

CENTRAL OHIO

Textile & Fashion Waste Report



OCTOBER 2023

PREPARED BY
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PREPARED FOR
Solid Waste Authority of Central Ohio (SWACO) & The Columbus Fashion Alliance (CFA)

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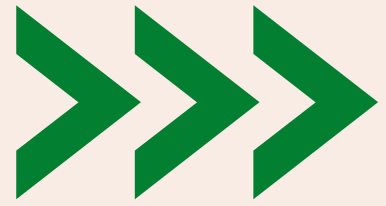
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About this Report



The Columbus Fashion Alliance commissioned Mive Labs to conduct region-wide research on the state of textile waste in Central Ohio. The Columbus Textile and Fashion Waste Report was funded by SWACO's Community Waste Reduction Grant and was conducted from June 2022 to July 2023.

SWACO

SWACO (The Solid Waste Authority of Central Ohio) serves the Franklin County region by providing environmentally sustainable solutions for managing solid waste. SWACO is one of 52 solid waste districts created by the Ohio General Assembly in 1989. These districts were established with the mission of ensuring adequate landfill capacity and reducing reliance on landfills. Acting upon that mission, SWACO has a goal to increase the diversion of materials away from the landfill.



COLUMBUS FASHION ALLIANCE

The Columbus Fashion Alliance (CFA) is a collective comprising of individuals who share a passion for the fashion industry in Columbus, Ohio. Their primary objective is to provide support for creatives and fashion-focused businesses through education, aiming to equip its members and the community with valuable skills that enhance their brands and foster professional growth. CFA offers access to facilities equipped with high-quality industrial-grade machinery, including sewing machines, sergers, DTG printers, fabric printers, and screen printers. By granting members access to this costly yet indispensable equipment, the alliance enables them to grow their business without incurring significant overhead expenses. The alliance is located in the Columbus Idea Foundry in Franklinton. Learn more about CFA at columbusfashion.org.



MIVE LABS

Mive Labs is a regenerative design consultancy founded by Maya and Mica Caine, twin sisters and proud natives of Columbus, OH. Stemming from their research and product design endeavors while launching Mive, a made-to-measure slow fashion marketplace; Mive Labs emerged as a natural progression in their work. Their collective experience lies in solution engineering, enterprise strategy, product management, and they are currently collaborating on projects in circular product design and workforce development.



Acknowledgements

Thank you to SWACO and The Columbus Fashion Alliance for their relentless commitment to community-led waste reduction. We also want to thank all interview participants for their insight and transparency.

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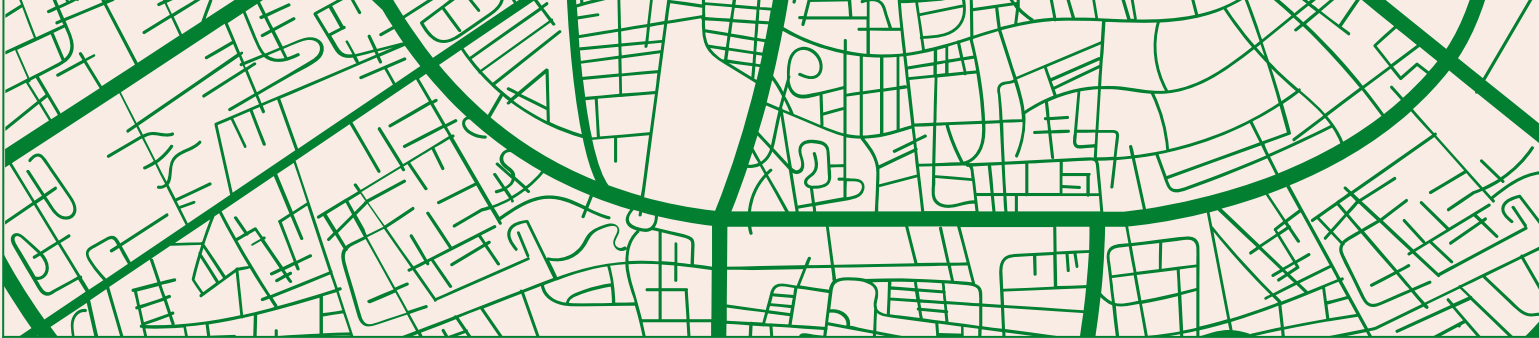
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Disclaimer

Mive Labs prepared this report with due care from sources believed to be accurate as of its date. The report may contain opinions and relies on information deemed reliable. SWACO, Columbus Fashion Alliance, Mive Labs, and its members disclaim liability for any claims or losses, direct or consequential, arising from reliance on this report.



Executive Summary

People are buying more clothing than they ever have, with 150 billion new clothing items being produced annually⁴⁴. The rapid consumerism of today's fashion industry is underpinned by an environmentally detrimental linear production model, starting with the over-extraction of raw materials and pollutive production processes, where 50% of emissions come from three stages: yarn preparation, and fiber production, and dyeing & finishing¹³. The dyeing process often requires the use 8000 different synthetic chemicals¹², making the industry also responsible for 20% of all freshwater pollution. And when it comes to ethics, of 94 million garment workers worldwide, only 2% earn a living wage^{9 11}. The ecological and ethical impacts of the industry reflect an industry scaled and optimized for profits, and designed to make people and the planet more sick.

This report explores the hope that lies in reclaiming fashion's largest land pollutant: textile waste. According to the Solid Waste Authority of Ohio, the Franklin County Sanitary Landfill receives over forty-six thousand tons textile waste annually¹. By taking a waste-led design approach, Central Ohio also has the potential to spearhead a transformative textile recycling infrastructure. This approach not only capitalizes on local talent but also attracts innovative businesses, repurposing textile waste into a valued economic asset.

Moving forward, how can circularity succeed in fashion? A key principle of the circular economy focuses on eliminating waste and keeping materials in circulation at their highest value. By expanding recycling infrastructure, rapidly upscaling emerging technologies and pushing for circular business models that genuinely reduce consumption, stakeholders can drive forward collective change. Based on the research collected from 33 interviews with prominent cross-sector stakeholders and a comprehensive literature review, this report seeks to uncover common barriers inhibiting progress and propose tangible, actionable recommendations specific to each group.

<p>We crafted the following recommendations to best divert textile waste locally, while creating new economic opportunities locally:</p>	<p>_____ 01 Create local textile recycling working group</p>	<p>_____ 02 Provide business incentives for textile and fashion waste recycling and innovative companies</p>
<p>_____ 03 Scale collection, sortation, and recycling infrastructure</p>	<p>_____ 04 Invest in textile art</p>	<p>_____ 05 Establish a commercial and consumer-facing marketplace for textile fashion waste</p>
<p>_____ 06 Invest and support buy, sell, trade stores</p>	<p>_____ 07 De-incentivize commercial and residential textile and fashion landfilling</p>	<p>_____ 08 Identify local, cross-industry waste partnerships</p>

Work & Methodology

Objectives of the Central Ohio Textile & Fashion Waste Initiative

From where and how is textile waste being generated in Central Ohio?

What are the primary sources (e.g. residential and commercial) of textile waste in Franklin County?

What role do local textile industries, businesses, and retailers play in the generation of textile waste in the region?

What are the incentives and disincentives for textile recycling today?

What are the clothing consumption and disposal patterns of Central Ohioans?

In what ways can textile recycling create new economic opportunity in Central Ohio?

What is the potential economic value of diverted textiles in the local context compared to the traditional waste management approaches?

What is the market for recycled textiles in Central Ohio and beyond?

What are the primary barriers and costs associated with establishing a successful local textile recycling industry, and how can these be overcome?

To what extent can textile diversion and recycling contribute to local job creation and skill development?

Are there successful models from other regions that can be adapted to enhance the economic viability of local textile recycling efforts?

Research Methods

Literature Review

- 6 published research reports

Resident Survey

- Survey of 157 Columbus Ohio residents
- From 46 of 48 zip codes

Stakeholder Interviews

- 33 stakeholder interviews across all identified stakeholder groups

Identified Stakeholder Groups

Stakeholder	Definition
Donation Centers	Organizations that accept and collect clothing donations from individuals or businesses. These centers serve as drop-off points or collection sites where people can donate their gently used or unwanted clothing items. They often sell donated clothing in thrift stores they operate.
Buy, Sell, Trade Stores	Retail stores that specialize in buying, selling, and sometimes trading gently used clothing and accessories
Commercial & Public Uniforms	Companies that specialize in designing, manufacturing, and supplying uniforms and workwear
Independent Designers	Individuals who create original fashion designs outside of established fashion houses or brands
Retailers	Fashion companies that sell clothing, footwear, accessories, and other fashion-related products to consumers. These retailers typically operate physical stores, online platforms, or a combination of both
Manufacturers	Companies or facilities involved in the production of textile products
Colleges & Universities	Institutions of higher education that offer academic programs and degrees across various disciplines
Residents	Anyone who lives in Central Ohio

Limitations

While we successfully engaged with 33 stakeholders, there were limitations in the data collection process due to:

Data Sensitivity: Although many stakeholders were willing to share their textile and fashion waste generation data, a significant number of individuals were unable to disclose this information, despite assurances of confidentiality. The data gathered from interviews primarily consisted of qualitative insights, providing an understanding of the types of waste generated and a broad overview of volumes.

Data Access & Silos: Several organizations, particularly multinational corporations, faced challenges in answering our interview questions and providing follow-up information. This was mainly due to the lack of internal tracking systems or the management of such data by third-party partners and distributors. Given the project's focus on Central Ohio, some organizations were unable to provide waste data specific to the region.

Accessibility: Despite our extensive outreach efforts, which involved emails, LinkedIn messages, and phone calls, we were only able to connect with 33 out of our initial list of over 100 value-chain actors. Some organizations either did not respond or declined to participate in the interviews.

Terminology

Landfill

(n.) a place to dispose of refuse and other waste material by burying it and covering it over with soil, especially as a method of filling in or extending usable land³

FCSL

(n.) Franklin County Sanitary Landfill, the destination for solid waste in Central Ohio

Tipping fee

(n.) a fee paid by anyone who disposes of waste in a landfill

Working Face

(n.) where waste is dumped, then spread and compacted

Waste Diversion

(n.) the prevention and reduction of generated waste through source reduction, recycling, reuse and composting⁴⁵

Extended Producer Responsibility

(n.) the shifting of responsibility (physically and/or economically; fully or partially) upstream toward the producer and away from municipalities⁴

Global South

(n.) Countries globally recognized as having comparatively lower levels of economic and industrial development, often situated geographically to the south of more industrially advanced nations⁵

Global Fashion Impacts & the Need for Local Solutions

Today's average consumer buys 60% more pieces of clothing than 15 years ago, while those garments' lifespan is only half as long⁶. This surge is attributed to our current culture of excessive production and consumption. For the last 40 years, fashion retailers have followed a linear production model that influences consumers to buy, use, and waste their clothing rapidly to drive the profitability of the industry. It is estimated that 30% of clothing produced each season remains unsold, and garments are typically worn only seven times before being discarded⁷. Thus, global fiber production has almost doubled in the last 20 years, increasing from 58 million tons in 2000 to 109 million tons in 2020, and is expected to increase another 34 percent in the next 10 years⁸. The relationship with fashion has had a significant collateral impact on our planet's resources.



Source: Britannica

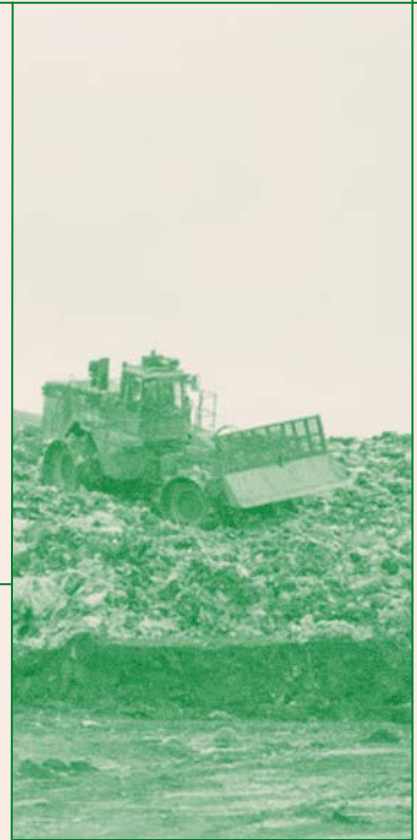
Frankly, the apparel industry's social and ecological impacts are immense, and very little has been done to address them. The fashion industry employs an estimated 94 million garment workers worldwide, most being poor women of color⁹. The collapse of Rana Plaza factory that killed 1,134 people in 2013 shined international light on the dangerous working conditions and starvation pay¹⁰. The Collective Justice Foundation estimates only 2% of all garments workers make a living wage¹¹. Many of these workers face health risks from synthetic fiber production, which makes up 68% of new fibers produced⁸. The production of these fibers involves 8,000 chemicals, notably harmful dyes that account for 20% of global water pollution¹². The fashion sector emits 8% of global emissions, comparable to all the European Union emissions. Half of these emissions come from fiber production, dyeing, and yarn preparation, and projections show a 49% increase by 2030 if current practices continue¹³.

To make matters worse, overproduction leads to massive textile waste. The U.S. Environmental Protection Agency notes a 29% increase in U.S. textile waste between 2010 and 2018, with 67% ending up in landfills¹⁴. These decomposing textiles can release methane and contaminate our groundwater and soil with chemicals. As consumers and activists fight for more regulation and transparency in the apparel manufacturing process; now more than ever, we need localized solutions to address the local supply of textile waste. The Slow Factory, an International environmental and social justice organization deems landfills a site of cultural importance, as they are a pulse on the consumption patterns of a community¹⁵. If we can create solutions to leverage waste as a resource, we can proactively create new economic opportunities but also strengthen the adoption of waste-led design over new fiber production.







