Diverting Textiles from the Waste and Garbage Streams

Final Report

Solid Waste Management Services, City of Toronto
GLA2000H, University of Toronto
Professor John Robinson
12 April 2017

Executive Summary

Textile waste is now estimated to be the fastest growing waste stream in many countries, yet the textile recycling industry is very much in its infancy across the globe. In the City of Toronto ("the City"), recent single family and multi-residential audit data shows that approximately 42-44 pounds of textiles are discarded per household every year. As a response, the City's Solid Waste Management Services ("SWMS") identified textile diversion (a 72-75% reduction per household by 2026) as a goal in its Long Term Waste Strategy ("LTWS"). Within the framework of the City's LTWS Guiding Principles and bylaw 395, SWMS has asked our team to recommend a pilot textile diversion program for the City while taking into consideration the following research questions:

- In other jurisdictions, what happens to the textiles after they have been collected? Transparency and the need to avoid disposal methods, such as incineration or exporting to overseas, which contradict city values are significant considerations in the development of a textile reuse and recycling program.

- Is there a market for recycled textiles? If so, what types of policies do jurisdictions have in place to support such a market? Can the City of Toronto foster such a market?

- Given the complexity and scope of the issue, it will be challenging for the City of Toronto to generate such a market without building partnerships with other organizations. What are some socially responsible organizations that the City can potentially partner with?

- While there is currently no marketable technology to sort textiles, what is the long-term direction of the industry with respect to technology?

Our jurisdictional scan on government programs and private sector organizations currently involved in textile recycling reveals the following key findings about the life cycle and market structure of used textiles:

- Globally, the vast majority of used textile waste ends up in landfill sites. The remaining is either returned to private businesses, sold to private second-hand stores, exchanged at community or private clothing swaps, or collected by charitable organizations. Because of the lack of publically available data, it is difficult to determine the percentage disposed, or the complete life cycle of textiles from each of these venues.

- Many municipalities in Canada, the U.S. and Europe partner with charities on their textile diversion programs. After collecting and sorting, charitable organizations manage used textiles through three major pathways: first, resell re-wearable clothing at their thrift stores; second, send them overseas; third, sell the remainder to private re-graders who downcycle them to make other items, incinerate them and/or ship to developing markets. Again, there is currently no publically available information regarding the market share of each stream.

In order to develop a sustainable textile diversion program for the City, we have identified four major policy areas that the City should consider before launching any partnership(s) or program(s):

1. *Collection methods* – Jurisdictions employ two main methods to collect used textiles: curbside collection and/or usage of collection bins. Each approach comes with positives and negatives. The City of Toronto currently does not have any comprehensive policy on collection methods, but to ensure the success of a textile reuse and recycling regime, the City must be cautious not to ignore the importance of its collection approach.

2. *Regulatory framework* – Partnership building is one of the most common methods employed by municipalities to address textile waste. However, given the novelty of the field, many jurisdictions have not implemented policies to regulate and monitor such partnerships. To ensure the success and sustainability of partnerships, the City must ensure that there are policies in place to define the liability of different parties, or to oversee the end use of textiles.

3. *Market development* – Given the market structure of textiles highlighted earlier, it is unlikely that the City will be able to enact policy that causes a major disruption to the current textile reuse and recycling market. Instead, SWMS should try and design a plan which is responsive to existing market conditions particularly as it does not want to disrupt current charitable textile donation programs.

4. *Communication strategies* – The success of textile recycling programs is heavily dependent on the City's capacity to increase citizenries' basic knowledge and understanding of recycling protocol. The City can design more effective programs by classifying residents into different groups and focusing on specific target audiences.

Our analysis of four city pilot projects from New York, San Francisco, the London Borough of Bexley and Markham provides policy lessons outlined below:

- Building partnerships with charitable organizations is one of the most commonly adopted textile diversion programs across jurisdictions. Charities are responsible for the installation and maintenance of bins placed in residential buildings and/or public places including community centers and schools.

- Some municipalities also cooperate with private businesses. However, the scope of such partnership is limited as these businesses tend to collaborate with limited number of commercial partners.

- Investment in bins equipped with sensors can be an effective way to track the weight of textiles deposited and manage the collection bins when they are full.

- Evaluation of the performance of these municipal programs is hindered by two factors: first, the novel nature of such program across the globe; second, the lack of mechanisms and complementary regulatory framework to track downstream use of collected textiles.

