed to set common standards, facilitate information exchange, and build the trust and data transparency required for supply relationships between surplus producers and downstream processors to form and persist.

Evidence from TTNS

- No common grading and sorting standards currently exist for donated and surplus textiles across the provincial system.
- No provincial textile material flow tracking framework currently exists that is aligned with other stewardship reporting systems.
- Public reporting on textile volumes placed on the market, diverted through reuse, and disposed of to landfill would strengthen accountability and support future investment cases, but does not currently exist in a standardized form.

Recommended Actions:

- Establish the coordination function within an existing organization, such as Divert NS, NACTR, or another multi-stakeholder textile working group, rather than a new standalone body.
- Establish common grading and sorting standards for donated and surplus textiles.
- Develop a provincial textile material flow tracking framework aligned with Divert NS or other stewardship body reporting systems.
- Facilitate matchmaking between surplus textile producers and downstream processors.
- Prepare the provincial system for participation in future national EPR and stewardship frameworks.

Expected Outcomes:

- Common grading and sorting standards adopted across the provincial system.
- Stronger supply relationships between surplus producers and downstream processors.
- A provincial system prepared to participate in future national EPR and stewardship frameworks.

MKT-6 Advocate for and Prepare for a Mandatory Provincial Textile Stewardship Program

Priority: Medium ▲

Audience: Federal and provincial government

The long-term viability of most pathways identified in this report depends on shifting the cost of end-of-life textile management upstream to producers and brands. Positioning Nova Scotia as an active, prepared participant in textile stewardship policy now ensures the province can implement a framework immediately and effectively once one becomes viable, rather than starting from scratch.

Evidence from TTNS

- The long-term viability of most pathways identified in this report depends on policy mechanisms that shift end-of-life management costs upstream to producers and brands.
- Other provinces are already exploring stewardship mechanisms, including Ontario's Bill 90 (*McMahon, 2025*).
- Environment and Climate Change Canada's Zero Plastic Waste agenda provides an existing federal engagement channel for textile stewardship policy.

Recommended Actions:

- Actively participate in federal textile policy consultations, including engagement with ECCC's Zero Plastic Waste agenda.
- Assess the feasibility of an Atlantic textile stewardship pilot in partnership with New Brunswick, Prince Edward Island, and Newfoundland.
- Integrate textile EPR readiness and textile waste reduction goals into Nova Scotia's existing sustainability goals.
- Advocate for EPR design that protects and builds on existing textile reuse infrastructure rather than displacing it.
- Develop the data frameworks, coordination capacity, and pilot infrastructure described in **MKT-1 through 5** ahead of framework implementation.

Expected Outcomes:

- A sustainable funding mechanism for collection, sorting, and recycling infrastructure at scale.
- Nova Scotia positioned to participate immediately and effectively once a stewardship framework is implemented.
- Upstream design improvements, including simpler monofibre construction, safer chemical inputs, and material traceability, driven by producer obligations.

6.1 Limitations

Several limitations should be considered when interpreting the findings of this report.

Textile markets are dynamic and may shift in response to changes in commodity prices, trade policies, transportation costs, consumer demand, and regulatory requirements. The market conditions, opportunities, and constraints identified here may therefore evolve over time.

While interviews were conducted with a diverse range of stakeholders from across the textile value chain, the findings necessarily reflect the perspectives and experiences of participating organizations.

Representation from end-market purchasers was particularly limited, as many organizations considered customer relationships and purchasing arrangements to be commercially sensitive.

Although recurring themes were corroborated across multiple interviews and desktop research, the results may not capture all viewpoints within the sector.

A significant limitation of this report is the absence of Nova Scotia-specific data needed to support meaningful economic modelling. System-wide tonnage data, organizational disposal costs, and processing volumes are not collected or reported consistently at the provincial level. As a result, this report does not include projections of job creation, landfill diversion value, or manufacturing output associated with the investments it recommends. Any such estimates would have required assumptions and extrapolations of a scale that would undermine their reliability. Commissioning the baseline study recommended in Recommendation **MKT-3** is the necessary precondition for this kind of modelling.

Finally, the pathway assessments are intended to identify promising areas for future investment rather than provide detailed implementation plans. Cost estimates for equipment, infrastructure, and processing systems should be interpreted as indicative ranges only, as actual costs will vary depending on scale, technology selection, facility requirements, location, and market conditions. Further feasibility studies, pilot projects, and business case development would be required before any specific investment is made.



Limitations and Mitigations Summary

Textile markets are dynamic and may evolve over time

Continuing studies will be necessary to reflect the status quo as it shifts.

Interview findings reflect the perspectives and experiences of participants

Interviews were conducted with a diverse range of stakeholders, but findings are necessarily subjective.

Representation from end-market purchasers was limited

Incentives may be required for organizations to provide information they consider commercially sensitive.

Results may not capture all viewpoints within the sector

Future studies should continue to capture as many diverse perspectives as possible.

Nova Scotia-specific data is limited

Commissioning the baseline study recommended in MKT-3 is the necessary precondition for this modelling.

Pathway assessments are not intended to provide detailed implementation plans

Further feasibility studies, pilot projects, and business case developments would provide more information.