Source: Probal Rashid/LightRocket

The Current State of Landfilling in Central Ohio



Source: Columbus Monthly

Established in 1984, the Franklin County Sanitary Landfill (FCSL) is the destination for all residential and commercial waste in Central Ohio. Operated by the Solid Waste Authority of Central Ohio and regulated by the Ohio Environmental Protection Agency, the FCSL receives over one million tons of waste annually. It is projected to have a remaining lifespan of approximately 42 years before reaching capacity. Interestingly, nearly three-fourths of the materials brought to the landfill each year have the potential for diversion through reuse, recycling, and composting¹. Among the top ten frequently encountered items in the residential waste stream, textile waste accounts for 4% of the total waste at the FCSL¹⁶. Below, we have identified **four primary waste categories**:

TYPES OF WASTE	DEFINITION	GENERATING STAKEHOLDERS	EXAMPLES
 MANUFACTURING	Waste generated during the production process	<ul style="list-style-type: none"> Manufacturers Retailers 	<ul style="list-style-type: none"> Scrap Fabric Unused Rolls of Fabric
 DESIGN	Waste generated during the design process	<ul style="list-style-type: none"> Retailers Independent Designers Universities Manufacturer 	<ul style="list-style-type: none"> Product Samples Fabric Headers Prototyping Waste
 UNSOLD PRODUCT	Waste generated after producing the product, but it remains unsold	<ul style="list-style-type: none"> Retailers 	<ul style="list-style-type: none"> Unsold Inventory Defective Inventory
 POST-CONSUMER	Waste generated after the product is sold to a consumer	<ul style="list-style-type: none"> Commercial Uniforms Donation Centers Residents 	<ul style="list-style-type: none"> Throwing away a piece of clothing after a few wears Donated Clothing

The Current State of Landfilling in Central Ohio cont.

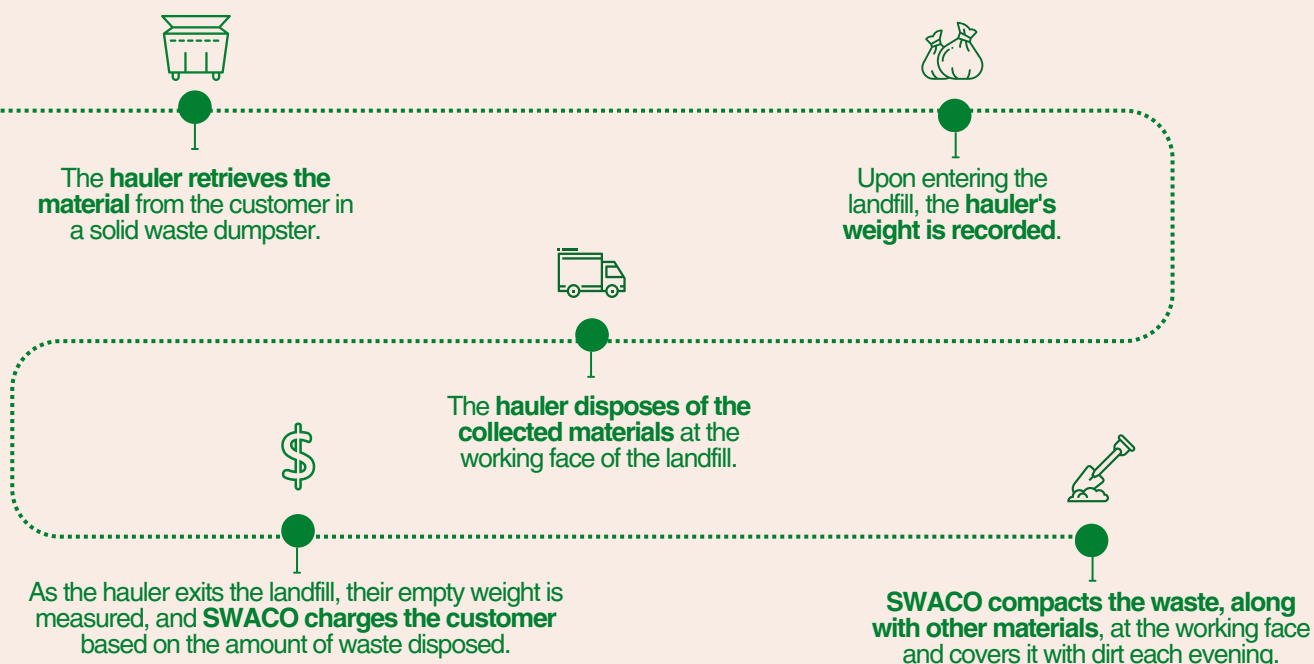
Over the last two decades, Central Ohio has experienced a consistently strong economy and rapid population growth, a trend that is expected to continue. The Mid-Ohio Regional Planning Commission (MORPC) estimates that over the coming decades the region's population will grow by 1 million people, nearly half of which will occur in Franklin County, SWACO's jurisdiction. While there has been a focus on the growth's impact on housing, transportation, and infrastructure, it will also have significant impacts on the waste stream. SWACO estimates that an additional 600,000 tons of waste per year could be generated in Franklin County alone.

Compounding this dilemma, the cost of landfill disposal in the Midwest and Ohio is also relatively low when compared to other parts of the country. This is true in Franklin County, where disposing of waste at the FCSL costs only \$39.75 per ton¹⁹. In addition, there are no state-level prohibition or restriction programs for textile waste that would decrease landfill disposal as an easy option for the management of the material.

While SWACO has successfully launched various recycling initiatives targeting different materials, its focus on diverting textile and fashion waste is still in its initial stages. This report can help lay the groundwork for this focus, informing the organization as it formulates strategies to effectively tackle this specific waste stream and integrate it into its broader recycling framework.

SWACO actively collaborates with waste generators and haulers to handle diverse waste streams and ensure proper collection and landfilling. When it comes to textile waste, stakeholders such as large retailers, manufacturers, commercial & public uniform providers, and shopping centers are responsible for generating the majority of textile and fashion waste sent to the FCSL. These stakeholders engage haulers such as WM, Republic, and Rumpke to collect, transport, and dispose of waste materials at the landfill.

Summary of the FCSL Waste Disposal Process:



Economic Opportunity of Textile Recycling

Central Ohio boasts a rich 200-year fashion history, transitioning from custom clothiers to specialty retail and shopping malls. It ranks third in the U.S. for fashion designers and fourth for retailers. With nearly half of the U.S. population within a 10-hour drive, Columbus is a prime logistics hub. However, the post-pandemic landscape saw many traditional retailers shuttering, while others adopted e-commerce-first strategies.

Meanwhile, there's a surge in support for independent designers. The Columbus Fashion Alliance (CFA) secured over \$550,000 in grants for a studio at Franklinton's Idea Foundry²¹. In 2021, the City backed CFA's fashion internship, enabling 40+ students to create and market their designs through a pop-up experience. In 2022, the Columbus Downtown Development Corporation collaborated with the Columbus Fashion Council to launch Common Thread Boutiques, a retail space dedicated to local designers²². The city now offers a broader range of fashion opportunities beyond major retailers.



Source: *The Columbus Dispatch*

As Central Ohio continues to prioritize and reinforce its commitment to the local fashion economy, a substantial economic opportunity arises in creating a localized, closed-loop textile and fashion system. Textile and fashion waste is currently underutilized, despite the substantial economic potential that lies in establishing textile recycling infrastructure. The Ohio EPA estimates that textile reclamation could generate 85 jobs per 10,000 tons of recycled material annually²³. The Global Textile Recycling Market, valued at \$6.5 billion in 2022, is projected to reach \$9.9 billion by 2030²⁴. Prominent fashion and home decor companies are increasingly adopting recycled textiles and committing to reducing their carbon footprint, waste, and water usage. The demand for textile recycling is skyrocketing, resulting in significant investments by major funds like Goldman Sachs and Breakthrough Energy Ventures, founded by Bill Gates. Notably, in the past year, companies such as Recover (focused on recycled cotton) and Circ (specializing in textile-to-textile recycling) secured funding of \$100 million and \$30 million respectively^{25, 26}. In this climate, Central Ohio possesses the opportunity to cultivate innovative and scalable textile recycling infrastructure. By harnessing the region's creative talent and attracting forward-thinking businesses, Central Ohio can effectively tap into textile waste as a valuable resource, thereby shaping a new chapter in its fashion legacy.

In anticipation of Central Ohio's shift towards a circular economy, SWACO has taken proactive steps by establishing the Green Economy Business Park, an expansive 350-acre venue committed to nurturing advancements in recycling innovation, research, and sophisticated manufacturing²⁷. This innovative hub curates an environment conducive to business growth for enterprises specializing in recycling, composting, and other waste conversion technologies by supplying the requisite infrastructure and resources.



The Green Economy Business Park enhances Central Ohio's appeal to textile recycling companies & positions the region as an attractive hub for sustainable operations.

Government & Public Policy

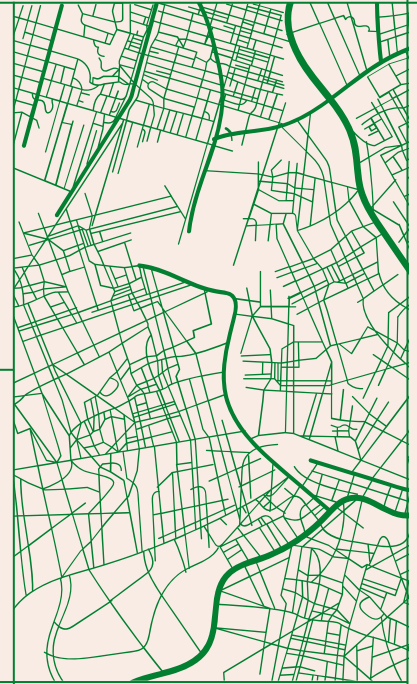
Historically, the management of textile and fashion waste has often been unregulated, leading to substantial environmental challenges. However, in recent years, there has been a growing recognition of the detrimental impact of wasteful practices in the industry. This shift has prompted increased efforts to implement regulations and incentives aimed at curbing wasteful behaviors, fostering sustainable production processes, and encouraging responsible consumption within the textile and fashion sector.

In 2015, the United Nations introduced the 2030 Agenda for Sustainable Development as a roadmap for global peace and prosperity. This agenda comprises 17 Sustainable Development Goals (SDGs), with one emphasizing responsible consumption and production. This particular goal aims to transform our production and consumption habits to minimize ecological impact. A key objective within this goal is to "substantially reduce waste generation by 2030 through prevention, reduction, recycling, and reuse"²⁸. While the UN strongly recommends organizations align with these goals, there's no binding enforcement.

Europe has been taking significant strides in realizing the UN's 2030 Agenda for Sustainable Development by implementing a range of laws and regulations that promote its core principles. These measures demonstrate Europe's commitment to fostering sustainable growth and addressing global challenges.

In 2020, France enacted the Anti-Waste Circular Economy Law to champion a waste-reducing, transparent, and safe circular economy. This law mandates all fashion brands in France to display environmental labels on their products or online pages, detailing the product's origins and manufacturing process. Moreover, brands are obligated to disclose product components, such as recycled materials or potentially harmful chemicals. This requirement is set to expand to all brands in the French market, encompassing clothing, footwear, and home textiles²⁹.

By October 2022, the European Union had unveiled its 2020 Circular Economy Action Plan. This plan emphasizes a holistic approach to product life cycles, covering every phase from production to disposal. A key initiative of this plan is the Digital Product Passport (DPP). Defined by the European Commission, the DPP offers comprehensive product data, providing insights into a product's origin, composition, repair, and recycling potential. By 2030, the DPP will be a mandatory electronic record for products³⁰.



Global



Government & Public Policy cont.

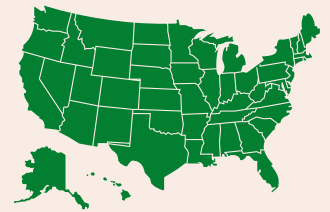
While there are no existing national regulations addressing textile/fashion waste, Europe's focus on sustainability has prompted U.S. policymakers to contemplate similar measures, signaling a shift towards a more circular U.S. fashion sector.

On May 13, 2022, US Senator Kirsten Gillibrand (D-NY) introduced the Fashioning Accountability and Building Real Institutional Change (FABRIC) Act, marking the inaugural congressional bill targeting the fashion and clothing sectors. The bill champions major incentives for domestic apparel production and enhanced workplace protections, positioning the U.S. at the forefront of ethical apparel production. If enacted, this legislation would pioneer a new standard for fashion regulation³¹.

Greater strides have been made on the state level. Massachusetts marked a significant milestone in November 2022 by becoming the first U.S. state to ban the disposal of textiles, including bedding and curtains. With limited landfill space, Massachusetts introduced this measure as part of broader efforts to achieve a 30% reduction in disposal rates by 2030 and an ambitious 90% reduction by 2050³².

The New York State's pending Fashion Act, denoted as Assembly Bill A8352, stands as a notable legislative endeavor to promote transparency and sustainability within the fashion sector. If passed, this bill would mandate brands with revenues surpassing \$100 million to trace a minimum of 50% of their supply chain and provide evidence for sustainability assertions. Violation of these stipulations could result in fines of up to 2% of a brand's global revenue, underscoring a robust initiative to ensure larger fashion enterprises are held responsible for their environmental and ethical commitments³³.

U.S.



Like many states in the U.S., Ohio has not implemented any specific statewide policies or regulations that exclusively target fashion and textile waste. Generally, waste management in Ohio has been overseen by the Ohio Environmental Protection Agency (Ohio EPA), which regulates the collection, transportation, treatment, storage, and disposal of solid waste. In 1988 House Bill 592 was signed into law, creating both the solid waste management district structure in Ohio and requiring the Ohio EPA to develop the State Solid Waste Management Plan, with advice from the Materials Management Advisory Council. The State Plan is designed to reduce Ohio's reliance on landfills for the disposal of solid waste through increased waste reduction, reuse, and recycling efforts. The first State Plan was adopted in 1989 and the most recent revision was adopted in 2020⁴⁶. While the State Plan establishes broad goals focused on promoting recycling and reducing landfill use, these policies are broad and encompass all types of solid waste.