Based on our jurisdictional scan and case studies analysis, we have formulated the following recommendations to the City of Toronto:

- Short-term:
  - Select a socially responsible charitable organization and run 6-month-long pilot program in four distinct neighbourhoods in Toronto

  - Run a education and communication strategy to inform the public about the adverse impacts of textile waste and raise awareness about the pilot program

- Long-term:
  - Adopt a policy framework that aligns with Extended Producer Responsibility – the idea that manufacturers should be responsible for the entire life-cycle of the products they produce/import – that the Government of Ontario is currently considering implementing

  - Institute a ban on the disposal of textile waste in landfill sites

  - Investment in new technologies to help streamline the textile recycling process and make it increasingly economical.

Table of Contents

Figures and Tables

SECTION 1: INTRODUCTION

Global Trend

The expansion of globalization and commercialism has made it possible to produce clothing at increasingly low prices. While this is true for many soft goods such as footwear, clothing and carpets, nowhere is this more apparent than with the emergence of the "fast fashion" industry. As the name suggests, cheap clothing brands are designed to sell new styles every two weeks in line with regularly changing trends.[1] It is estimated that approximately 80 billion new items of clothing are produced annually.[2] While the phenomenon has contributed to more consumption and economic growth, it has also given rise to increasing amounts of textiles ending up in landfill sites. In fact, textile waste is now estimated to be the fastest growing waste stream in many countries.[3]

While there is no data on current textile waste worldwide, figures from a few countries help illustrate the severity of the problem, especially in developed countries. It is estimated that the average North American child uses more textiles in his or her first six months of life than the average person in a developing country uses in his or her entire life.[4] In numeric terms, it is reported that the United States generates about 25 billion pounds of textile waste per year, which is equivalent to 82 pounds per resident.[5] On average, each person donates or recycles 12 pounds of clothing, but sends the remaining 70 pounds to landfills. In the United Kingdom, more than 60% of textile waste ends up in landfill sites.[6] The amount of textiles collected for reuse and recycling has reportedly increased since 2010, reaching a peak estimated at 143.3 million pounds in 2014, as preliminary data suggests that in 2015 the number dropped by 4%[7]. This was partly due to a decrease in the price that operators receive for used textiles in various end-markets.[8] The main end markets for used UK textiles are overseas. Overseas demand for used UK textiles has

---

[1] Carlotta Cataldi et al., "Slow fashion: Tailoring a strategic approach for sustainability," as cited in "Towards the Circular Economy: Identifying local and regional government policies for developing a circular economy in the fashion and textiles sector in Vancouver, Canada," by Andrea De Paoli, *Vancouver Economic Commission,* September 2015, accessed March 20, 2017, http://www.vancouvereconomic.com/wp-content/uploads/2016/04/Textiles_policyreport.pdf

[2] Claudia Marsales, "Textile Recycling Program Strategy," *The City of Markham*, November 7, 2016, accessed March 20, 2017, http://www2.markham.ca/markham/ccbs/indexfile/Agendas/2016/General/gc161128/Textile%20Recycling%20Report%20Strategy%20-%20Next%20Steps.pdf.

[3] Cotaldi et al., *supra* note 1.

[4] Amanda Persico, "Markham considering new use for old clothes," *York Region*, January 22, 2016, accessed March 24, 2017, http://www.yorkregion.com/news-story/6245250-markham-considering-new-use-for-old-clothes/.

[5] Council for Textile Recycling, 2014, as cited in "How Consumers Manage Textile Waste," by Sabine Weber (PhD diss., University of Waterloo, 2015). This number varies in other accounts. According to San Francisco's website, the number is 21 billion. See: "San Francisco launches Zero Waste Textile Initiative to keep apparel, footwear, linens out of the landfill," *SF Environment*, accessed March 13, 2017, https://sfenvironment.org/news/press-release/san-francisco-launches-zero-waste-textile-initiative-to-keep-apparel-footwear-linens-out-of-the-landfill.

[6] Ben Messenger, "WRAP report: falling overseas reuse & recycling demand for UK textile exports," Waste Management World, March 8, 2016, accessed March 21, 2017, https://waste-management-world.com/a/wrap-report-falling-overseas-reuse-recycling-demand-for-uk-textile-exports.

[7] *Ibid.*

[8] *Ibid.*

started to shrink and prices have been falling since 2013.[9] In the Netherlands and Nordic countries, as much as 61% of textile waste is put into landfills or incinerated after only one use.[10] When it comes to Canada, the figures are equally uninspiring. There is no government data available regarding textile waste in Canada.[11] However, according to Clothesline, a non-profit national program run by Diabetes Canada, as much as 85% of textiles end up in landfill sites, representing 5-11% of all garbage collected across the country.[12]Clothesline does not provide any information with regards to the complete life cycle of the remaining 15% of used textiles which are slated for reuse or recycling.