7.0 Conclusion

Nova Scotia has reached a critical point in the management of post-consumer textiles. The downstream disruption affecting charitable retailers demonstrates that the province's long-standing reliance on export markets is increasingly unstable and insufficient. At the same time, this research shows that much of the material accumulating in storage areas and landfills retain significant value. Some garments remain suitable for reuse, while others could serve as feedstock for insulation, nonwovens, soil amendments, and other domestic applications.

Capturing this value will require coordinated investment in collection, sorting, preprocessing, manufacturing capacity, market development, and supportive policy frameworks. Nova Scotia already has established collection and reuse networks, research expertise, available policy tools, and confirmed interest from potential end users. The next step is to translate these assets into an integrated textile recovery system. The recommendations presented in this report provide a foundation for sustained collaboration, investment, and implementation.



This project was undertaken with the financial support of:
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Environment and
Climate Change Canada

Environnement et
Changement climatique Canada



Textile Transformation Nova Scotia Phase II

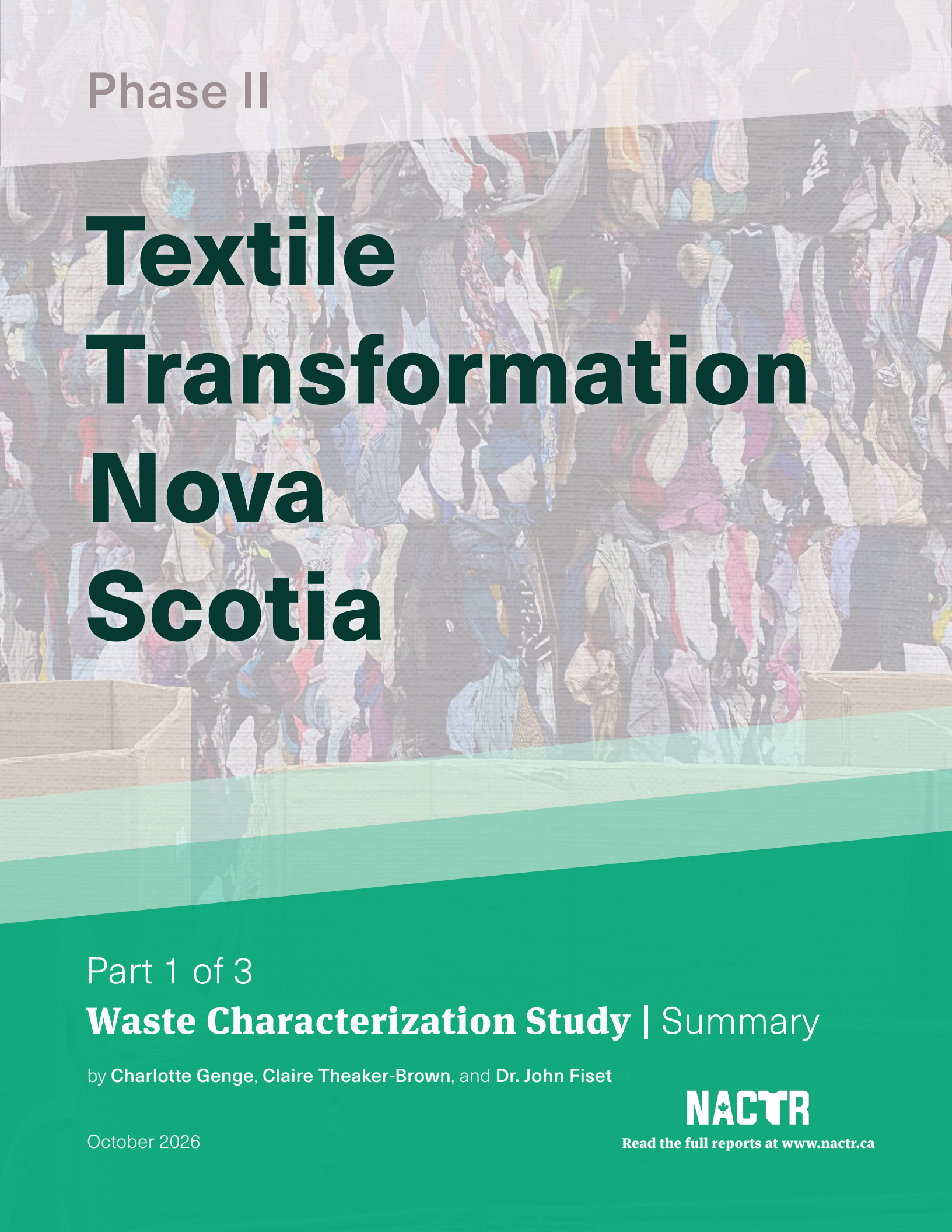
0 Master Report

1 Waste Characterization Study

2 Donation Etiquette Analysis

3 End-Use Pathways Brief

To read all reports, visit www.nactr.ca



Phase II

Textile Transformation Nova Scotia

Part 1 of 3

Waste Characterization Study | Summary

by Charlotte Genge, Claire Theaker-Brown, and Dr. John Fiset

October 2026

NACTR

Read the full reports at www.nactr.ca

What is being donated?