In Columbus, Ohio, Mayor Andrew Ginther has introduced the inaugural Climate Action Plan for the city, outlining a community strategy to attain carbon neutrality by 2050 and a 45% reduction in greenhouse gas emissions by 2030. The plan emphasizes the promotion of equity and environmental justice in the pursuit of establishing a "carbon-neutral Columbus"³⁴.

Ohio



Industry Analysis

Over the last year and a half, we have interviewed representatives the following sectors, based in Central Ohio.

1

Donation Centers

2

Buy, Sell, Trade stores

3

Commercial & Public Uniforms

4

Independent Designers

5

Retailers

6

Manufacturers

7

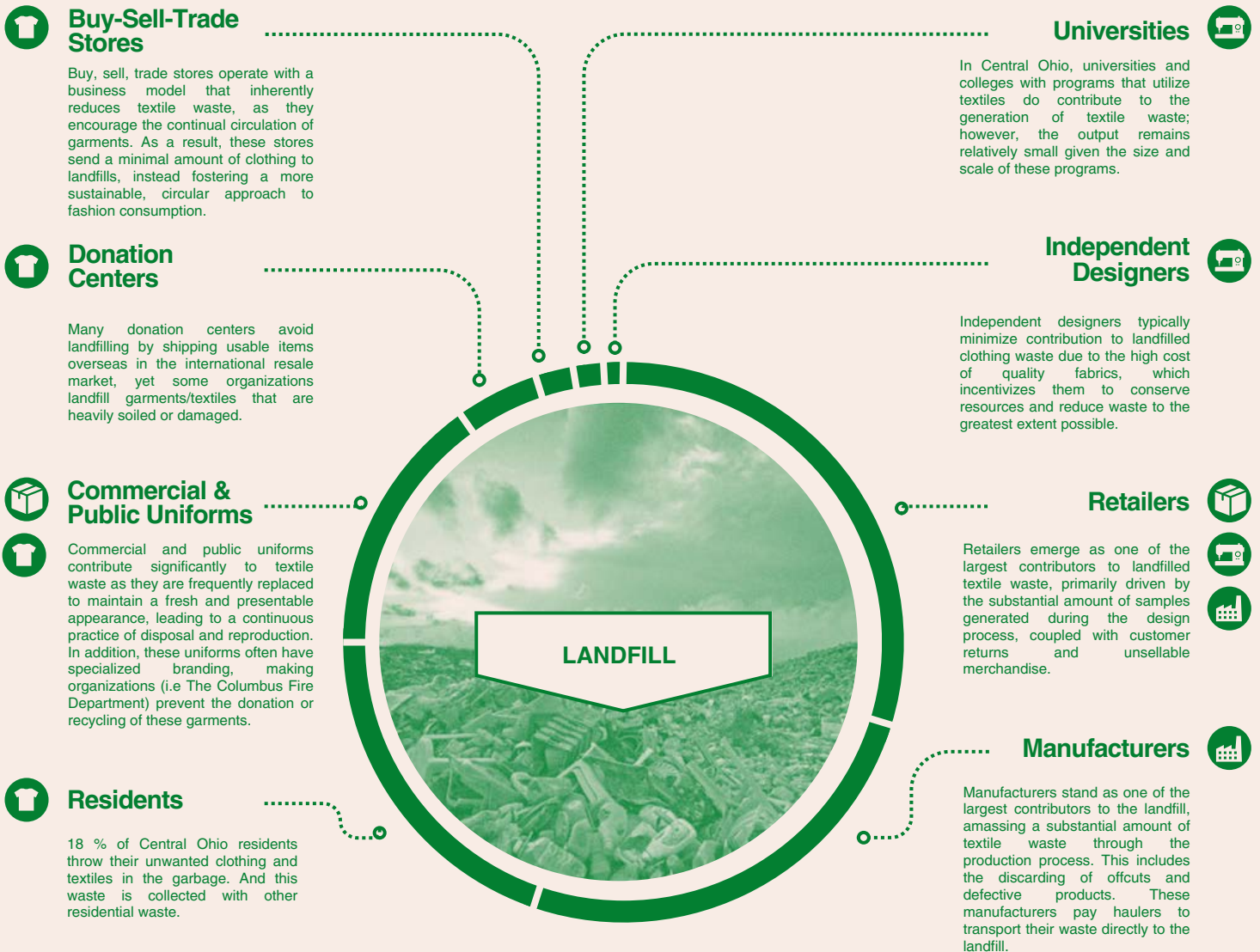
Colleges & Universities

8

Residents

Industry Analysis

Over the last year, we have interviewed representatives in the following sectors, based in Central Ohio



KEY: TYPES OF WASTE

-  MANUFACTURING
-  DESIGN
-  POST-CONSUMER
-  UNSOLD PRODUCT



Where Central Ohio Textile & Fashion Waste Goes if it is Not Landfilled

1%

OF ALL DISCARDED CLOTHING IS ACTUALLY RECYCLED ³⁵

Beyond landfills, textile waste can find several other end points, which are both beneficial and detrimental to the environment and communities.

INTERNATIONAL RESALE MARKET

Clothing waste from more affluent countries is often shipped to countries in the Global South, entering a secondhand market where it is resold at lower prices. This practice, while offering affordable clothing options, undermines local textile industries and contribute to environmental degradation in the receiving countries.

Source: Hissen Global

TEXTILE RECYCLERS

Textile recyclers can salvage material from textile waste, either refurbishing garments for extended use or breaking them down to their fibrous state to be spun into new yarns for fresh textile products, essentially giving the materials a second life.

Source: Martex Fiber

INCINERATION

Incineration reduces clothing waste by burning it to retrieve energy, although it poses environmental concerns such as air pollution and the loss of recyclable materials.

Source: Ward Recycling

MOVING CIRCULARLY LOCALLY

The local resale market offers an environmentally friendly solution to clothing waste by promoting the reuse of garments, extending their lifecycle and reducing the demand for new production, which in turn conserves resources and reduces carbon emissions.

Source: 400 West Rich

Donation Centers



In Central Ohio, an extensive network of donation centers serves as the gateway for managing unwanted clothing. Renowned centers such as Goodwill, Volunteers of America, Salvation Army, and Ohio Thrift dominate this landscape, handling the largest volume of unwanted clothing in the region. Smaller, localized donation centers such as Joseph's Coat, St. Vincent de Paul Thrift Store and Donation Center, and AMVETS Department of Ohio. According to our Central Ohio Resident Survey, an impressive 89% of Central Ohio's residents channel their surplus clothing to these national entities. In addition, thrift stores have become a retail phenomenon, with 40% of residents ranking them among their top three shopping destinations.

Donation centers are pivotal institutions in local communities, acting as much more than just thrift stores. These organizations breathe new life into gently used items, offering them at accessible prices, which not only facilitates sustainable consumer choices but also provides affordable shopping options for many families. Beyond retail, the revenues generated from these sales are funneled directly into transformative community programs. These initiatives range from job training and employment placement services to educational support and emergency assistance, fostering an environment where individuals facing economic hardships or other challenges are empowered to achieve personal growth and self-sufficiency. Through their holistic approach, these donation centers play a significant role in uplifting and strengthening the Central Ohio community.

Despite the frequency of donations and shopping at these centers, our research shows that only about 40-60% of donated garments are sold in thrift stores within Central Ohio. Brittany Dickinson, Manager of Sustainability for Goodwill Industries International, estimates a minimum of 30% of the total weight of donations received by Goodwill is sold locally through thrift stores, e-commerce, and outlets³⁶.

Despite a significant portion of donated clothing going unsold, it's surprising that almost none of the post-consumer waste from donation centers in Central Ohio ends up in landfills. Instead, unsold items from the larger donation centers are typically sold to salvage brokers, often without clear information about their final destination. However, it's known that many are shipped overseas. The global secondhand market, particularly its practice of exporting clothes, has come under scrutiny due to its detrimental economic and environmental effects on receiving countries.

Salvage brokers buy clothing bales, each weighing around 1,000 lbs, from donation centers for \$250-\$400 and export them for resale. Local retailers in the receiving countries bear the financial risk, as they often purchase these bales sight unseen. Consequently, if they receive items in poor condition, they cannot return them. The Kantamanto Market in Ghana, the world's largest secondhand clothing market, is a notable destination for these exports. About 40% of the clothing bales processed there end up as waste, straining the local environment due to inadequate waste management infrastructure³⁷. This trend not only impacts health and the environment but also undermines the local fashion economy, contributing to significant waste issues in the Global South.

The objective of the Central Ohio Textile Waste and Fashion Initiative is to comprehend the flow of textile and fashion waste and explore waste diversion opportunities within Central Ohio. While sending textiles overseas helps reduce textiles landing in the FCSL, it is our duty to devise solutions that do not involve offloading our waste onto communities that are not equipped to manage it sustainably.

It is important to note that the primary mandate of national donation centers is not to provide affordable clothing to local communities. Their main focus is workforce development, funded through the sale of donated garments. Donation centers should be empowered to operate independently, free from the reliance on profits derived from the global secondhand clothing market.



Source: Hissen Global

1 Donation Centers



Areas of Opportunity



Source: Inside a Central Ohio Goodwill 136 Home

01 Establish partnerships for long-term investment in regenerated textiles

Just 1% of recycled clothes are turned back into new garments due to the difficulty of sorting textiles by composition. However, many innovators have emerged in this space such as Renewcell, Evrnu and Circ making regenerating textiles at scale easier³⁸. Local donation centers should partner with these industry innovators to begin scoping how to leverage its most abundant resource to enter the regenerated textile market.

02 Identify revenue-generating downcycling partnerships

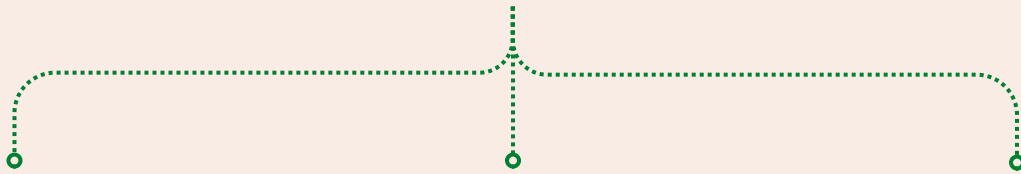
A growing number of organizations collect textile and fashion waste to use as feedstock for new products. Some companies have embraced downcycling, a process that repurposes unused items into new products of lower quality. Downcycled textiles can be transformed into building insulation, rags, or carpet padding, among other possibilities.

Buy, Sell, Trade Stores



Buy, Sell, and Trade stores stand as the blueprint for circular fashion in Central Ohio, embodying a sustainable model of clothing consumption and exchange. Unlike donation centers, Buy, Sell, Trade stores offer Central Ohio residents a way to earn cash for their unwanted clothing. These include general second-hand designer stores, curated vintage shops, and luxury resale boutiques, where residents can resell or trade their gently worn clothing items.

These entities are more selective, accepting higher quality items than donation centers. Here's an overview of the three major Buy, Sell, Trade categories:



General Secondhand Designer Stores

These stores carefully inspect residents' unwanted clothing items and make offers based on brand, condition, seasonality, and current fashion trends. Purchased items are then marked up and sold in-store. Plato's Closet is a popular organization in Central Ohio following this business model.

Curated Vintage Shops

These shops are more niche and selective, offering upfront cash or consignment options for residents to sell their items. Examples include Flower Child, a high-end vintage store focusing on fashion and home decor, and Tact Luxe, a streetwear vintage shop located in the Short North District.

Luxury Resale Boutiques

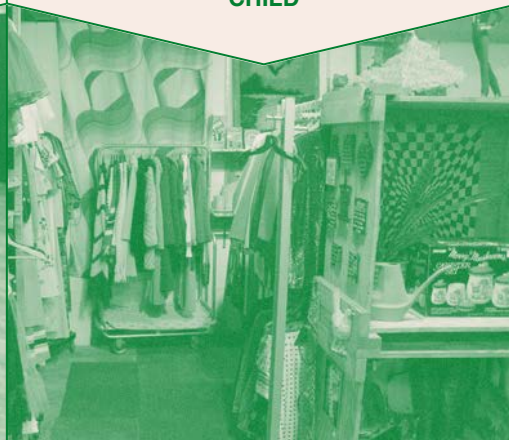
These boutiques provide multiple selling options, such as upfront cash or consignment models. They offer a wide variety of luxury items, including handbags, jewelry, and upscale clothing. Second Chance and One More Time on West 5th Avenue are popular luxury resale boutiques in Central Ohio.

PLATO'S



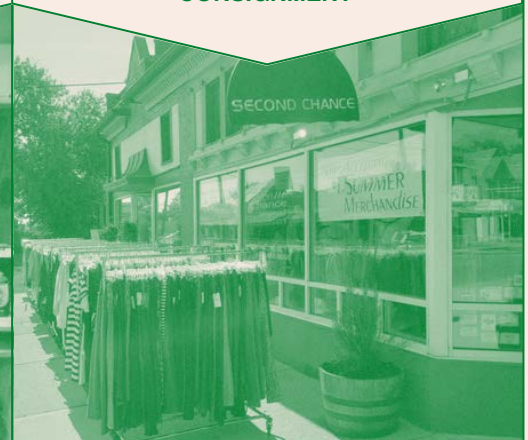
Source: Plato's Closet Columbus

FLOWER CHILD



Source: Flower Child Columbus

SECOND CHANCE CONSIGNMENT



Source: Second Chance Consignment Boutique

Buy, Sell, Trade Stores Cont.