The City of Toronto

As the largest Canadian city, the City of Toronto is not immune to the problem of textile waste. Recent single family and multi-residential audit data shows that approximately 42-44 pounds of textiles are discarded per household every year.[13] As a response, the City of Toronto's Solid Waste Management Services ("SWMS") identified textile diversion (a 72-75% reduction per household by 2026) as a goal in its Long Term Waste Strategy ("LTWS").[14]While Toronto has yet to develop a strategy for recycling textiles, addressing this issue has been an important part of both the LTWS and Toronto's *Zero Waste Initiative*. In developing a distinct strategy, the City must ensure that its new program is robust and sustainable with respect to several criteria, including ethical and environmental considerations, as well as social and financial feasibility. To align with the overarching goals of the LTWS, the City's diversion program should go beyond existing solutions, such as incineration or exporting textiles overseas, which could damage Toronto's reputation and hinder the progress of the Transform TO project. More specifically, a textile recycling program would have to respect the LTWS Guiding Principles,[15] which stipulate that the City must:

- *Work to Mitigate Climate Change Impacts*- To reduce our impact on climate change we will find solutions that reduce greenhouse gas emissions associated with our waste management system.
- *Treat Waste as a Resource*- Waste is an asset that needs to be conserved. We should make best use of our waste by recovering materials and energy remaining after reducing, reusing, and recycling.
- *Prioritize our Community's Health and Environment*- The health of our residents and the environment is a priority in decision making to minimize negative impacts and to maximize the benefits.
- *Embrace Social Equity*- Create an easy-to-use system that all residents and the

[9] *Ibid.*
[10] "Circle Economy (a)," The circular textiles program, 2015, as cited in De Paoli, *supra* note 1.
[11] Except the textile waste data from a waste audit of six landfills in Nova Scotia conducted by the Resource Recovery Fund Board (RRFB) in 2012. See: Weber, *supra* note 5, 9.
[12] "Textile Diversion Program: Opportunities and Collaboration," *Clothesline*, accessed February 23, 2017, http://cw2rc.ca/Portals/0/2016/Textile%20Diversion%20Program%20Opportunities%20for%20collaboration.pdf.
[13] City of Toronto, *Long Term Waste Strategy*, July 15, 2016, http://www.toronto.ca/legdocs/mmis/2016/pw/bgrd/backgroundfile-94038.pdf, 56, hereafter referred to as LTWS.
[14] *Ibid*.
[15] *Ibid*.

community can understand and participate in.

- *Lead the Change*- Strong leadership is taking ownership, leading by action and being responsible for the waste we produce.
- *Ensure Financial Sustainability*- Financially sustainable solutions that are easy and affordable to maintain by future generations and also help to stimulate economic growth within our community.
- *Make the Future System Transparent*- Future decisions on the implementation of the Waste Strategy will be open, accessible and based on best practices and facts to find solutions that benefit all.
- *Support Development of Community Partnerships*- Working together with local community groups and organizations will help us reach our goals and reduce waste more effectively and efficiently.[16]

While this criteria will ensure the program ultimately enacted by the City of Toronto is sustainable, it may pose implementation challenges. Discussion and awareness around the issue of textile recycling is limited to current charity-run programs. Though our jurisdictional scan of similar city run partnerships for textile recycling, we found very few cities that have developed comprehensive policies to address this issue. Most of the programs currently in place are only at their pilot stage or rely heavily on pre-existing charity donation programs. Although these limitations will make it more difficult to develop an appropriate program, they also offer the City of Toronto the opportunity to become a national and international leader in this quickly developing field.

Even without a government-sponsored textile recycling program, clear regulations are needed to establish credibility and accountability with clothing donation bins. In many cities, there are issues with clothing bins being poorly maintained and a public lack of trust that donations will actually support charity work.[17] To address these issues of public uncertainty, the City of Toronto enacted bylaw 395. This bylaw places strict regulations on the placement, maintenance and signage of clothing donation bins. Bylaw 395 states that clothing donation bins can only be operated by a charitable, religious institution or community organization and must provide a charity registration number or other proof of status on the bin.[18] All clothing bins are required to get a permit from the City that clearly outlines the location, operator and maintenance of the bins. The bylaw further specifies the size of font for the charity's name as well as the breakdown of the percentage of profits directly supporting the charity.[19] Clothing bins have to be well maintained and placed somewhere convenient to the public. Failure to follow these rules will result in the charity being forced to remove the bin.[20] This comprehensive bylaw offers an important first step in building a partnership with charities for textile recycling. This database of clothing donation bins permits can play a key role in gaining a better understanding of the baseline for the textile recycling industry in Toronto.