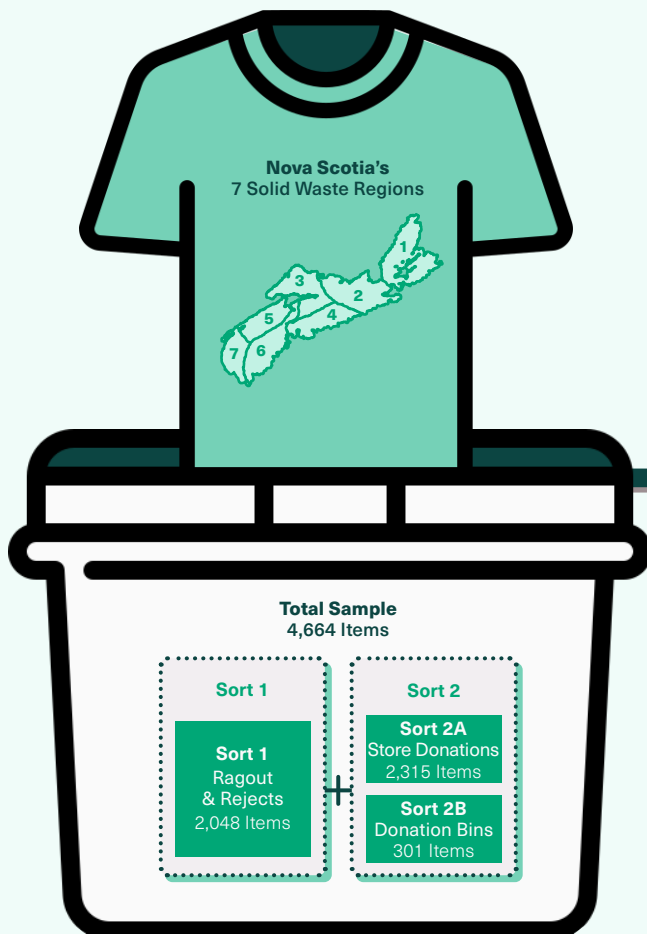
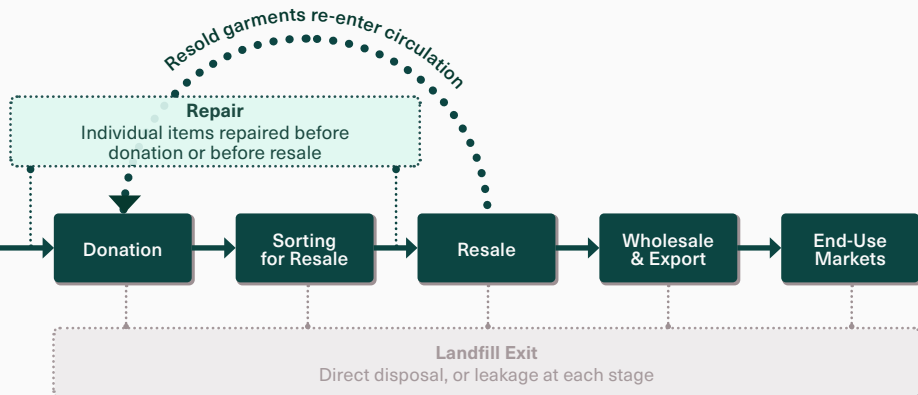
WHAT IS ENTERING AND EXITING NOVA SCOTIA'S TEXTILE REUSE STREAM?

KEY BACKGROUND INFORMATION Nova Scotia's Collection and Reuse Stream

What is Textile Waste?

Textile waste is **clothing or other fabric items that are no longer wanted** and ready to be discarded by their owner.

This includes textiles that can be resold, repaired, repurposed, or recycled, but also some items that have reached the end of their usefulness and must be disposed of or destroyed.

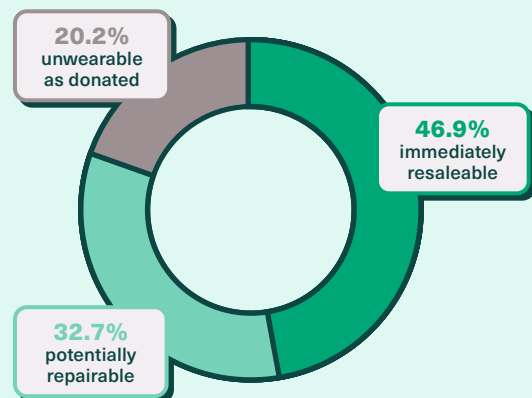


What Went In?

The study sampled **4,664 items** from Nova Scotia's seven solid waste management regions, consisting of:

- **2,048 Ragout & Reject Items**
Items deemed unsuitable for retail, or removed from retail after failing to sell.
- **2,315 Store-Based Donation Items**
Items not yet sorted at store level.
- **301 Community Donation Bin Items**
Items left in unattended bins in the Halifax Regional Municipality.

What Came Out?



Which brands did we see?

A SMALL CIRCLE OF COMPANIES WITH A LARGE SHARE OF ITEMS

TOP 25 PARENT COMPANIES

The Biggest Players Account for a Disproportionate Share of Donated Items

What does this mean?

While 1,181 brands were identified, 2/3 of them only appeared once. The top 25 companies could be traced to over 1/3 of the donated items.

This means that the largest producers have the potential to greatly affect the textile waste stream:

- what materials are used
- how textiles are constructed
- overall quality and longevity of items

34.1%

of 4,664 total items

5.9%

of 1,181 distinct brands

How We Conducted the Study

The study categorized each item to determine what kinds of textiles are most commonly being donated.