While not as significant as donation centers, Buy, Sell, Trade stores also handle unsold inventory. Many of these stores have inventory management systems to track how long garments have been in-store, while smaller stores may track this manually. Buy, Sell, Trade stores are very small contributors to the FCSL by implementing many strategies to manage unsold inventory. These strategies are listed below:

Markdowns and Clearance Sales	Seasonal Rotation
<p>When certain items remain unsold over an extended period, Buy, Sell, Trade stores may implement markdowns or clearance sales to encourage customers to purchase them at reduced prices. This helps clear out inventory and make room for new arrivals.</p>	<p>Buy, Sell, Trade stores often follow seasonal trends, meaning they prioritize stocking items appropriate for the current season. If unsold inventory is no longer relevant to the upcoming season, it may be set aside and reintroduced during the appropriate time frame.</p>
Inventory Redistribution	Donation
<p>Some Buy, Sell, Trade chains have a network of stores, and unsold inventory from one location may be transferred to another store where there is higher demand. This redistribution helps balance inventory levels across different locations.</p>	<p>In some cases, unsold inventory that doesn't sell within a specific period may be donated to charitable organizations. If donated to local charities and shelters the clothing is distributed to individuals in need, and if donated to large donation centers, the items are either sold in thrift stores or sold into the international secondhand clothing market.</p>

Buy-sell-trade stores ensure a perpetual flow of products while cultivating a rich culture rooted in local fashion nuances. Buy, Sell, Trade stores as well as donation centers are arguably the best pulse on a city's style, identity, and history. However, the curated nature of buy-sell-trade-stores uniquely highlight goods that are high quality and/or carry local cultural value. Such localized fashion exchanges don't just reflect community tastes and preferences, but they are instrumental in curbing emissions by vastly reducing transportation distances. Shopping for pre-owned clothing locally eliminates the need for energy intensive processes involved in manufacturing new clothing and the greenhouse gas emissions associated with transcontinental shipping. Selling and sourcing pre-owned items locally fosters a localized fashion economy that is deeply intertwined with community values and environmental consciousness.

Buy, Sell, Trade Stores



Areas of Opportunity



Source: Gabriel Robinson | 614Now

01 Provide residents with alternatives for turned-away clothing

Buy, Sell, Trade stores offer an aftermarket for unwanted clothing, but they are often selective and reject items that do not meet their standards. The rejected clothing items typically end up being donated, landfilled, or left unused in residents' closets. To address this, Buy, Sell, Trade stores can provide ethical and sustainable alternatives. For example, Buffalo Exchange, a nationwide general secondhand designer store (no longer located in Central Ohio), allows patrons to donate their rejected items to local shelters and charities. Patrons leave these items at the store, and Buffalo Exchange coordinates pick-up and drop-off to local charitable organizations.

02 Offer clothing rental services to meet local demand for occasion-wear

Offer clothing rental services to meet local demand for occasion-wear. Clothing rental services like Rent the Runway and Nuuly have become more popular with women shoppers over the last 5 years, and the online fashion rental market is expected to grow more than 10 percent year-on-year until 2027³⁹. As the online rental market expands, some Buy, Sell, Trade stores are uniquely positioned to rent their specialty inventories locally and avoid transportation and logistical challenges faced by online rental companies.

03 Expand curated buy-sell-trade stores around Central Ohio

Curated stores typically specialize in a specific style, genre, or demographic, which attracts customers with similar tastes. This targeted approach creates a sense of community and loyalty among customers who appreciate the store's unique curation. There is a huge opportunity to expand the city's men's and women's plus size clothing and children's clothing offerings as there are few options currently in Central Ohio.

Commercial & Public Uniforms



Work uniforms are prevalent in a wide range of industries and careers in Central Ohio. Healthcare professionals, public safety personnel, military service members, and those in industries such as hospitality, transportation, security, and retail often have specific uniform requirements to promote easy identification, safety, and team cohesion. Uniforms are typically provisioned by or in partnership with an employer, which provides more regulation on the acquisition, use, and disposal in comparison to a traditional ready-to-wear clothing retailer. The governance surrounding uniforms hinders most uniforms from being reused or recycled, making them a large contributor to textile and fashion waste in the FCSL.

Disposability within the uniform market is due to the following factors:



Source: Columbus Division of Fire

Customizations

Many uniforms have custom embroidery for an employee's name or personal designation. For commercial uniform providers, when an employee leaves a company, changes their name, etc. these companies are forced to dispose of the uniform. During an interview, one Central Ohio commercial uniform provider shared that they have largely adopted heat-sealed customizations that are easy to remove, however, name/customization removal is not enough to rescue the garment.

Branding

Even if personal likeness is removed from a uniform, commercial uniform providers avoid donating uniforms because it "cheapens" their brand. If a uniform can be found at a thrift store, the full-price demand for the uniforms decreases.

Public Safety

Central Ohio public safety organizations such as the Columbus Fire Department and Columbus Police Department have strict codes on the use and disposal of uniforms. If uniforms end up in the wrong hands, they could be used for impersonation or fraudulent activities. Individuals could potentially use the uniforms to gain unauthorized access to restricted areas, deceive the public, or commit criminal acts. This poses a significant risk to public safety and the integrity of public safety institutions.

Durability

Uniforms, especially those worn by public safety officials, often have specific features and materials that are crucial for their safety and security. These uniforms may include flame-resistant properties, bulletproof vests, and reflective materials. When uniforms reach the end of their life cycle, ensuring that these safety features are not compromised becomes a priority. Recycling or donating uniforms without proper evaluation and verification could pose safety risks if they end up in the wrong hands or are used inappropriately.

Commercial & Public Uniforms



Areas of Opportunity



Source: Cintas

01 Implement modular design principles optimized for reuse and recycling

Modular design for commercial uniforms, including modular name embroidery and customizations, can significantly reduce uniform waste and promote reusability. By incorporating modular elements for personalization, such as detachable name patches or interchangeable emblems, uniforms can be easily updated or repurposed when job roles or employee identities change. This approach eliminates the need to discard entire uniforms and enables the reuse of existing garments, reducing waste and extending the lifespan of the uniforms.

02 Coordinate internal uniform swaps

Internal uniform swaps offer a valuable opportunity to reduce uniform waste for commercial uniform and public service entities. By organizing events or programs where employees can exchange or donate their gently used uniforms, organizations can promote reuse and extend the lifespan of garments. This not only reduces the amount of uniform waste sent to landfills but also saves organizations money by minimizing the need for frequent uniform replacements or purchases.

03 Identify affordable or revenue-generating textile recycling options

Due to SWACO's relatively low disposal fee of \$39.75 per ton at the FCSL, commercial uniform providers often find local recycling options to be expensive. For instance, a Central Ohio recycler quoted a price of \$500 per pallet of uniforms. To address this challenge, stakeholders can consider partnering with downcycling and regenerative textile organizations that offer more affordable and even profitable alternatives to landfilling.

Independent Designers



Unlike designers working for established fashion houses, independent designers operate as self-employed entrepreneurs, managing every aspect of their brand from design conception to production and marketing. With their focus on individuality and niche markets, independent fashion designers have unique needs that differ from those of larger fashion brands. They require support in areas such as sourcing materials, production scalability, brand development, marketing strategies, and retail distribution. Navigating these challenges while staying true to their creative vision is crucial for independent designers to thrive and carve a niche in the competitive fashion landscape, in Columbus and beyond. There are a few foundational organizations that support independent designers in Central Ohio:



Source: Tony Bentivegna *Columbus Monthly*

Columbus Fashion Alliance:

Founded in 2019, the Columbus Fashion Alliance offers fashion education programs, provides access to its fashion production facilities with industrial-grade equipment, and currently has over one hundred members. CFA also operates the Future of Fashion Internship Program, funded by the City of Columbus, which guides high school students in designing, producing, and selling a clothing collection.

The Columbus Fashion Council:

Founded over a decade before, The Columbus Fashion Council also creates a community for designers, models, and students through its flagship program, Columbus Fashion Week, which has spotlighted over 150 local designers since its inception. The Columbus Fashion Council also partnered with Columbus Downtown Development Corporation (CDDC) to launch “Common Thread”, a destination shopping experience featuring seven shops each featuring local designers.



Independent Designers Cont.

The waste output of independent designers is remarkably minimal due to:

Small Batch & Made-to-Order Production

- These designers typically cut and sew garments themselves, according to specific customer demands, effectively and strategically avoiding excess inventory and post-production waste.

Fabric is expensive

- Independent designers often face higher fabric costs compared to larger brands as they typically do not have the advantage of purchasing materials in bulk and have limited purchasing power. Many designers shared the same frustration with sourcing fabric, as there is no “go-to” local fabric store, but many people mentioned finding affordable recycled fabrics on online stores like Moon Fabrics and Fab Scrap, a deadstock fabric marketplace based in New York City.

Use of Recycled or Biodegradable Materials

- Use of recycled or biodegradable materials: We also found the majority of surveyed designers prioritize sustainability by incorporating recycled materials into their creations, a strategic approach that not only reduces fabric costs but also promotes environmental consciousness. Some forward-thinking designers, such as **Celeste Malvar-Stewart** are embracing the use of biodegradable materials, such as alpaca wool, further reducing their ecological footprint. By employing these mindful production techniques and embracing eco-friendly materials, independent designers play a significant role in minimizing waste within the local textile ecosystem.



Source: Celeste Malvar-Stewart | *Columbus Monthly*



Source: House of Isa | *Columbus Monthly*

Independent Designers



Areas of Opportunity



Source: Xantha Ward | Adam Cairns *Columbus Dispatch*

01 Fabric Store Exchange

Diverting textiles directly to designers presents a promising opportunity to address the issue of textile waste in the city, while simultaneously catering to the demand for locally sourced fabrics by designers. Independent designers, who prioritize waste reduction and budget considerations, can greatly benefit from this channel as it provides an efficient means to divert textile waste.

Retailers



The city is home to the fourth largest concentration of fashion retailers in the United States and nearly 50 percent of the U.S. population is within a 10-hour drive from the Columbus region, making it a hub for logistics and distribution for large retailers⁴⁰. The Columbus-based fashion retailers outsource the majority of clothing production to countries like China, Bangladesh, India, and Vietnam, where labor and production costs are lower. Thus, individual garment factories are responsible for disposing of factory floor waste. Retailers select suppliers based on their ability to meet the brand's quality standards while remaining cost-effective, but do not assume accountability for the waste produced in overseas factories. It is a common practice to avoid looking too closely at the waste disposal practices of their suppliers, as retailers often attempt to avoid liability for environmental or human rights violations that may occur in their supply chain. Though a majority of production waste is produced overseas, fashion retailers contribute to the following local waste streams:



DESIGN WASTE

Columbus ranks third nationally for fashion designer population, with an estimated count of 8,200 in 2017, per Kenny MacDonald, Chief Economic Officer of Columbus 2020⁴⁰. Major brands like L Brands, Abercrombie & Fitch, Express, and Lane Bryant host technical design teams to oversee product development, crucial for maintaining quality and consistency. However, this process generates significant pre-production waste or design waste.

The product development journey commences with merchants identifying market trends and planning product assortments while aligning with the brand's business objectives. These merchants relay product requirements to the design team, fostering competition among designers to create market-viable designs. If internal sourcing isn't feasible, designs are sourced externally. One retailer representative shared that a design ratio between 2:1 and 4:1 helps ensure a wide selection range for the merchant. Each style is documented in a tech pack, detailing construction specifications.

Upon style selection by the merchant, a minimum of three fit samples are produced per style. These garment prototypes enable refinement before production. One Columbus-based retailer reported an annual creation of 1,500-3,000 styles, resulting in up to 9,000 sample garments. Finalized designs are sent to overseas production partners via updated tech packs, which contain all of the technical information about a product used by designers and production staff.

Our estimation suggests that about half of the fit-approved samples are stored for internal sample sales, while the remaining unmarketable samples accumulate onsite before being landfilled. Beyond samples, fabric headers—small fabric pieces used for quality, color, and texture evaluation—also contribute to waste. Provided by suppliers, these swatches emerge as a significant source of fabric waste in product development.



Source: *Business of Fashion*

Retailers Cont.



UNSOLD PRODUCT WASTE

In addition to pre-production waste, unsold products are another local waste stream created by large retailers. Unsold product waste typically comes in three forms: returns and overstock.

- Off-price buying:** Large retailers often sell clothing to discount stores like TJ Maxx through a process called "off-price buying." Off-price buying involves purchasing excess inventory or canceled orders from brands and other retailers and reselling them at a discount to consumers. After purchasing the inventory, off-price retailers like TJ Maxx stock the items at their local stores. You'll find many items from local retailers stocked in local TJ Maxx stores because there is a TJX distribution center, also in Columbus, OH. The off-price buying process is an excellent way for excess inventory to be handled and sold locally—keeping transportation emissions lower than shipping inventory across the country or globe.
- Selling to textile recyclers:** In addition to selling to discount stores retailers also cited selling unsold inventory to textile recyclers. One retailer cited donating denim to Blue Jeans Go Green, who recycles denim to create new products or cotton fiber insulation. Another retailer cited donating inventory to Martex. Martex Recycling Company offers a range of services, including textile waste collection, sorting, and processing. The company operates a processing facility where they sort and process textile waste into reusable fibers and textiles. The processed fibers can be used to create a wide range of products, including insulation, carpet padding, and other building materials. Creating regenerated textiles from recycled products is a great way to divert the waste from landfills, but this process typically take more resources (water, electricity, etc.) than keeping the existing garment moving circularly, locally.
- Dumping in on-premise waste receptacles:** For returns and out-of-season items collected in stores, some garments are trashed on-premise. Over the last three years, the viral #dumpsterdiving trend on TikTok captured activists rummaging through trash receptacles at shopping malls and retail stores and showing what they found in a haul. These videos exposed how some store representatives trash off-season or damaged inventory when they could be donated to those in need. This is because store associates are often pressured to make way for new collections and maintain a desirable level of supply with limited space. TikTok accounts @not.so.trashy @dumpster_finds @TheBadger are creators in Central Ohio documenting their finds from local fashion retailers, and beauty and discount stores.