---

[16] The Guiding Principles are a direct quote from the LTWS, created by the City of Toronto
[17] CBC News. (2012). Clothing donation bins spark turf war in Ontario, http://www.cbc.ca/news/canada/clothing-donation-bins-spark-turf-war-in-ontario-1.1246132
[18] Toronto Municipal Code, *Chapter 395,* May 10, 2013 http://www.toronto.ca/legdocs/municode/1184_395.pdf
[19] *Ibid*.
[20] *Ibid*.

Research Questions

Taking into consideration of all these factors, our client has asked us to conduct a jurisdictional scan to identify what happens to textiles after their collection in different localities such asthe GTA, Markham, the York Region, NYC and San Francisco. Second, we have been asked to investigate whether there is a market for the recycling of textiles in Canada or North America. Based on these analyses, the client has asked us to recommend a pilot program for textile recycling in the City of Toronto. In sum, the following major analytical questions relating to the textile recycling market and possible program options will be addressed:

- In other jurisdictions, what happens to the textiles after they have been collected? This is particularly important to the client. It follows that transparencyand the need to avoid disposal methods whichoffendcity values are significant considerations in the development of a textile reuse and recycling program.

- Is there a market for recycled textiles? If so, what types of policies do jurisdictions have in place to support such a market?

- Given the complexity and scope of the issue, it will be challenging for the City of Toronto to generate such a market without building partnerships with other organizations. What are some socially responsible organizations (both private and charitable) that the City of Torontocan potentially partner with? If a partnership is established, the practices of a partnerorganization would have to align with the City of Toronto's values.

- Globally, there has been some investment in new textile waste processing technology. What is the long-term direction of the industry with respect to technology? Currently, there is no marketable technology to sort textiles. This work must be done by hand.

Structure of the Report

This report contains eight sections. Following this introduction and overview, section two will describe the methodology employed in conducting research and preparing this report. The third section offers important contextual information. Specifically, it provides examples of private sector and government programs operating within the industry. With this background, the following section outlines policy trade-offs that the City will have to consider in developing a program to divert textiles from the waste stream. The fifth section of this report details four case studies of cities which have introduced textile recycling programs: New York, San Francisco, the London Borough of Bexley, and Markham. The lessons revealed by these case studies ground our recommendations in the following section. In section six, this report makes specific recommendations for city officials regarding a pilot program, followed by the discussion the future of the industry in section seven, with a particular emphasis on technologies that may become available in the coming years. The final section concludes.

SECTION 2: METHODOLOGY AND DATA COLLECTION

The Life Cycle of Used Textiles in the Waste Stream

Prior to detailing the specific methodology employed throughout the data collection process, it is necessary to briefly outline the life cycle of textiles which find their way into the waste stream. Presently, the City of Toronto encourages residents to dispose of non-reusable textiles by placing any unwanted materials into approved garbage bags for collection.[21]Textiles which enter the waste stream in this manner are sent to Green Lane Landfill, which is located approximately 200km from downtown Toronto.[22]

With respect to reusable textiles, city residents can donate their used goods[23] to one of several charities which operate in the Greater Toronto Area ("GTA").[24] These charities will independently sort any materials they receive.[25] Ultimately, they may donate the clothing to those in need,[26] resell the goods for profit,[27] or some combination thereof. Any textiles which a charity deems to be inappropriate for reuse will likely to be sold to private re-grader. From here, the material will be shipped overseas, converted into wiping rags, or recycled into fibre. A small proportion of the textiles cannot be recycled and will deposited in the garbage.[28]

The following diagram depicts the various life cycle options for unwanted textiles in the City of Toronto. As detailed in section four of the report, these practices can also be observed in other jurisdictions around the globe.

---

[21] City of Toronto, "Bad things happen when the wrong items and recycling go together," accessed March 13, 2017, http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=5627e8660d035510VgnVCM10000071d60f89RCRD.
[22] LTWS, *supra* note 15, 56; City of Toronto, "Green Lane Landfill," accessed March 13, 2017, http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=144c2122a1e65510VgnVCM10000071d60f89RCRD.
[23] Ellen Moorhouse, "Don't throw those worn-out clothes in the garbage," *Toronto Star*, October 9, 2012, https://www.thestar.com/life/homes/2012/10/09/dont_throw_those_wornout_clothes_in_the_garbage.html; LTWS, *supra* note 15.
[24] For example, Salvation Army, Textile Waste Diversion, and the Textile Museum of Canada all collect textiles in the GTA. See: "Go on – Donate Those Unwanted Clothes," *Salvation Army Blog*, accessed March 13, 2017, http://www.salvationarmy.ca/blog/2012/01/30/go-on-donate-those-unwanted-clothes/; "Spring Cleaning? We Take ALL Textiles," *Textile Waste Diversion*, April 1, 2013, accessed March 13, 2017, http://textilewastediversion.com/spring-cleaning-we-take-all-textiles/; "Donating Textiles and Fabric," *Textile Museum of Canada*, accessed March 13, 2017, http://www.textilemuseum.ca/join-support/donating-textiles-fabric.
[25] Harvey Gould, "Textiles are the next frontier in recycling for cities looking to cut waste," *CBC News*, May 9, 2016, http://www.cbc.ca/news/technology/textile-recycling-1.3569138.
[26] "Why Textile Recycling?" *Canadian Community Support Foundation*, September 26, 2013, accessed March 13, 2017, http://www.canadiancommunitysupportfoundation.com/why-textile-recycling/.
[27] Gould, *supra* note 25.
[28] *Ibid*; "Collectors," *Secondary Materials and Recycled Textiles*, accessed March 13, 2017, http://www.smartasn.org/collectors/.