Step 1 Classifying & Brand ID

- Clothes were sorted by **retail sections**, **item categories**, and **subtypes**
- The most common were women's wear, tops, and T-shirts, respectively
- 78.3% of items had an identifiable brand, with smaller items like socks being the most commonly unbranded



Step 2 Condition Grading

- Clothes were graded on a scale of A-F
- A-C are immediately **resaleable**
- D1 and D2 are **repairable**
- E can be **recycled**, F is end of life



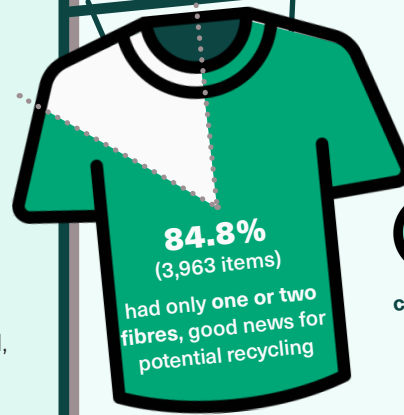
Step 3 Construction

- It was determined if the textiles were **woven**, **knit**, or **nonwoven**
- Also if the items had **1, 2, or 3+ layers**
- Both facets can affect recyclability

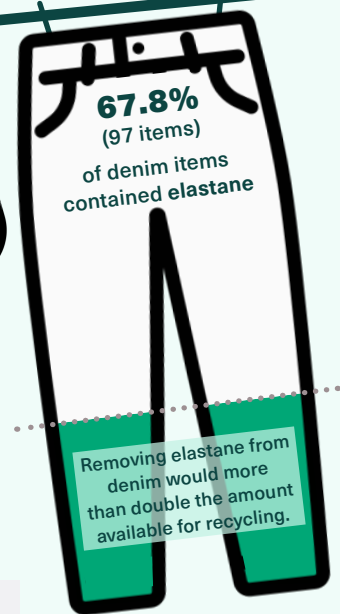


Step 4 Fibre Identification

- Fibres were determined as **natural**, **processed cellulosic**, or **synthetic**
- Textiles were identified as **blends** or **monofibres**, and if blends how many different fibre types were involved



cotton and polyester each make up **35.8%** of the overall fibre content



Top 5 Parent Companies

Gap Inc.
4 brands, 251 items

Walmart Inc.
9 brands, 246 items

Loblaw Companies Ltd.
1 brand, 119 items

H&M Group
2 brands, 85 items

Giant Tiger Stores Ltd.
7 brands, 79 items

At the individual-brand level:

George (195 items),
Old Navy (156 items), and
Joe Fresh (119 items)
were the three most frequently observed brands.

What should we do about our textile waste?

CALLS TO ACTION AND RECOMMENDATIONS

EVERYONE CAN HELP

There are Opportunities to Improve the Waste Stream at Every Level

Donors

can clean, sort, and donate thoughtfully – many issues that cause items to be rejected are preventable, not inevitable

Policy Makers

can focus on EPR or other stewardship policy, addressing a large share of the problem by engaging a relatively small number of companies

The Sector

can harness the untapped value of the donation stream by investing in repair, sorting, and recovery infrastructure

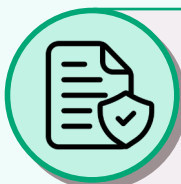
Producers

can improve recyclability through design choices – what fibres are used and how textiles are constructed

Key Recommendations



Engage the concentrated parent companies identified in this study as the foundation for producer accountability and closing the stewardship infrastructure gaps their concentration reveals. (MAT-1, MAT-2)



Formally include textiles in provincial and municipal waste strategies and audits, using a definition harmonized with NACTR and other Canadian jurisdictions. (MAT-3)



Explore procurement mandates and consumer incentives, such as recycled-content purchasing requirements and sales tax exemptions on used textiles, as near-term demand-side levers. (MAT-4, MAT-5)



Explore methods of extending wearable garment lifetimes by considering repair subsidies and eco-modulated producer fees that reward circularity-enabling product design. (MAT-6, MAT-8)



Improve fibre-content transparency through standardized labelling and digital product information to support fibre-specific recycling. (MAT-7)