Source: Retail Gazette



Source: Turbosquid Pond5

Retailers Cont.



POST CONSUMER WASTE

Over the past four decades, fashion consumption in Central Ohio, the U.S., and the rest of the global North has accelerated significantly, driven largely by the rise of fast fashion brands. These brands, including notorious ones like SHEIN, Fashion Nova, and Pretty Little Thing, churn out inexpensive, trend-driven clothing at a rapid pace, stimulating a culture of disposable fashion. Even "premium" lifestyle brands contribute to post-consumer waste by adopting similar fast fashion models. Leveraging influential social media figures, brands constantly expose consumers to new trends, fueling demand. However, the products often exhibit "planned obsolescence", encouraging frequent replacements. Regardless of the product quality, the promotion of seasonal collections and substantial investment in trend-setting make these retailers accountable for the lifecycle of their products.

Post-consumer waste, waste generated by consumers after a product has served its purpose, forms a significant portion of the solid waste stream. From our survey of Columbus residents, 60% primarily shop at national retail stores, both physically and online. Surprisingly, 90% donate their unwanted clothing while 20% discard it as trash.

For a substantial reduction of post-consumer waste, it's imperative for retailers to curb their production volumes. Instead, the focus should shift towards crafting high-quality, enduring products that hold resale value, fostering a circular economy that champions reuse over disposal.



Source: Emily Witt *The New Yorker*



SHOPPING CENTERS

Retail stores occasionally dispose of their unsold or damaged merchandise in shopping center dumpsters to expedite inventory turnover. Regrettably, local shopping centers currently lack active monitoring or tracking systems for textile and fashion waste in their waste receptacles, making them a prime location for 'dumpster diving' among Columbus residents. Most shopping centers' recycling programs are geared towards food and cardboard waste, with no specific regulations for product waste.

A representative from one shopping center expressed confidence in potentially influencing the disposal habits of smaller, boutique tenants. However, many national retailers adhere to their own waste disposal policies, often selling unwanted inventory to discount retailers like TJX or recyclers. Given that waste from major shopping malls is directly transported to landfills, these shopping centers are strategically positioned to implement policies that could significantly divert fashion waste.



Source: Jeffrey Konczal *ACBJ*

Retailers



Areas of Opportunity



Source: Inside Amazon Style store at Easton Town Center | 10TV News

01 Brand Resale Marketplaces

Lululemon, for example, launched its “Like New” program that allows customers to drop off their unwanted products in-store in exchange for an in-store credit. Items collected through the in-store drop-off process are then resold at 50% of the original resale price, providing a more accessible entry point to the brand. More retailers should develop similar programs to foster brand loyalty and reach customers at more price points.

02 Providing Mending and Repair Services

Another way retailers can help extend the life of their products is by providing free or accessible mending and repair services for their products. In collaboration with Cobbler’s Direct, Designer Shoe Warehouse (DSW) provides a repair service at all of their 500+ locations for shoes, boots, bags, and belts. DSW ships all products to Cobbler’s Direct for repair in Austin, TX, and the repaired products are shipped back to the store for customer pick-up. Though this service is not free, retailers should consider offering accessible repair services included in the original price of the garment.

03 3D Product Design

A few local retailers are now integrating 3D design tools, like Clo3D, into their design processes to minimize the production of physical samples. These tools facilitate the creation of detailed virtual prototypes, enabling designers to tweak and finalize designs before they go into physical production, reducing waste and costs associated with multiple iterations. By adopting 3d design, other brands can enhance efficiency, reduce environmental impact, and enable a more agile response to market trends.

Retailers



Areas of Opportunity



Source: Amazon Style store at Easton Town Center | 10TV News

04 Establish Offtake Agreements with Textile Recyclers

Offtake agreements between brands and textile recyclers solidify a steady supply/demand of recycled textiles. These agreements can ensure recyclers have consistent input for their processes and/or buyers for their regenerated textiles. By guaranteeing inputs/outputs, these agreements provide a foundation for recyclers to expand operations and even raise more money from investors. As more brands recognize the benefits and embrace such agreements, it could catalyze the growth of the textile recycling industry, driving it closer to mainstream acceptance and making sustainable fashion practices more prevalent.

05 Validate Sustainability Claims Through Certifications

Retailers should pursue certifications to substantiate their sustainability claims, as these third-party verifications provide an unbiased assessment of their eco-friendly initiatives. Acquiring certifications not only enhances brand credibility but also deters greenwashing, ensuring that sustainability statements are rooted in genuine practices rather than mere marketing tactics. As consumers become increasingly aware of environmental issues, such certifications reassure them of a brand's authentic commitment, building trust and fostering loyalty. OEKO-TEX, Cradle to Cradle, and Global Organic Textile Standard (GOTS) are examples of certifications retailers can work to obtain⁴⁷.

FOR SHOPPING CENTERS

06 Conducting a Waste Characterization Study at Shopping Centers

Conducting a waste characterization study can provide valuable insights into the prevalence of fashion waste within these centers. By quantifying the types and volumes of waste, shopping centers can make data-driven decisions to optimize waste management strategies and even set new waste disposal policies.

Manufacturers



Ohio's apparel manufacturing sector has shrunk significantly over the last 50 years. Data from Remake indicates a reduction from 165 apparel manufacturers in 2001 to 79 in 2021 and a concurrent decrease in workforce from 3,007 to 1,677 people. Despite these shifts, Ohio ranks 10th nationwide in apparel production, exhibiting a 10% industry growth in the decade preceding the pandemic ⁴¹.

The textile production process, encompassing spinning, weaving, knitting, dyeing, and finishing, invariably generates waste materials like scraps and trimmings. Manufacturers primarily engage with a small cohort of corporate customers to produce textiles such as bedding and curtains. Compared to donated clothing, production waste from textile manufacturers is easier to sort given its high-volume production and consistent fabric types, typically cotton.

Nonetheless, sorting can pose operational challenges due to its time-consuming and costly nature. Even when dealing with only two fiber types—100% polyester and 100% cotton—one manufacturer described the difficulty of managing waste scraps, which accumulate on the factory floor and are reactively baled. This manufacturer generates around 2,500 pounds of textile waste daily, stored onsite before landfilling.

Some manufacturers incur costs to dispatch their waste to textile recycling facilities, but there is increasing interest in generating revenue from this textile waste.

Manufacturers



Areas of Opportunity



Source: Fluvitex facility | Dan Eaton *Bed Times Magazine*

01 Invest in on-site waste management processes and recycling equipment

By implementing on-site waste management and recycling infrastructure, manufacturers can sort, recycle, and repurpose textile waste more effectively. The Ohio Environmental Protection Agency (OEPA) offers grants and funding opportunities to support businesses in building internal recycling infrastructure.

02 Identify recycling opportunities for specific fibers

Manufacturers are uniquely positioned to find an after-market for their waste due to their common practice of producing items with a pure composition of one fiber. This makes it easier to separate and recycle textile waste, as single-fiber materials can be more efficiently processed into new products.

Colleges & Universities



Currently, there are two fashion design programs offered in Central Ohio, Columbus College of Art & Design and Hocking College. There are multiple projects throughout the school year that require students to source their own fabric and create their own original designs. Although these programs occasionally get fabric donations from local fashion retailers, individuals, and other universities, students typically source their own fabrics through online fabric marketplaces. For small collections, a student sources upwards of 30 meters of fabric. These collections generate a significant amount of fabric waste, typically stored in a supply closet on campus.

Similar to the sentiment expressed by local designers, students have also expressed frustration with sourcing affordable textiles and fashion supplies locally. Currently, there are no major fabric stores in Central Ohio outside of Hobby Lobby and Joann Fabrics, and the demand for recycled textiles remains high.

We conducted an interview with a 2023 graduate of CCAD, Casey Immel-Brown, to better understand the current textile needs of students.



Q: Are you a Columbus, OH native?

A: I am. I grew up in and around Grandview.

Q: Why did you decide to attend CCAD?

A: Honestly, it was primarily an economic decision. I did my first two years of fashion school through the Academy of Art University's online program, but (like a lot of people discovered during Covid) I found that after a certain point teaching fashion design entirely online isn't particularly effective. I considered transferring to a number of schools, but in the end, relocating wasn't a good option economically and CCAD became the most practical choice. That said, having been in an enormous fashion program before, there was something appealing about moving to a smaller school where you could access resources and instructors more easily.

Colleges & Universities Cont.

Q: What sparked your interest in fashion design?

A: I became meticulous about clothing as soon as I was old enough to dress myself. I grew up in a cult, and I learned very early that clothing (and how it's styled) was the way to protect my identity in an environment that was designed to destroy any sense of individuality. I wanted to go to school for fashion design when I was in high school, but college wasn't an option for me back then. Instead, I spent years as a musician, producer, and DJ, while working a day job in IT. Eventually, I hit the point where I realized I actually could just go to school as an adult instead of working a job I couldn't stand. It wasn't long after starting fashion school that I realized I was immediately better at it than anything else I had ever done. I took a break from school for a bit to look into different places to finish my degree, and during that time I added styling (both personal and editorial) and leather work into my skillset. I graduated from CCAD this past May and immediately after expanded my thesis into a full-fledged ten-look collection.

Q: How many courses required you to purchase textiles?

A: I transferred to CCAD with the majority of my design and construction courses already completed, so at CCAD I think I only needed to buy textiles for 4 courses (including my thesis collection). But at my first school, I think I had to buy fabrics for around a dozen different classes.

Q: Where do you source fabric for your projects, and has it changed over time?

A: Generally either online or, in the case of my last collection, I wind up having to travel to New York to source materials. Most of my work is in the luxury/couture arena, and I'm also extremely picky about the fabrics I use, and generally, there isn't a single silk fabric being sold anywhere in Columbus. The biggest thing that's changed in how/ where I source fabrics is that I now have to consider the ongoing availability of the fabrics I use to ensure that I can recreate pieces for customers and fulfill orders. A lot of the places online people are most familiar with (Mood for example), primarily deal in deadstock fabric which is great for one-off designs but can be more difficult if you're producing a line.

Q: What local resources are available to source fabric?

A: In terms of fabric stores, we're pretty limited to places like Joann Fabrics and quilting stores. That said, we do have a lot of textile artists in the city and there are definitely options for designers to collaborate on the creation of textiles. We're also really lucky in Columbus has thrift stores and estate sales that aren't completely picked over in the way they are in other parts of the country, and that opens up a lot of opportunities for repurposing textiles. The downside of those last two options though is that they don't scale well beyond making individual pieces.

Q: What do you believe are the most accessible textile options in Columbus?

A: Printed quilting cotton and synthetic fabrics meant for costume and home sewing are the most available by far. I use a lot of leather and that is the one thing I can typically get locally. Tandy Leather can be hit-or-miss and is overpriced for some things, but if you know a bit about leather you can find some professional quality pieces of leather without overpaying. That's probably the highest quality material readily available in the city.

Colleges & Universities Cont.

Q: What unique opportunities/resources are there in Columbus for growing a fashion business?

A: Columbus has one of the largest fashion industries in the country, however it's almost exclusively mass-market retail fashion. One of the ironies of that is that the creatives who move here to work for those brands have tastes that are more fashion-forward than what is being produced by the retail industry. When you add onto that a massive higher education sector which also brings in people from all over the world and one of the few growing economies in the midwest there is definitely a hugely untapped market in Columbus for well-made, forward-thinking fashion. But most of the boutiques and fashion institutions here haven't caught up to that demand yet. As a result, there are enormous opportunities for innovative luxury designers and independent retailers here.

Q: What have been your biggest challenges in growing your fashion business/accomplish your goals?

A: Really the same challenges I think most artists face when trying to support themselves. Trying to make a business that's immediately self-supporting typically means chasing the market and letting that dictate your work. I didn't completely change my entire life in my 30s and early 40s to do something that I don't entirely love and believe in, so I'm having to grow things more slowly and consciously to maintain the quality of the work.

Q: Which sustainable practices do you prioritize in your creation process?

A: The longevity of my pieces is the most important thing to me in terms of sustainability. My biggest mentor in fashion design has been Celeste Malvar-Stewart, who teaches both Sustainable Design and Tailoring at CCAD, and is an incredible couture designer making almost exclusively zero-waste pieces. One of the things she has said to me many times, that's stuck with me more than anything is "couture is inherently sustainable". That's because garments made with high quality materials using couture and traditional tailoring techniques can last almost indefinitely, and tend to be kept in people's closets. The goal for me is to reduce overall consumption and waste by making pieces of clothing that will, over their lifetime, replace numerous more disposable garments that would have been purchased.

This also means using techniques (eg. wider seam allowance, more hand sewing) which allow garments to easily be repaired and altered. It's also one of the primary reasons I love using leather. There are a lot of issues with current production practices, but leather doesn't get thrown away often. If you're conscious about your designs and methods, you can make things that may have higher upfront resource costs, but which ultimately pay that back many times over.



Colleges & Universities



Areas of Opportunity



Source: Columbus College of Art & Design

01 Create a platform or marketplace where students can source deadstock and scrap fabric from local organizations

Establishing a marketplace for deadstock and scrap fabric from local organizations offers numerous benefits to fashion students and local designers. It provides them with access to unique and sustainable materials at a lower cost, fostering creativity and innovation in their designs.