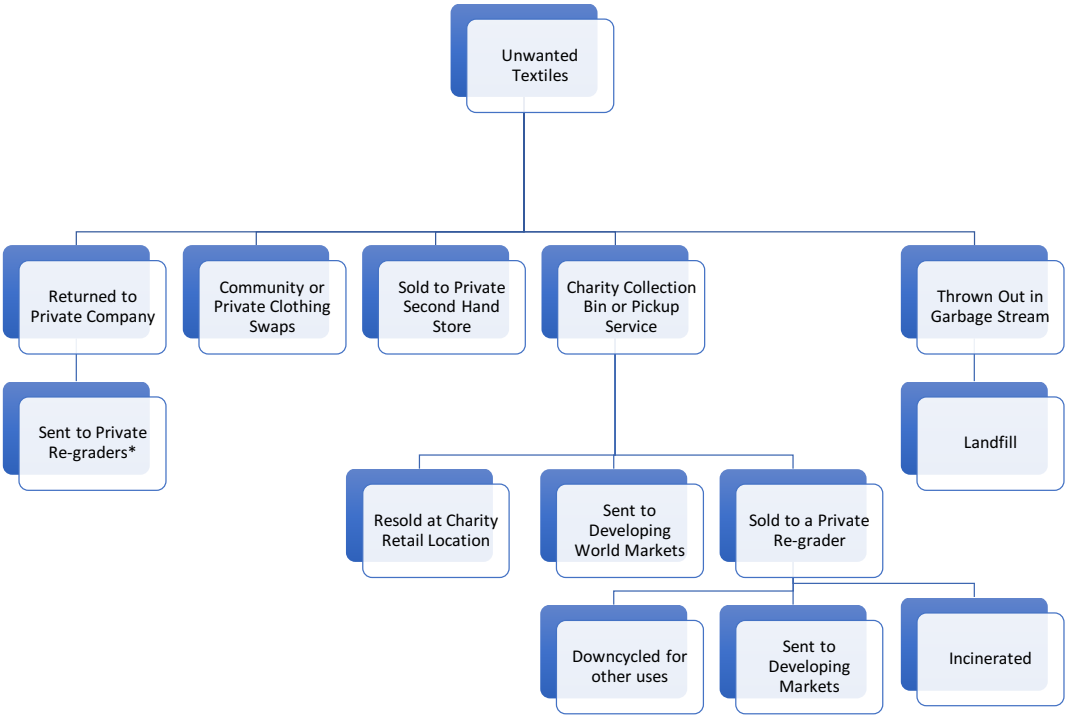


Figure 1: What currently happens to unwanted textiles in the City of Toronto

Many of the steps in this life cycle chain for textiles involve private industry or the actions of individual consumers. Finding specific collection data for these companies or the final chain of custody for these items is difficult. This is information that private companies are not under a legal obligation to disclose, rendering a complete life cycle diagram elusive. Occasionally, a charity will voluntarily elect to disclose the quantity of textiles collected during a specific campaign. However, overall data is not publicly available.

In short, charities in Canada are regulated by the Federal Government and presently, are not under any legal obligations relating to disclosure in this domain. This problem is exacerbated by the fact that charities often sign private contracts with land owners to station collections boxes on private property. While charities may be compelled to release data regarding their collection occurring on public land, the extent to which legislative intervention could interfere with a private contractual relationship is questionable.

Value Village and Salvation Army state that some of their textiles which cannot be sold in stores are sent to private re-graders or sent overseas. The nature of these contracts with third party re-graders and distributers are also not publicly available. As stated previously, it is estimated that in Canada, 85% of unwanted textiles end up in the landfill. A lack of overall data regarding the amount of textiles that are recycled from each channel was identified as a major issue within this project. A pressing challenge for the City moving forward is finding a way to

determine a baseline of textiles collected at each stage of the life cycle, including private companies and charities. This will allow the City to get a better understanding of the percentage of textiles being diverted by the pilot program and by donation to charities.