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Environment and
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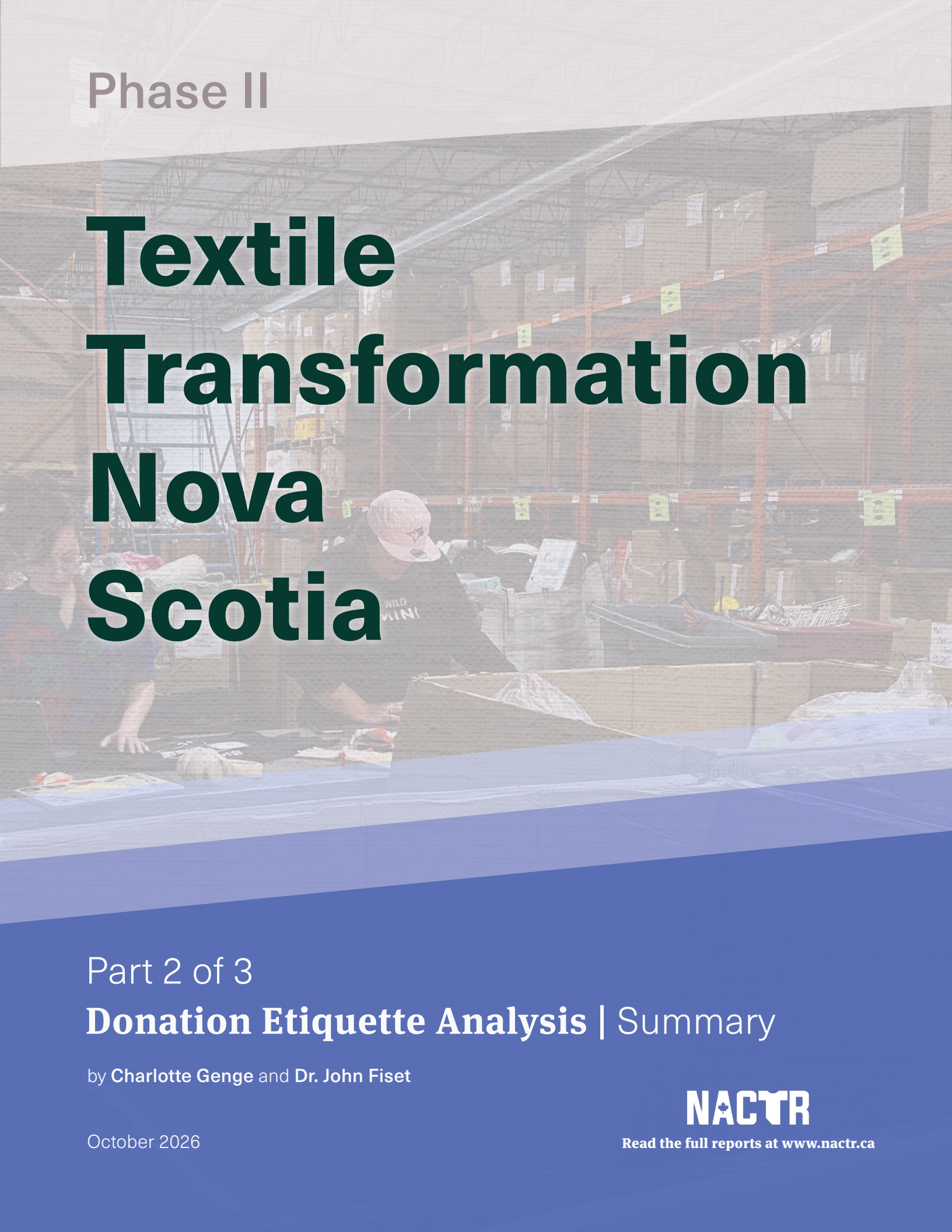
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Textile Transformation Nova Scotia Phase II | Summaries

- 1 Waste Characterization Study**
- 2 Donation Etiquette Analysis
- 3 End-Use Pathways Brief

To read the full reports, visit www.nactr.ca



Phase II

Textile Transformation Nova Scotia

Part 2 of 3

Donation Etiquette Analysis | Summary

by Charlotte Genge and Dr. John Fiset

October 2026

NACTR

Read the full reports at www.nactr.ca

Why do people donate clothes?

HOW DO DONATION BEHAVIOURS CONTRIBUTE TO PREVENTABLE TEXTILE WASTE?

KEY BACKGROUND INFORMATION

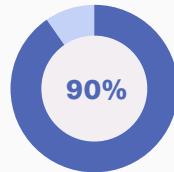
Demographics of Textile Donors

Who responded to the survey?

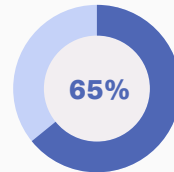
1,607 people recruited nationally completed the survey – 97.9% of them have donated textiles before, and 93.6% shopped at a thrift store in the past year. **This demonstrates there is an engaged audience of individuals familiar with thrift retail.**

Provinces of residence:

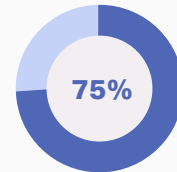
- **Nova Scotia:**
41% (658 surveys)
- **Alberta:**
20% (315 surveys)
- **Ontario:**
17% (274 surveys)
- **Other Provinces & Territories:**
22% (360 surveys)



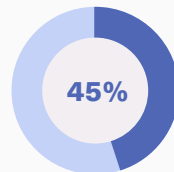
of respondents identified as women



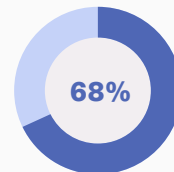
of respondents were aged 45 or older



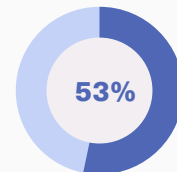
have some post-secondary credential



of respondents report income above \$90,000



live within 5 km of a donation location



willing to travel more than 11 km to donate

Intentions

The survey found that the top three things people consider important when donating textiles are **good physical condition, cleanliness, and usability.**

We also asked people to rank their motivations for donating textiles, looking at **intrinsic** and **extrinsic** factors.

The findings were consistent with the stated intentions: **people want to do the right thing.**

vs. Reality

The waste characterization data reveals a gap between what people say they do and the quality of what organizations actually receive.

19.4%

were unwearable without minor interventions like cleaning or small repairs

31.5%

had at least one minor, donor-preventable issue

33.6%

were unwearable – in need of major repairs, end of life, or contaminated

Motivations

...to reduce environmental impact.

...because I believe it's the right thing to do.

...to help people in need

...because I want to support charitable causes.

...I feel guilty putting items in the trash.

...because donating is socially expected or encouraged.