02 Establish a recycling partner for student fabric waste.

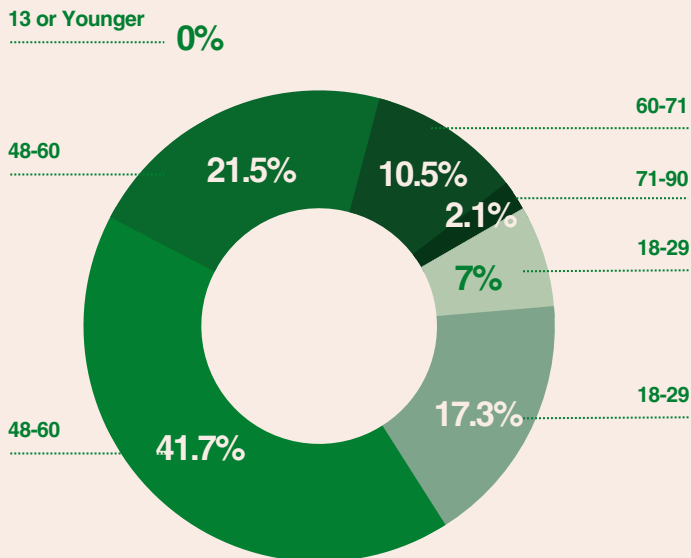
Colleges and universities should actively seek recycling partners for student fabric waste to instill sustainable and circular practices in the future design workforce. By collaborating with recycling partners, educational institutions can create a culture of environmental responsibility, raising awareness among students about the importance of waste reduction and recycling. This approach not only socializes sustainable practices but also equips the future design workforce with the knowledge and skills to integrate circular principles into their creative processes, fostering a more environmentally conscious fashion industry.

Residents

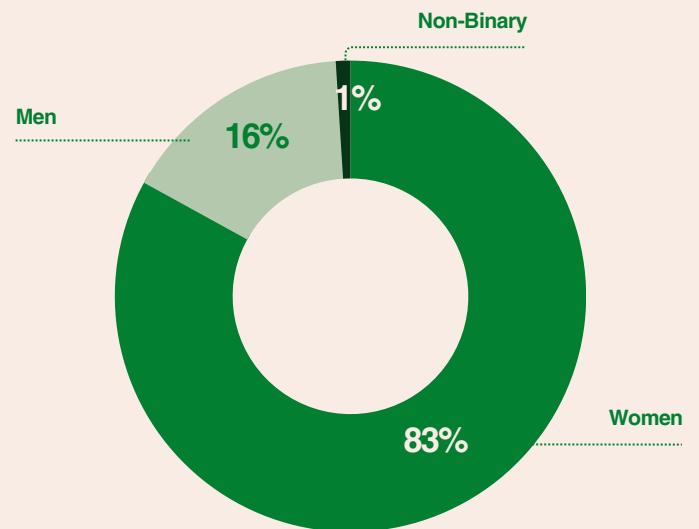


We conducted a survey of 157 Central Ohio residents on where they shop and how they let go of their unwanted clothing. The survey surprisingly revealed a strong aversion to throwing away clothing and primarily opting to donate clothing.

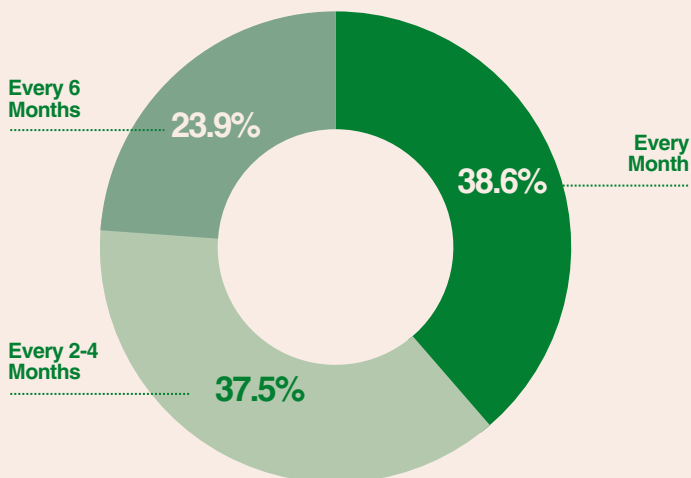
Age



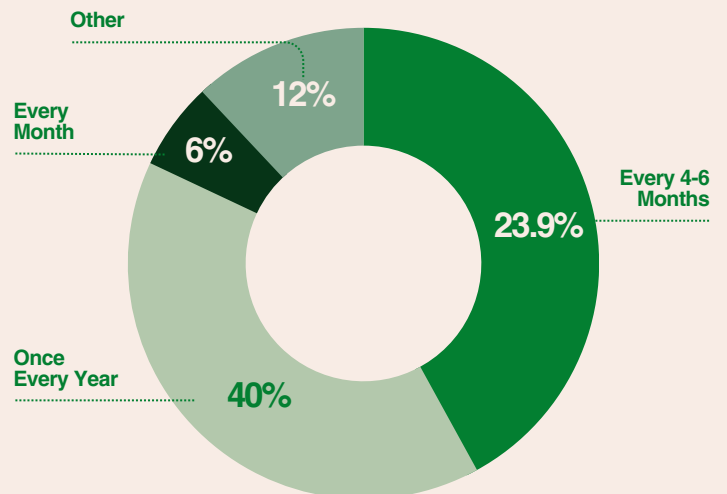
Gender Identity



Shopping Frequency

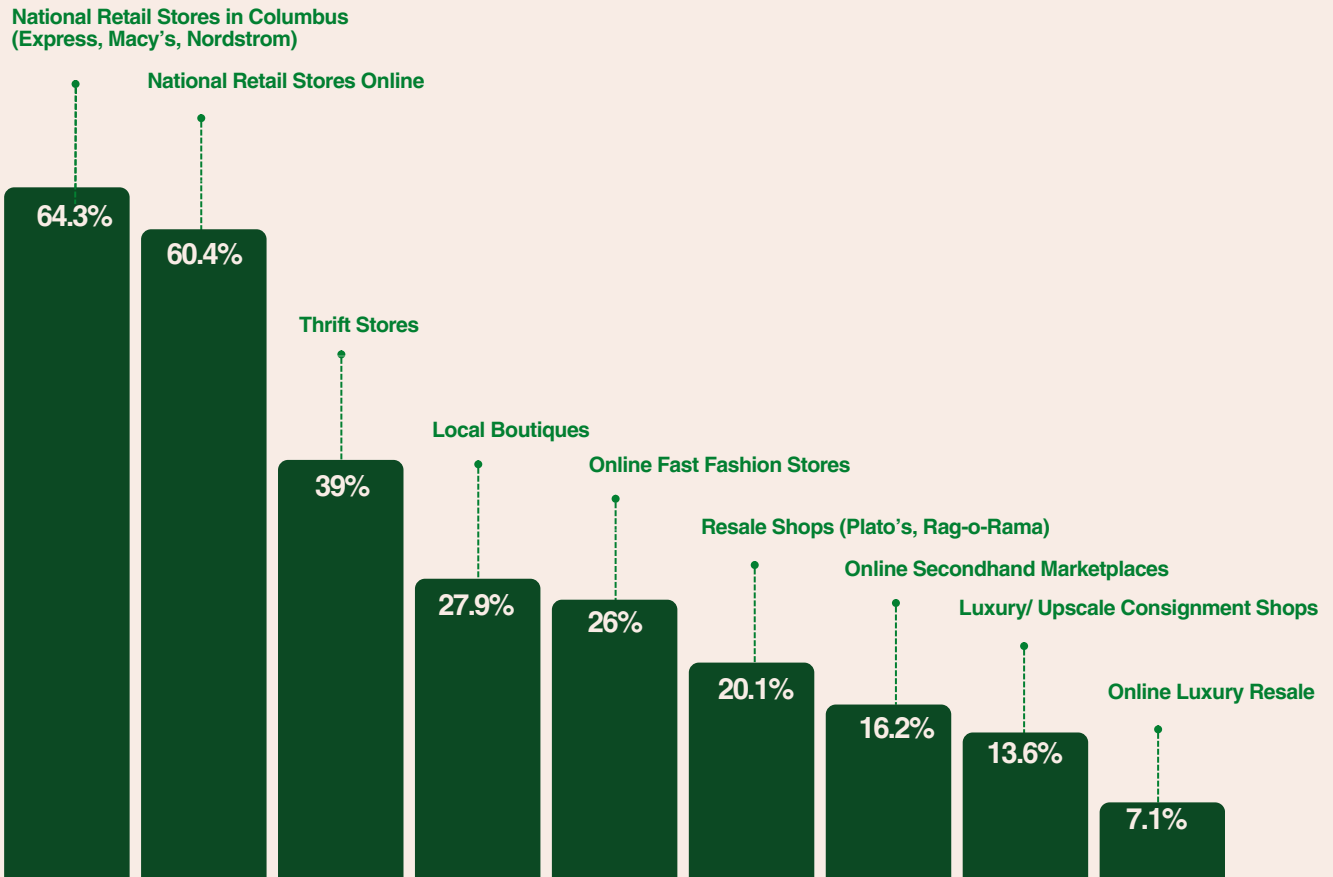


How often do you discard or let go of clothing?

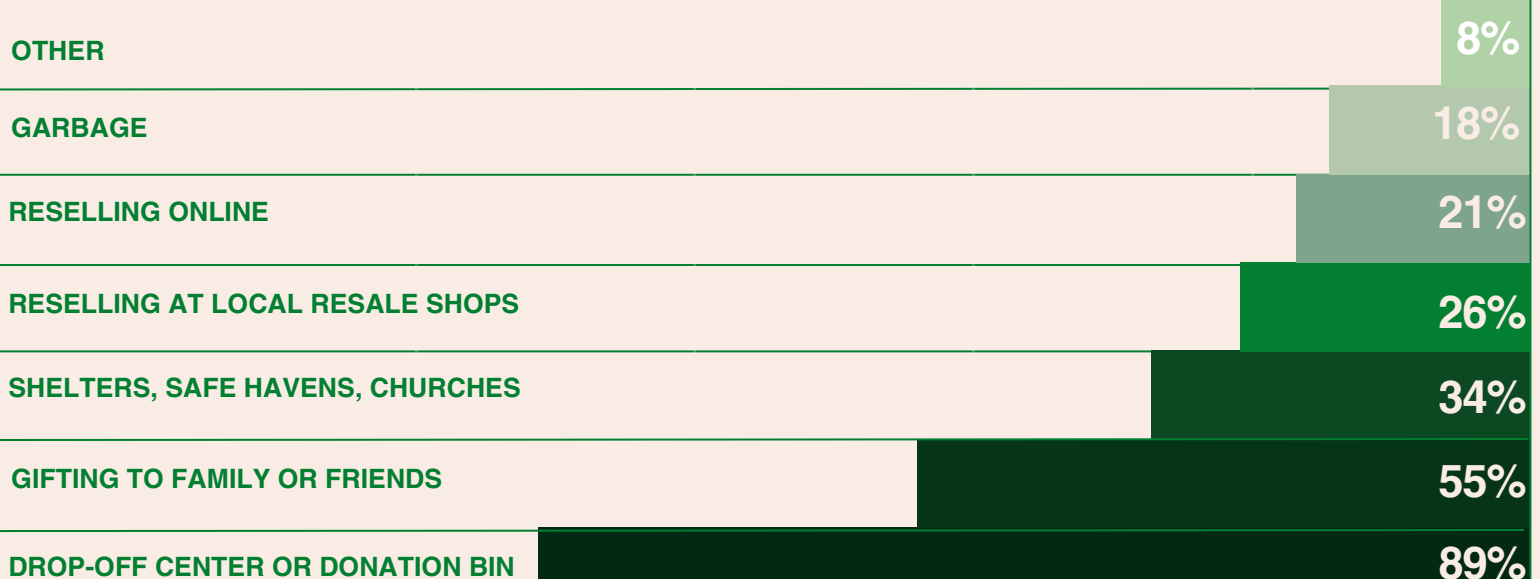


Residents Cont.

Top 3 Shopping Destinations



Most common methods of disposing clothing



“The clothing items I throw away tend to be more like underwear/socks with holes or that are heavily stained. Otherwise, I try to repurpose (old stained t-shirts as rags, donate, etc). It would be nice to have a better understanding of what I can do with clothes that I feel like aren’t nice enough to donate.”



“I just donate at Goodwill because it’s close. I would love to donate to other places but those aren’t as easy to get information on. I would also use a textile recycling service that you can send your clothing to.”

“I try selling to Plato’s & Clothes Mentor first, then I sell high price items on Poshmark. I take the rest to Goodwill, but Goodwill, Salvation Army, etc. end up trashing a lot themselves. I wish I had a better, local option for donations or a textile recycling center in Columbus.”



“Curtsy is the best resale app for my age demographic”

“I have sent clothes to a company that recycles textiles called “For Days”. The only barrier to that is it costs \$20 per bag and that can add up quickly.”

“Children’s clothing especially is never worn long enough to make it unusable. I always donate or hand down children’s clothing.”

8 Quotes from Residents

Residents are crucial stakeholders in building lasting textile recycling infrastructure and socializing sustainable fashion strategies.

Residents



Areas of Opportunity



Source: *Experience Columbus*

01 **Rethink relationship with clothing**

If you've fallen into the fast fashion cycle, recognize the downside and rethink your approach. Consider shopping for clothing less frequently, buying long-lasting pieces, and buying second-hand.

02 **Sell clothing**

There are many avenues to sell one's wardrobe for cash—buy-sell-trade stores, flea markets, and consignment shops. For high-quality/premium clothing items, consumers can supplement their income by flipping items proactively.

03 **Donate clothing to local organizations instead of national donation centers**

Because a majority of goods donated to large donation centers end up in the global secondhand fashion market, consumers should consider donating to organizations that distribute clothing directly to underprivileged communities in Central Ohio.