The lack of a city-wide program directly facilitating the reuse and recycling of textiles,[29] in conjunction with the lack of coordination between SWMS and private charities,[30] dictated the development of the research methodology employed throughout this project.

Research Methodology

In sections three, four and five, we discuss a variety of policy options that the City of Toronto should consider in its development of a textile diversion strategy. Specifically, we detail: major governmental programs and private sector organizations currently involved in the industry (section three); specific trade-offs that jurisdictions must grapple with in designing an effective program (section four; and case studies that bare important lessons for the City of Toronto (section five). The information included in these sections was derived through a jurisdictional scan to compare textile recycling programs and determine whether a market exists for textile recycling in specific areas around the world. The scan was completed by reviewing government and consulting reports, textile recycling websites, and academic literature.

Our preliminary research indicated that many municipalities in Canada, the United States and Europe partner with charities on their textile diversion programs. Given a finding of significant convergence in the global approach, our next step was to assess whether there were any areas of divergence which merited increased attention. Despite considerable similarity in the overall approach employed by jurisdictions across the globe, our data suggested the presence of several discrete policy trade-offs relevant to the establishment of textile diversion programs. Five policy trade-offs were selected for further research[31] due to the existence of relative disharmony in the approaches selected by the cities considered by the initial jurisdictional scan. At this time, a second jurisdictional scan was conducted with a specific emphasis on the selected policy trade-offs.

The information collected during the initial jurisdictional scan also precipitated our decision to select four case studies for in-depth examination. The City of Markham was selected for two reasons. First, Markham instituted an innovative pilot program in 2016;[32] and second, the geographic connection between Markham and Toronto suggests that many of the resources and partner organizations[33] associated with Markham's pilot project may also be available to

[29] LTWS, *supra* note 15, 41.
[30] *Ibid*, 100.
[31] The five policy areas selected for further research are: collection method, partnerships, market development, communications, and regulatory framework.
[32] "Markham Tackles Textiles with Innovative Recycling Program," *City of Markham*, October 18, 2016, accessed March 13, 2017, http://www.markham.ca/wps/portal/Markham/AboutMarkham/NewsRoom/NewsReleases/markham-tackles-textiles/!ut/p/a0/04_Sj9CPykssy0xPLMnMz0vMAfGjzOJN_N2dnX3CLAKNgkwMDDw9XcJM_VwCDX09zPQLsh0VAcc4C2s!/.
[33] Markham partnered with The Salvation Army and received a $67,000 grant from the Federation of Canadian Municipalities under the Green Municipal Fund.

Toronto. Based on our client's suggestion and our initial research, we have also looked at other non-Canadian cities – namely New York City, San Francisco and the London Borough of Bexley – that have targeted textile diversion as part of their zero waste initiatives.

In designing a pilot program for the City of Toronto, we also had to consider a variety of limitations. Some of the barriers to our research are the product of constraints on the project imposed by SWMS.[34] Certain substantive barriers which prevent cities from creating robust textile diversion programs became clear based on our preliminary research. Additional barriers also became apparent when we began to analyze the information collected during the initial jurisdictional scan and were corroborated by subsequent research.

These constraints became important as the project moved into the next stage. In section seven, this report presents specific recommendations for the City of Toronto. Based on the research conducted in order to complete sections four, five, and six, we began to sketch the rough confines of a textile diversion program for the City of Toronto. After developing this rough framework, it was time to narrow our focus. Specifically, further research was required with respect to three areas: (1) potential partnerships in the GTA; (2) Toronto's regulatory framework; and (3) the LTWS. This research allowed us to develop our rough framework and propose short-term solutions that were consistent with the City's unique character and existing waste diversion programs.

After we present and justify our short-term recommendations, section six also considers the sustainability of our proposed pilot project. This discussion is guided by concerns regarding: (1) public awareness; (2) the expansion of partnerships; and (3) Toronto's image on the global stage. Section seven of this report offers analysis regarding the future of the sector. The information used in this section was primarily derived from consulting reports and academic articles. Based on SWMS's instructions, in addition to the considerable time horizon contemplated by the City's LTWS, we took a particular interest in new technologies, which may become available to the City of Toronto in the coming years. Where available, we also consulted reports from jurisdictions that have participated in pilot programs that made use of new and emerging technologies.