...to declutter my home.

...it is the easiest or most convenient way to get rid of unwanted items.

...I am already visiting a thrift store to shop.

...because of incentives like discounts or tax benefits.

INTRINSIC

EXTRINSIC

What is good donation etiquette?

HOW CAN DONOR BEHAVIOUR EXTEND THE LIFE OF TEXTILES?

STUDY METHODOLOGY AT A GLANCE

The Integrated Analysis of Synthesized Data from Three Areas



Four Dimensions of Donation Etiquette

1

Ensuring Donated Items are Suitable for Reuse

Making sure donations are clean and useable.



Do make sure what you donate is in good condition, and make small repairs if you can



Don't leave items unattended outside where they can become wet or damaged

2

Exercising Responsible Donor Judgement

Being intentional about what is donated where.



Do give thought to wear you donate, and contact them with questions if needed



Don't drop off items without being sure that your donation can be accepted

3

Considering Recipient Needs and Preferences

Donating items that people need and want.



Do consider quality, style, and seasonality when you donate



Don't donate items that have reached the end of their life cycle

4

Facilitating Efficient Donation Processing

Considering sorting and preparation systems.



Do clean and fold your clothes before donating, and double check pockets



Don't overload bags or mix textiles in with other items that could contaminate them

How can we positively influence behaviour?

CALLS TO ACTION AND RECOMMENDATIONS

SMALL CHANGES CAN MAKE A BIG DIFFERENCE

Many of the Most Common Defects are Preventable by Donors



Wash /
Launder



Pet Hair



Pilling

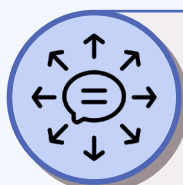


Wrinkles



Small
Repairs

Key Recommendations



Deliver a coordinated, province-wide donation etiquette campaign with consistent messaging.
(BEH-1, BEH-6)



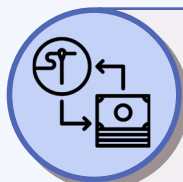
Support future Extended Producer Responsibility policy through public education that reinforces shared responsibility across consumers, charities, and producers.
(BEH-2)



Use community collection events and partnerships with schools, libraries, and municipalities to reinforce best practices over time.
(BEH-3)



Build standardized sector data and reporting on disposal volumes, rejection rates, and downstream losses to track progress and strengthen the case for change.
(BEH-4)



Explore repair-to-resale infrastructure for items in need of a minor repair as a complementary, sector-level investment.
(BEH-5)



Expand public education on what happens to donated textiles, and the impact of better donation etiquette, to close the post-donation knowledge gap.
(BEH-7)



Reform donation bin practices through clearer signage and an enforced Code of Conduct to help reduce the quality gap between donation bins and donations received at staffed donation centres.
(BEH-8)



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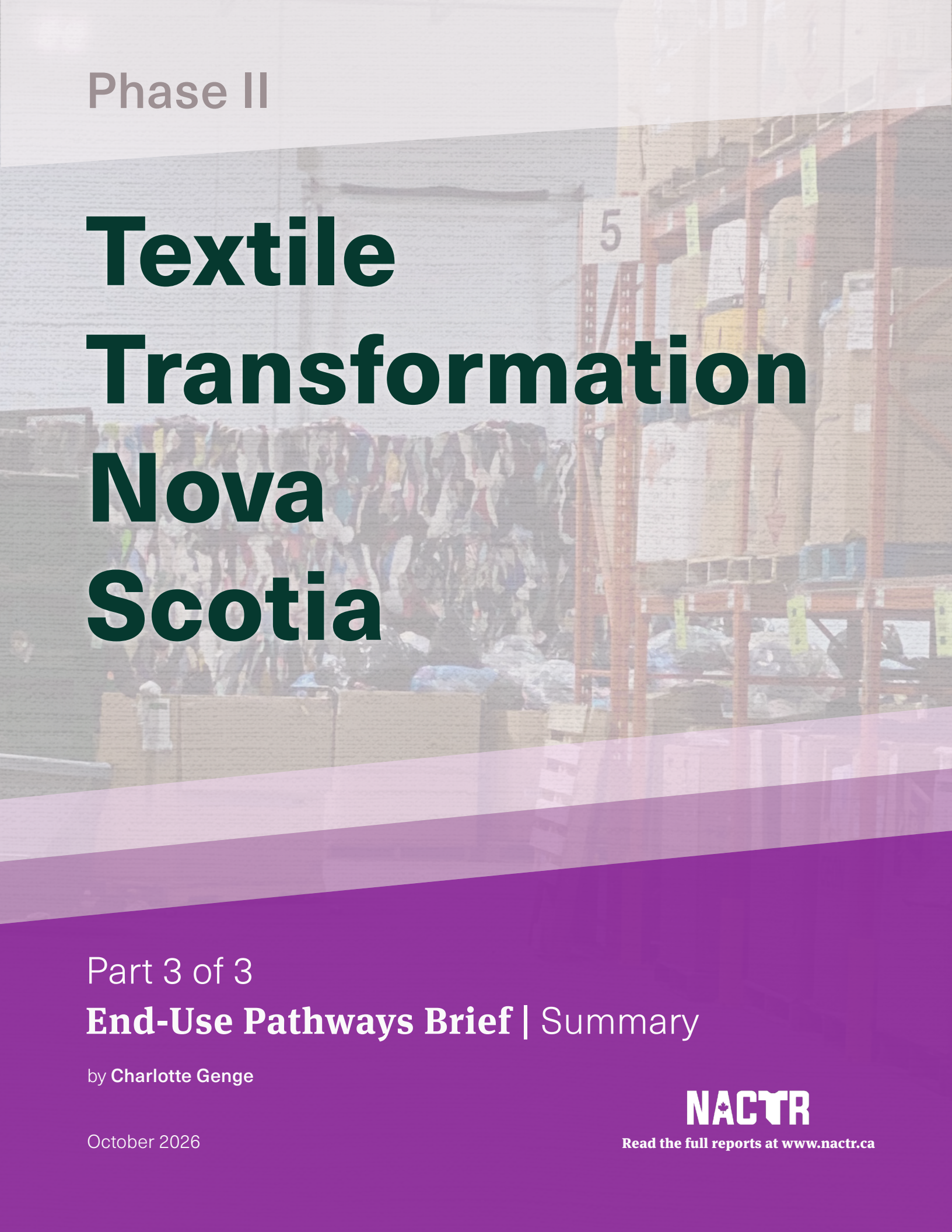
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Textile Transformation Nova Scotia Phase II | Summaries