Final Recommendations

Textile waste poses a significant environmental challenge, but it also presents an **untapped potential for economic growth and innovation**. By implementing coordinated efforts across industries, government, and community organizations, we can reduce textile waste and promote a circular economy in Central Ohio. In scoping our recommendations, we prioritized solutions that are foundational to long-term textile waste diversion and create economic opportunities for creatives.

Create Local Textile Recycling Working Group

Initiating an effective ecosystem around textile waste requires the formation of a diverse, cross-functional working group. With our support, we believe SWACO is best to lead this effort as they have experience creating regional diversion programs for a variety of materials. Starting with the advisory group of different industry representatives interviewed for this report, this working group should include:

Retail leaders

Charitable organizations

Government officials

Independent designers and artists

Fashion and textile educators

Textile innovators

Donation centers

Manufacturers

Arts organizations

Workforce development organizations

Economic development organizations

While invitations will target specific stakeholders, the group should encourage open participation, fostering a sense of community around waste diversion. Upon joining, members should outline their expectations and potential contributions. This information should be documented and curated into an ecosystem map, where members can easily identify downstream or upstream partnership opportunities soon as possible.

We recommend the working group's objectives are centered around these five key areas:

- Decreasing of textile waste in the Franklin County Sanitary Landfill through local diversion efforts
- Scaling a resilient textile recycling infrastructure and workforce
- Meeting community and charitable needs
- Empowering designers and artists
- Establishing recycling targets for local corporations
- Proposing local legislation

In terms of the governance model, we recommend establishing leadership roles aligning to each key objective. This working group should meet at least once quarterly, while maintaining an online forum like Slack or Discord to keep members connected and engaged.

Provide Business Incentives for Textile sortation & recycling innovators

As previously mentioned, investment in textile recycling is soaring, with projections pointing to a \$9.9 billion market by 2023²⁴. Central Ohio can entice startups, established U.S. businesses, and even international companies seeking U.S. expansion by offering attractive business incentives.

Startups: Startups like Circ and Recover, which recently secured millions in funding to scale their operations, represent just the tip of the iceberg. Numerous early-stage textile recycling innovators stand poised to grow. Central Ohio could provide grants, host pitch competitions, and offer business incentives to encourage these startups to launch and expand their operations in Central Ohio.

Established US-based companies: Despite the recent surge in textile recycling investment, many established U.S. businesses are also seeking opportunities to grow. Firms such as Blue Jeans Go Green and FabScrap are among the established companies with the potential to expand to other parts of the country.

International companies: Europe's Extended Producer Responsibility laws, alongside its advanced recycling infrastructure and deeply-rooted recycling culture, have cultivated some of the world's most innovative textile recycling companies. For instance, Renewcell is a celebrated textile-to-textile recycling company from Sweden, and Infinited Fibre Company is a Finnish firm that can transform cellulose-rich raw materials into high-quality textiles⁴². Central Ohio could present itself as the ideal location for these companies to set up their U.S. or North American operations.

(View Appendix for a full list of companies)

\$ **9.9B**

**PROJECTED
TEXTILE
RECYCLING
MARKET BY
2023**

Scale Collection, Sortation, and Recycling Infrastructure

SWACO's Green Economy Business Park also provides the infrastructure for SWACO to support a state-of-the-art textile recycling facility. SWACO is uniquely positioned to support innovative collection, sortation, and diversion infrastructure for both commercial and post-consumer waste that serves the needs uncovered by Central Ohio stakeholders and residents. A state-of-the-art textile recycling system consists of several integral components designed to work together for efficient, sustainable processing of textile waste.

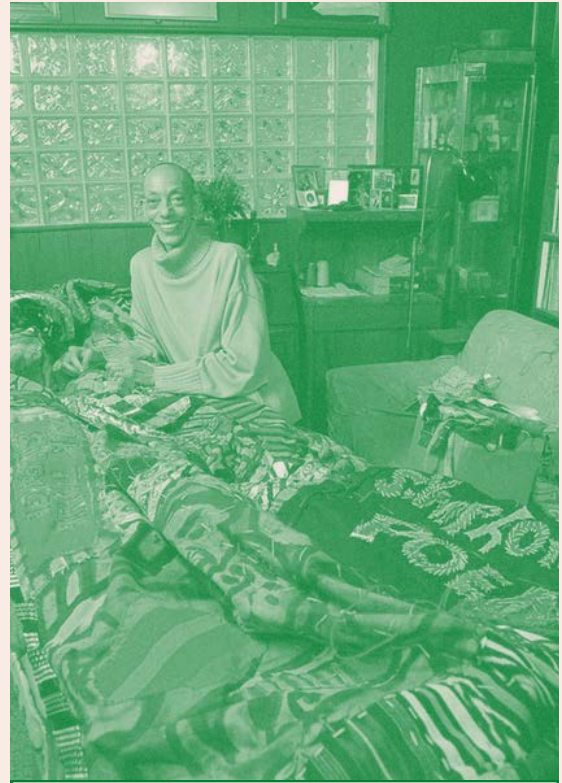
Here is a breakdown:

- **Collection:** This involves a system to collect discarded textiles from various sources, such as retail stores, homes, factories, and donation centers. This could include collection bins in strategic locations, and scheduled pickups from commercial sources.
- **Sorting and Grading:** After collection, textiles are sorted by type and condition. Advanced systems might use automated sorting technologies, like near-infrared spectroscopy, to categorize materials based on fiber type. Grading involves assessing the quality and usability of the textiles.
- **Cleaning and Sanitizing:** The sorted textiles are cleaned to remove dirt, stains, and potential contaminants. This stage may also involve sanitizing the textiles to ensure they are safe for further processing.
- **Processing Equipment:** This could include shredders to break down textiles into smaller pieces, and mechanical systems to further process textiles into usable forms, such as insulation, carpet padding, or rags. For higher-value recycling, there could be chemical processing equipment to break down textiles to the fiber level, enabling them to be re-spun into new textiles.
- **Quality Control:** Systems are in place to check the quality of both incoming materials and the final recycled product. Advanced facilities may use automated technologies to aid in quality control.
- **Sales and Distribution:** Once processed, the recycled textile materials need to be distributed. This could involve selling directly to manufacturers, retailers, or other businesses that use recycled textiles in their products.
- **Research and Development:** To stay state-of-the-art, the system should also have an ongoing focus on research and development, looking for ways to improve efficiency, quality, and the range of textiles that can be processed.
- **Energy Efficiency:** These facilities should have a clean energy source to optimize ecological benefits.

Invest in fiber art

As Columbus grows as a budding "Fashion City", it's vital to broaden our grasp on textile and fiber arts. We suggest that the city of Columbus boosts its support for fiber art, a realm rich in creativity and aligning with Columbus' vision for sustainability and artistic flair. Simply put, fiber art is crafted from textiles, using methods like weaving and knitting. Textile art offers a sustainable solution to diverting textile waste. As the very essence of art is preservation and appreciation, transforming discarded textiles into artworks ensures their longevity. By repurposing textile waste into art, we not only reduce landfill contributions but also create pieces meant to be cherished for years to come.

Columbus boasts a rich history in textile art, housing works by renowned artists such as **Aminah Robinson**, whose art is on permanent display at the Columbus Museum of Art. Additionally, recent contributors like Don Doncee Coulter, Anita Maharjan, and Celeste Malvar-Stewart further enrich the city's artistic legacy. By encouraging more purposeful utilization of recycled materials, Columbus can convert this untapped resource into an artistic revolution. This movement won't only advance sustainability but also fortify Columbus's image as a city that masterfully blends fashion, art, and environmental awareness.



Source: Jeff Bates/ Courtesy of the Columbus Museum of Art

We first recommend the City of Columbus **establish a Recycled Textile Art Fund** through the Greater Columbus Arts Council, Maroon Arts Group, and/or another city-wide arts organization. Textile art can range from traditional practices like tapestry weaving, quilting, and embroidery, to more contemporary forms such as textile sculpture, installation art, or mixed media pieces that combine textiles with other materials. With recycled textiles, artists might also engage in practices like rag-rugging, where old fabrics are made into rugs, or fabric collages, creating a new image or design from various scraps. The Art Fund would fund innovative textile art projects that utilize recycled textiles and support dedicated gallery shows and events to showcase these sustainable artworks, fostering community engagement and elevating the dialogue around textile recycling. The Art Fund's success hinges on a comprehensive approach that includes:

- **Active Sourcing:** Partner with local waste management and recycling centers, thrift stores, and other businesses to secure a continuous supply of discarded textiles for artists.
- **Artist Engagement:** Implement a rigorous outreach program to attract artists interested in working with recycled textiles, and provide necessary training and resources.
- **Public Involvement:** Involve the community through educational programs, interactive workshops, and volunteering opportunities to raise awareness about textile waste.
- **Showcasing Artwork:** Regularly organize gallery shows and events to display the creative outcomes, using these platforms to further promote the cause of recycling.

Invest in fiber art



Source: Lauren MCutcheon *Mommy Nearest*

We also recommend **expanding youth textile art education programs** through Columbus Parks and Recreation, the Columbus Fashion Alliance, and other youth educational programs. By incorporating the use of recycled textiles in these programs, youth learn that creativity and environmental consciousness are not mutually exclusive, and provide foundational knowledge on waste-led design. Below are a list of potential course offerings and programs at the intersection of fiber art and circularity:

Intro to Recycled Textile Art

This beginner-level class will introduce students to the concept of textile recycling and its importance. They will also learn basic techniques for transforming recycled textiles into art.

Recycled Weaving Workshop

Students will learn traditional weaving techniques using recycled fibers, creating unique pieces of art from old textiles.

Quilting from Scraps

This class will introduce the art of quilting, with a specific focus on using scrap fabrics. Students will learn how to design and create their quilts.

Textile Printmaking

Students will learn how to create stamps and screens from recycled materials, using them to print unique designs on recycled fabrics.

Eco-Dyeing Workshop

This class will introduce students to eco-dyeing techniques, using natural, non-toxic dyes to add color to recycled textiles.

Rag Rug Making

This hands-on class will teach students the traditional craft of rag-rug making, turning old textiles into functional art pieces.

Textile Art Installation

This advanced class will guide students in creating large-scale art installations from recycled textiles, teaching them how to plan, design, and execute their ideas.

Establish a Commercial & Consumer-Facing Marketplace for Textile Fashion Waste

Once local textile recycling infrastructure matures and a local supply of recycled textiles and used clothing is centralized, a public marketplace can help raise awareness and create demand among residents, designers, and companies. Independent designers and fashion students spoke to challenges around not having a large local fabric store, with most sourcing textiles online or even traveling to do so. The store can serve as a local broker between large merchants/manufacturers and designers and students. This initiative will not only benefit the environment but also serve to distribute resources directly to the city's residents and recycling partners through:

- **Increased Awareness and Demand:** A public marketplace will raise awareness of the local textile supply, encouraging residents, fashion designers, and companies to utilize these resources. This, in turn, will create demand, stimulating the local economy and encouraging further investment in textile recycling.
- **Support for local designers:** A textile waste marketplace would provide a valuable resource for local designers, allowing them to access a wide variety of materials at affordable prices. This would foster creativity and innovation while reducing manufacturing costs for emerging designers.
- **Skill development for students:** The marketplace can serve as a learning platform for students studying fashion and design. They can gain practical experience in upcycling, repurposing, and creating sustainable fashion pieces, preparing them for future careers in the industry.
- **Economic growth:** The establishment of a textile waste marketplace can contribute to the local economy by generating new business opportunities. It can attract entrepreneurs, artisans, and small businesses interested in repurposing textiles, leading to job creation and economic growth in the region.

Invest and Support Buy, Sell, Trade Stores

Buy-sell-trade stores form the core of Central Ohio's fashion persona, symbolizing enduring value and fostering local economic resilience by keeping dollars circulating within our community. A staggering 96% of local survey respondents indicated thrift stores, consignment shops, resale outlets (like Plato's Closet, Rag-o-rama, Once Upon a Child), or online secondhand marketplaces were in their top three shopping destinations. The increasing popularity of flea markets, such as Streetwear Flea, Friendship Flea, and SoHud Collective, emphasizes a strong community interest in curated, high-quality pre-owned clothing. This trend highlights a substantial opportunity for growth. More permanent spaces for collections that mirror the diverse aesthetics and identities of Central Ohioans would further cement the community's fashion narrative. The following are strategies the city could employ to encourage this development:

- **Grants:** Establish a grant program specifically designed to support the creation and expansion of local buy-sell-trade stores. This could provide the initial funding entrepreneurs need to set up their businesses or existing owners require to expand their operations.
- **Investor Engagement:** Create platforms for potential investors to engage with entrepreneurs and store owners in the buy-sell-trade sector. This could involve hosting networking events, forums, or presentations that allow business owners to pitch their ideas to interested investors.
- **Public-Private Partnerships:** Encourage partnerships between the public and private sectors to fund and support these stores. These partnerships could be based on shared interests in sustainability, local economic development, and community building.

De-incentivize Commercial and Residential Textile & Fashion Landfilling

To promote commercial and residential waste diversion, SWACO and state/local governments should consider disincentivizing landfilling. Two ways to disincentivize landfilling are listed below:

- **Consider future increases to the landfill tipping fee:** One of the largest roadblocks that prevent organizations from recycling their textile and clothing waste is the cheap cost to landfill this material. Central Ohio has one of the lowest landfill tipping fees at \$39.75, compared to a nationwide weighted average of \$60.34 and \$70.81 in the Midwest²⁹. This low landfill tipping fee usually makes landfilling the most economical option, discouraging local textile recycling solutions that can be significantly more expensive. Increasing the landfill tipping fee can de-incentivize wasteful behavior and establish landfilling as a more costly business practice. The additional revenue generated from increased tipping fees can be allocated to fund local textile recycling infrastructure and programs.
- **Impose a state-wide ban on fashion and textile waste:** The FCSL has a lifespan of 42 years before it reaches capacity. Forward-thinking states such as Massachusetts have recognized the effectiveness of using landfill bans as a powerful policy solution to decrease landfill disposal of certain waste streams. (Massachusetts also bans mattresses and commercial food material, among other items). The state of Ohio should consider a similar ban on textile waste. SWACO should also consider this type of policy approach to further its goals to preserve landfill capacity, divert waste from the landfill, and support the growth of the recycling industry.