SECTION 3: PRIVATE SECTOR AND GOVERNMENT PROGRAM SCAN

A Snapshot of an Infant Industry

The textile recycling industry is very much in its infancy. Cities across the globe are increasingly recognizing the adverse environmental effects associated with textiles entering the waste stream. However, the significant costs associated with the collection and sorting of used textiles[35] means that the diversion of textiles from the waste stream represents a costly proposition. Accordingly, cities have been relying heavily on outside assistance.

[34] Our team met with representatives from SWMS on January 24, 2017 to receive instructions and research constraints.

[35] In Markham, the Salvation Army receives approximately 20 cents for each pound of clothing it sells to a private re-grader. See: Gould, *supra* note 25; Harvey Gould, "Trashing your textiles," *CBC News*, May 5, 2016, https://www.youtube.com/watch?v=h4WTO6oAfH8.

The infancy of the industry has both positive and negative effects for cities hoping to get in on the movement at this early stage. For cities like Toronto, textile diversion is an opportunity to act as a world leader on the global stage. City councils[36] and international organizations[37] have taken a keen interest in textile recycling. While San Francisco has engendered considerable publicity through its initiatives,[38] there remains an opportunity for innovation and leadership in this domain.

The global attention on textile recycling has also resulted in new actors attempting establish a place within the industry. In recent years, new charities have been formed, environmental organizations with rich histories have shifted focus to concentrate on this issue, and a host of new companies have tried to profit from the recycling of textiles. The increase in the number of actors focused on diverting textiles from the waste stream suggests that cities should be able to find partners for their textile reuse and recycling campaigns. there is no shortage of opportunities for cities searching for partners.

Ultimately, the recent growth of the textile recycling industry is exciting for a city like Toronto. Just a few years ago, Toronto would have had no precedents to consider and would have faced tremendous costs if it attempted to establish a textile recycling program. Today, SWMS can benefit from the example set by other cities, will have no difficulty finding partners to provide institutional support and it still has the chance to serve as an example for the global community.

There are, however, certain challenges created by the bourgeoning textile recycling industry. Two challenges take on particular importance when considering Toronto's interest in diverting textiles from the waste stream. First, many of the companies and organizations involved in the industry are effectively unknown entities. This requires City of Toronto officials to make difficult choices with limited information. For-profit entities might promise innovative and effective solutions, but there may be ethical issues associated with some of the practices employed by the private corporations.[39] Even if new companies promise to comply with certain standards, they will not have a history that the city can rely on to bolster the legitimacy of such claims.

Second, the dynamic nature of infant industries suggests that the City should exercise a degree of caution prior to making significant investments which restrict its capacity to exploit

---

[36] Susan E. Reed, "Textile Recycling Could Be Coming to a Curbside Near You," *Cognoscenti*, October 17, 2016, http://www.wbur.org/cognoscenti/2016/10/17/stop-tossing-your-threads-susan-e-reed.

[37] Ranjit S. Baxi, "About BIR," *Bureau of International Recycling*, accessed March 13, 2017, http://www.bir.org/about-bir/introduction/; "ITWO releases LCA guidelines for wool textiles," *Fibre 2 Fashion*, March 3, 2017, http://www.fibre2fashion.com/news/textile-news/iwto-releases-lca-guidelines-for-wool-textiles-204408-newsdetails.htm; Luz Claudio, "Waste Couture: Environmental Impact of the Clothing Industry," *Environmental Health Perspectives* 115:9 (2007): 451-2.

[38] Jasmin Malik Chua, "San Francisco Launches City-Wide Zero-Waste Textile Recycling Initiative," *Ecouterre*, January 15, 2014, http://www.ecouterre.com/san-francisco-launches-city-wide-zero-waste-textile-recycling-initiative/; Cheryl Katz, "Putting San Francisco On the Road to Zero Waste," *Yale Environment 360,* May 22, 2014, http://e360.yale.edu/features/interview_jack_macy_putting_san_francisco_on_the_road_to_zero_waste.

[39] Deborah Leslie, "Crafting an Antidote to Fast Fashion: The Case of Toronto's Independent Fashion Design Sector," *Growth and Change* 45:2 (2014): 222-39.

technological shifts and new methodological approaches. While this report does make short and long-term recommendations in section eight, it is nevertheless important that city officials remember that new organizations are rapidly appearing and the industry may look considerably different in a relatively short period of time.

With these considerations in mind, this section will profile four entities which represent the different types of organizations currently operating in the sector:

1) Waste & Resources Action Programme ("WRAP") is a registered charity in the United Kingdom which focuses on diverting textiles from the waste stream as one of its primary initiatives.[40]

2) Secondary Materials and Recycled Textiles ("SMART") Association is an international association which "strengthens the economic opportunities of [its] diverse membership by promoting the interdependence of [its] industry segments and providing a common forum for networking, education and trade."[41]

3) The Salvation Army describes itself as "an international Christian church"[42] with divisions in each province across the country.[43] The charitable organization is one of Markham's primary partners in the city's textile diversion campaign.