- 1 Waste Characterization Study
- 2 Donation Etiquette Analysis**
- 3 End-Use Pathways Brief

To read the full reports, visit www.nactr.ca



Phase II

Textile Transformation Nova Scotia

Part 3 of 3

End-Use Pathways Brief | Summary

by Charlotte Genge

October 2026

NACTR

Read the full reports at www.nactr.ca

What should we do next?

WHERE SHOULD NOVA SCOTIA INVEST TO MAXIMIZE TEXTILE LANDFILL DIVERSION?

KEY BACKGROUND INFORMATION

The Time for Action is Now

A downstream rupture is underway across Nova Scotia: collection channels that previously moved surplus out of thrift stores have disappeared, and organizations have nowhere to send the overflow.



The landfill tipping fee is \$135.50 per tonne in HRM

a growing cost for charities to bear, but cheaper than other options, making landfill the current default.

Halifax Regional Municipality, 2026



Textile waste is nearly 1/5 of NS's landfill composition

at 18% and rising, a dramatic increase from a decade ago.

Divert NS, 2023



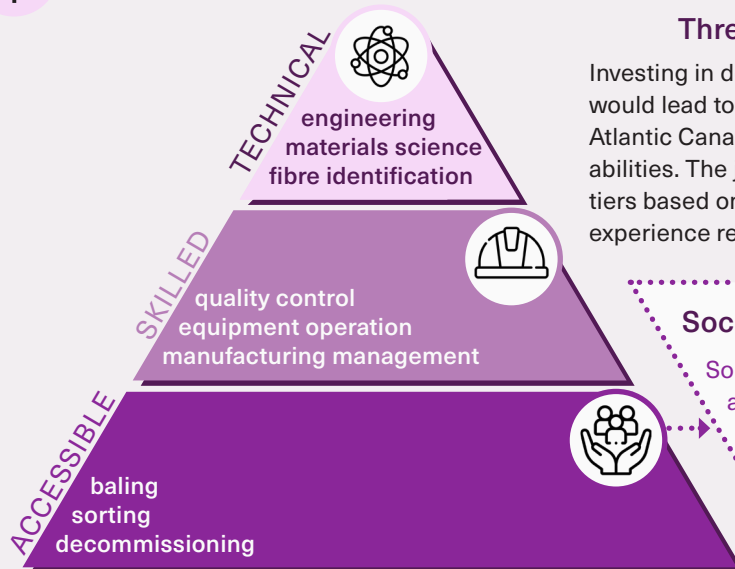
Export markets are deteriorating

due to factors like geopolitical disruption and tighter import restrictions, causing a backlog.

Hussain et al., 2025; Shah, 2026



The Economic Case



Three Tiers of Job Creation

Investing in domestic sorting and recycling infrastructure would lead to the creation of essential new jobs for many Atlantic Canadians spanning a wide range of skills and abilities. The job paths can be categorized into three tiers based on the level of pre-existing knowledge or experience required: **accessible, skilled, and technical.**

Social Enterprise Potential

Sorting and decommissioning roles are well-suited to supported employment programs.

Nova Scotia's social enterprise ecosystem network could be integrated from the outset.

~100.6

average jobs per AFTeR member organization in Nova Scotia in 2020 – without any dedicated recycling infrastructure.

Genge, C., 2021

\$1.43M

average annual wages per AFTeR member organization across Atlantic Canada in 2020.