If organizations are disincentivized to landfills, they will explore alternative strategies that reduce waste generation and promote internal waste diversion efforts. This shift in focus encourages them to adopt practices such as better inventory planning, recycling, upcycling, and composting to minimize the amount of waste sent to landfills.

FRANKLIN COUNTY
SANITARY LANDFILL
HAS A TIPPING FEE OF

\$ **39.75**

COMPARED TO
THE US WEIGHTED
AVERAGE OF

\$ **60.34**

Identify Local, Cross-industry Waste Partnerships

In Central Ohio, a unique business opportunity exists for diverse industries to collaborate on waste management. By identifying synergies and cross-industry solutions, businesses can repurpose each other's waste streams, promoting resource circularity and sustainability. This innovative approach not only reduces textile waste but also fosters a more interconnected and environmentally responsible business ecosystem in Central Ohio.

The Ohio EPA is currently promoting this type of collaboration across Ohio with their Materials Marketplace. The Ohio Materials Marketplace is a collaborative platform connecting businesses and organizations to exchange hard-to-recycle wastes as valuable raw materials. Although this closed-loop network is beneficial for many Ohio businesses, the marketplace is predominantly used for materials such as wood, plastic, and organic chemicals.

There is an opportunity to identify long-term partnerships between organizations for sustained waste diversion. A great example of these kinds of partnerships is what Honda is doing with uniform waste. The Marysville-based manufacturing operations of American Honda Motor have implemented a recycling initiative to convert discarded uniforms into insulation material used in Honda and Acura vehicles. This initiative is part of Honda's "Triple Action to Zero" approach, aiming for products made from 100% sustainable materials by 2050. Discarded uniforms are collected from various facilities, shredded into fibers, and repurposed as insulation components in newly assembled vehicles, diverting approximately 45,000 pounds of uniforms from landfills each month⁴³.

Appendix & Citations

Textile Recyclers By Group

Company	Country	Description
Ambercycle https://www.ambercycle.com/	US	Ambercycle has developed a technology which enables separation of post-consumer polyester/cellulosic blends on a molecular level, yielding high-quality PET pellets and cellulosic dissolving pulp.
BlockTexx https://www.blocktexx.com/	Australia	BlockTexx has developed a technology which enables recovery of polyester/cotton blends, specifically of products such as sheets, towels and clothes of any color or condition, yielding high-quality recycled materials of rPET pellets and cellulose powder
Circ https://circ.earth/	US	Circ has developed a technology which enables separation of fibers, especially polyester/cotton, at any ratio in a hydrother
Circular Systems https://circularsystems.com/	US	Circular Systems is a materials science company that has developed Texloop, Argalooop and Orbital using their circular plus regenerative technology to create valuable fiber, yarn and fabrics made from food-crop and fashion waste.
Cure Technology https://curetechnology.com/	Netherlands	CuRe Technology has developed a low-energy chemical recycling process for any type of colored textile polyester.
Evrnu https://www.evrnu.com/	US	Evrnu is a textile innovation company that developed NuCycl, a collection of multiple regenerative fiber technologies that repolymerize textile waste (including post-consumer clothing). Materials are able to be recycled multiple times through their process.
PurFi https://purfiglobal.com/	US / Belgium	PurFi has developed a rejuvenation process combining both mechanical and chemical recycling, turning textile supply chain material back to virgin quality fiber, as well as separating textile fiber composites. Their process allows multiple fiber types to be recycled.
Renewcell https://www.renewcell.com/en/	Sweden	Renewcell has developed Circulose, which is a dissolving pulp product made from 100% post-consumer and post-industrial waste with high cellulosic content.

Textile-to-Textile Innovators

Company	Country	Description
Spinnova spinnova.com	Finland	Spinnova has developed a fiber made from FSC and/or PEFC certified wood in a mechanical process, turning it into micro fibrillated cellulose feedstock. This process also allows for cellulosic textile waste to be recycled into new fibers.
Södra - Once More® sodra.com/en/gb/pulp/once-more-by-sodra/	Sweden	Södra has developed OnceMore, which is an industrial-scale textile recycling technology. The process combines wood pulp with cellulose textile waste. The output is a pure, high-quality cellulosic dissolving pulp.
Iris Textiles The New Denim Project thenewdenimproject.com	Guatemala	Iris Textiles is a mechanical textile recycler and textile manufacturer focusing on post-industrial waste made from natural compositions only. They are chemical-free, dye-free and use minimal water and energy.
Hilaturas Ferre - Recover® ferreyarns.com	Spain	Hilaturas Ferre works across multiple functions such as collection, sorting and mechanical recycling. Their yarn, "Recover," contains 50% of their recycled material, blended with 50% recycled content from cotton resources, creating RCotton and RColorBlend.
Leigh Fibers leighfibers.com	US	Leigh Fibers is an international manufacturer of engineered fiber solutions. Through their blending and processing equipment they can produce a clean and homogenous material made from repurposed textile waste, serving as raw material.
MartexFiber (Eco2Cotton) .martexfiber.com	US	Martex Fiber is a textile waste trading company. They provide waste management services to textile mills across North and Central America and the Caribbean. Martex Fiber specializes in 100% cotton and cotton/ polyester knits.
RB Fibres rbfibres.com	Spain	RB Fibres is working with a mechanical recycling technology and is able to process both synthetics and cellulosic fiber compositions
Refiberd refiberd.com	US	Refiberd has developed a textile recycling system using AI & robotics to convert post-consumer garments into new, 100% recycled threads. Refiberd also sources fabrics through their custom sorting technology for new textile production

Textile-to-Textile Innovators

Company	Country	Description
Renaissance Textiles renaissance-textile.fr	France	Renaissance Textiles is a collaborative platform for recycling. They are working with collection and mechanical recycling of post-consumer textiles.
Tencel REFIBRA™ tencel.com	Austria	REFIBRA™ technology involves upcycling pre and post consumer cotton waste and transforming it into a pulp that is combined with a wood pulp to create new virgin fibers.
The Brickle Group thebricklegroup.com/	US	The Brickle Group specializes in blending virgin and textile fibers. Their process includes fiber opening, pulling and blending textile fibers made from waste.
UPPAREL upparel.com.au	Australia & New Zealand	Hilaturas Ferre works across multiple functions such as collection, sorting and mechanical recycling. Their yarn, "Recover," contains 50% of their recycled material, blended with 50% recycled content from cotton resources, creating RColorBlend.

Collection & Sortation Innovators

Company	Country	Description
Fibersort™ fibersort.com	Belgium	Fibersort™ is a technology specifically developed for the sorting of textiles based on fiber composition and color properties using NIR (near-Infrared) and RGB camera technology
Phoenxt fibersort.com	Australia, Europe, US	Phoenxt has developed a solvent-free textile fiber separation technology, focusing on synthetic/cellulosic blends
Hivesa Textile SL phoenxt.com	Spain	Hivesa works across multiple functions such as collection, transportation, sorting and recycling
SIPTex sysav.se/siptex	Sweden	Siptex is the world's first large-scale facility of its kind. It sorts textiles by color and fiber composition using near-infrared light, which makes it possible to handle large flows and produce textile fractions that are adapted to different recycling processes
Worn Again wornagain.co.uk	UK	Worn Again has developed a recycling technology that enables separation, decontamination and extraction of polyester and cellulose from nonreusable textiles, PET bottles and packaging, producing dual PET and cellulose outputs.

Textile Recycling Funding Sources

	Organization	Description
Grant funding	US EPA Small Business Innovation Research (SBIR) https://www.epa.gov/	<p>Through its Small Business Innovation Research (SBIR) program, EPA supports the development of new science and technology that protects public health from environmental threats, such as the loss of resources and environmental damage caused by excess consumption.</p>
	Ohio EPA epa.ohio.gov	<p>The Ohio EPA offers many funding opportunities relevant to various ecosystem members from businesses to municipalities. Recycling Market Development Grant offers up to \$200,000 for Market Development projects that propose to create the infrastructure necessary for successful markets of recyclable materials.</p> <p>and Community Recycling and Litter Prevention Grant.</p>
	Ohio Climate Justice Fund ohioclimatejusticefund.org	<p>The Ohio Climate Justice Fund (OCJF) provides funding to organizations across Ohio focused on climate, clean energy and decarbonization.</p>
	SWACO swaco.org	<p>Through SWACO's Community Waste Reduction Grant program, governmental entities and non-profit organizations in Franklin County can receive funding to help offset the costs associated with waste reduction, diversion, and recycling.</p>
	Closed Loop Partners closedlooppartners.com	<p>Closed Loop Partners is a New York-based investment firm comprised of venture capital, growth equity, private equity, project-based finance and an innovation center focused on building the circular economy.</p>
Impact Venture Funds	Alante Capital https://www.alantecapital.com/	<p>Alante Capital is a venture capital fund investing in innovative technologies that address climate change and enable a resilient, sustainable future for apparel production and retail.</p>
	The Ohio Impact Fund https://www.ohioimpact.vc/	<p>Ohio Impact Fund is a \$5M early-stage venture fund designed to uplift and empower Ohio's most promising startups.</p>

Community Partners to Activate Recommendations

CBUS Retail

City of Columbus Economic Development Division

The Columbus Fashion Alliance (CFA)

The Columbus Fashion Council (CFC)

The Columbus Foundation

Columbus Chamber of Commerce

Columbus Parks and Recreation

Columbus School of Art & Design

Greater Columbus Arts Council

Maroon Arts Group

Mid-Ohio Regional Planning Organization (MORPC)

The Ohio State University

One Columbus

Ohio EPA

Rev1 Ventures

Sustainable Columbus

State of Ohio

Central Ohio Fashion Ecosystem

Donation Centers

Amvets Donation Center

Bloom: A Free Store

Columbus Adult Rehabilitation Center & Thrift Store

Dress for Success

Discount Fashion Warehouse

Family Thrift

Furniture with a Heart Thrift Store

Goodwill

Habitat for Humanity - MidOhio ReStore

Joseph's Coat

Ohio Thrift Stores

Out of the Closet

Salvation Army

St. Vincent de Paul Thrift Store and Donation Center

Volunteers of America

Buy, Sell, Trade

Deja Vu

Flower Child

Grandview Mercantile Company

Once Upon A Child

One More Time

Pink Door Resale

Plato's Closet

Plus Size Pretty

Rag-o-Rama

Revue Consignment Store

Second Chance

Smartypants Vintage

TactLuxe

Upscale Resale Furnishings

Uptown Cheapskate

Colleges & Universities (with design programs)

Columbus School of Art & Design

Hocking College

Independent Designers (not exhaustive)

Casey Immel-Brown

Celeste Malvar-Stewart

Esther Sands

Eugene Frimpong

Gerardo Encinas

Joan Madison

Rian Ismadia & Matthew Chess

Ryan Ransom

Central Ohio Fashion Ecosystem cont'd

Stevie Boi

Tone Becca

Tracy Powell

Xuena Pu

Champs Sports

Chico's Fas Inc.

Chunky Armadillo

Clothe Ohio

College Traditions, Inc

Costco

Cub Shrub

Dick's Sporting Goods

eclectic Fashions

Eddie Bauer

Egelhoff Sports Inc.

Evereve

Express

Fera

Foot Locker

Fortdress Usa, Inc

Front Runner, Inc.

Global Gifts

H&M

Hanna Anderson

Happy Go Lucky

HLS One LLC

Homage

Retail - Headquarters

Abercrombie & Fitch

DSW

Eloquii

Express

Homage

Justice

Upwest

Victoria's Secret

Retail - Stores

5.11 Tactical

Abercrombie & Fitch

Alison Rose

American Eagle Outfitters

Ann Taylor Retail

Artisan De Luxe

Astor & Black

Central Ohio Fashion Ecosystem cont'd

Home Field Advantage	Rowe
Hot Topic	Roy Tailors Uniform Co.
Indigo Nation	Royal Factory
Jolie Occasions	Rue21
K&G Fashion	Samson Men's Emporium
Kohls	Small Talk
Ladybird	State and Third
Leal, Inc	State of Devotion
Lululemon Athletica	Target
Macy's	Cato
Marshalls	The Children's Place
Meijer	Talbots
Nike	The Uniform Store
Oakley	Thread
Ohio State Team Shop	Tigertree
Oshkosh B'Gosh	Tilly's
Pcpd, LLC	TJ MAXX
Pendelton Wollen Mills, Inc	Tommy Bahama
Pitaya	Torrid
Pursuit	Urban Outfitters
Sole Classics	Vamp Official
Rowe Boutique	Vernacular
	Walmart

Central Ohio Fashion Ecosystem cont'd

Manufacturers

Anomatic Corporation
Capital City Awning Company Inc
Central Ohio Medical Textiles (COMTEX)
Columbus Canvas Products
Costume Specialists, Inc
E Retailing Associates LLC
Economy Linen and Towel Services
Fluvitex USA Inc.
Fortner Upholstering, Inc.
General Theming Contractors
Got Ya Covered
Hype Socks LLC
KDC/One Columbus
Linen Care Plus Inc
Masood Textile Mills
MFG Sourcing US LLC
MII Brand Imports LLC
Quickstitch Plus LLC
School Pride Limited

Commercial & Public Uniforms

Affordable Uniforms
Aramark Uniform Services
Cintas Uniform Services
Columbus Division of Fire
Columbus Division of Police

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