Genge, C., 2021

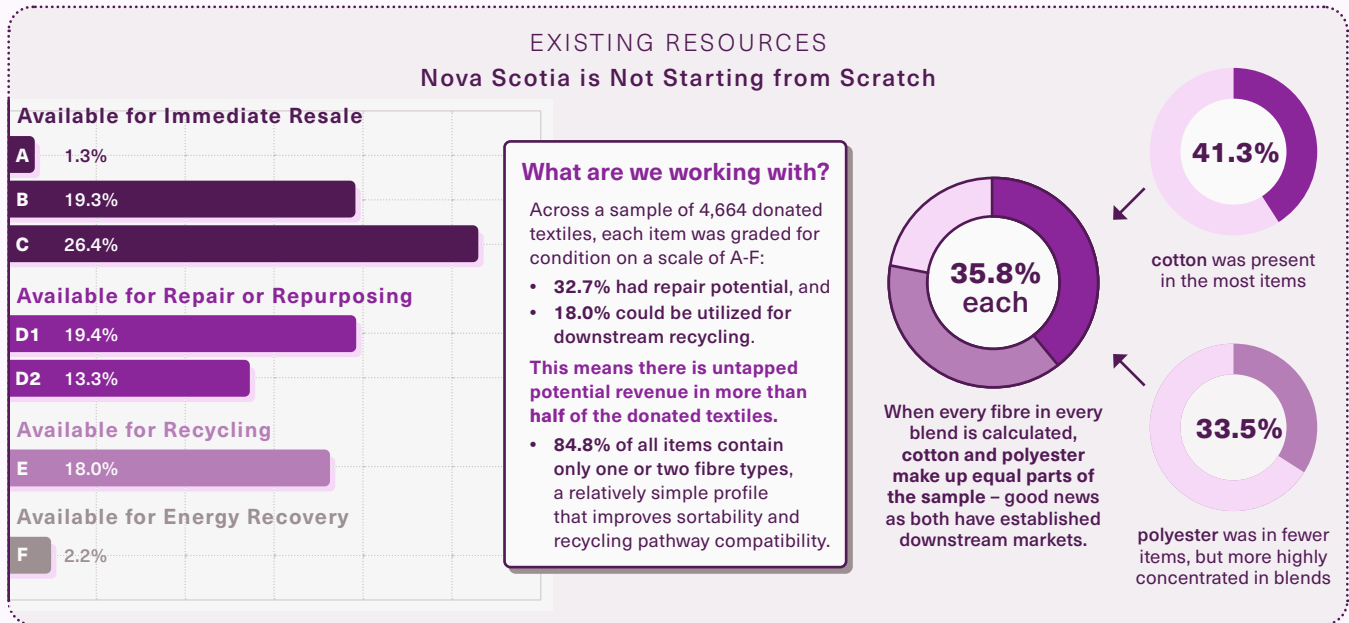
\$3.2B

projected value (CAD) of Canada's insulation market by 2033, supporting the near-term market case for denim insulation.

Grand View Research, 2025

What are the opportunities?

DEFINING THE POTENTIAL ALTERNATIVE PATHWAYS FOR TEXTILE WASTE



The Pathways

Nine end-use pathways were identified and assessed across six dimensions: **feedstock fit, capital cost, job creation, market demand, diversion potential, and implementation readiness.**



OPP-1 Surplus Reuse Hub: Centralized sorting, aggregation, and redistribution of surplus textiles – the essential first node.

OPP-2 Industrial Rags: Cotton-rich textiles sorted into wiping cloths for industrial use – already active in NS.

OPP-3 Technology-Enabled Sorting & Preprocessing: Shared infrastructure to prepare consistent feedstock for all downstream markets.

OPP-4 Recycled Denim Insulation: Mechanical processing of denim into acoustic/thermal insulation – confirmed buyer interest from a Canadian manufacturer of internal wall systems.

OPP-5 Nonwoven Manufacturing: Materials for automotive, construction, appliance, and furniture applications; estimated \$8-10M capital investment.

OPP-6 Textile-to-Textile Recycling | Mechanical: Sorted fibres respun into new yarns; high feedstock requirements – NS role near-term is aggregation and preprocessing.

OPP-7 Environmental Applications: Textile shred as pavement or soil reinforcement additive; char as soil amendment – early-stage but promising for blended streams.

OPP-8 Textile-to-Textile Recycling | Chemical: Chemical depolymerization into virgin-equivalent fibre; requires 60,000 tonnes annually – NS role is feedstock aggregation for external hubs.

OPP-9 Process Engineered Fuel | Residual Only: Energy recovery for contaminated or unrecyclable residuals – local demand unconfirmed; last resort only.

Where should Nova Scotia invest first?

CALLS TO ACTION AND RECOMMENDATIONS

INFRASTRUCTURE, POLICY, AND INVESTMENT WILL SET THINGS IN MOTION

The Material Exists and is Ready for the Next Steps

Governments & Funders

With collection networks, research partnerships, and confirmed market interest already in place, Nova Scotia is ready for investment.

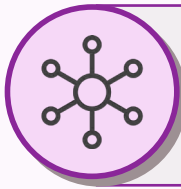
A surplus reuse hub and a denim insulation pilot are actionable now.

Industry & Investors

The feedstock is already here, and we know what kind of sorting and processing infrastructure is needed to utilize it.

A confirmed buyer is waiting for a Canadian supply chain.

Key Recommendations



Establish a provincial Reuse and Sorting Hub as the first-priority investment.
(MKT-1)



Launch a staged denim-to-insulation R&D initiative and pilot, supported by confirmed market demand.
(MKT-2)



Commission a provincial textile capacity and economic baseline study to support future investment decisions.
(MKT-3)



Introduce a green procurement policy that creates reliable domestic demand for recycled textile content.
(MKT-4)



Establish a textile value chain coordination body to set common grading standards, feedstock specifications, and matchmaking between producers and processors.
(MKT-5)



Advocate for and prepare for a mandatory provincial textile stewardship program, building the data and infrastructure above ahead of a future EPR framework.
(MKT-6)



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