4) SpinGreen was a for-profit corporation which operated in New York City. While operational, the company monitored 550 collection bins and collected between 200,000 and 300,000 pounds of textiles each month.[44]

WRAP

When the charity was established in 2000,[45]its Board of Trustees identified three priority sectors in which the organization hoped to facilitate improved resource management practices: (1) food and drink; (2) clothing and textiles; and (3) electrical and electronics.[46] In each of these areas, WRAP conducts research, brokers and manages sector-wide voluntary agreements, organizes consumer campaigns, works directly with business, and designs and delivers grant programs.[47]

---

[40] "What we do," *Waste Resource & Allocation Programme*, accessed March 13, 2017, http://www.wrap.org.uk/about-us/what-we-do.
[41] "About Us," *Secondary Materials and Recycled Textiles*, accessed March 13, 2017, http://www.smartasn.org/about/index.cfm.
[42] "Mission & Values," *The Salvation Army*, accessed March 13, 2017, http://www.salvationarmy.ca/missionandvalues/.
[43] "History," *The Salvation Army*, accessed March 13, 2017, http://www.salvationarmy.ca/history/.
[44] Kerry Flynn, "Textile Recycling: A For-Profit Startup Success Among Controversy," *Forbes*, August 27, 2014, accessed March 13, 2017, https://www.forbes.com/sites/kerryflynn/2014/08/27/textile-recycling-a-for-profit-startup-success-among-controversy/#d6bda873234e.
[45] "Our history," *Waste Resource & Allocation Programme*, accessed March 13, 2017, http://www.wrap.org.uk/about-us/our-history.
[46] *Waste Resource & Allocation Programme, supra* note 40.
[47] *Ibid*.

With respect to textile recycling, WRAP has acted as a leader on the European continent. In 2016, the charity released a report entitled, *Valuing Our Clothes*,[48]which details the financial and environmental impact of clothing. Moreover, WRAP is responsible for brokering the Sustainable Clothing Action Plan. The industry-led initiative brings together "retailers, brands, re-use and recycling organizations, charities, and NGOs"[49] in an attempt to reduce the carbon, water and waste produced by the clothing industry.[50]

There are currently no organizations operating in North America with a comparable level of influence and industry penetration. That being said, WRAP has signalled its intent to engage in international campaigns which reach beyond Europe.[51] Additionally, the organization's success is relevant insofar as it demonstrates the potential for charities and non-profit organizations to have a significant sway in the textile recycling industry.

SMART

Founded in 1932, SMART is "composed of companies from the United States, Canada, Mexico, South and Central America, Europe, Asia, and Pacific Rim countries."[52]Although the non-profit trade association maintains a global presence, its activities are heavily concentrated in North America. The organization's considerable history of work in the industry makes it an attractive partner for municipalities attempting to divert textiles from their waste stream. SMART offers three services which may be particularly valuable to the City of Toronto.

First, SMART's website includes an online database of its members.[53] If Toronto is interested in partnering directly with private processors and distributers, the SMART database will be a useful tool in its search to identify appropriate organizations. However, even if the city elects to instead partner with a charitable organization, it is common practice for charities to sell the textiles they are unable to resell as clothing to private companies.[54] City officials have indicated that they are reluctant to partner with a charity, which passes textiles off to a private company that disposes of them in an unsustainable manner.[55] If charities are willing to negotiate regarding their private partners, the city may wish to use the database to identify processors and distributers which employ sustainable practices.

Presently, SMART's full membership list is not public. According to the trade association's website, "only a select number of members…have opted to have their information

[48] Waste Resource & Allocation Programme, *Valuing our clothes: The true cost of how we dispose of clothing in the UK*, May 4, 2016, http://www.wrap.org.uk/sustainable-textiles/valuing-our-clothes%20.
[49] *Waste Resource & Allocation Programme, supra* note 40.
[50] "Sustainable Clothing Action Plan," *Waste Resource & Allocation Programme*, accessed March 13, 2017, http://www.wrap.org.uk/sustainable-textiles/scap.
[51] "Global food waste reduction," *Waste Resource & Allocation Programme*, accessed March 13, 2017, http://www.wrap.org.uk/unep.
[52] *Secondary Materials and Recycled Textiles*, *supra* note 41.
[53] "Member Locator," *Secondary Materials and Recycled Textiles*, accessed March 14, 2017, https://smart.memberclicks.net/index.php?option=com_mcdirectorysearch&view=search&id=10351#/.
[54] Gould, *supra* note 25; Gould, *supra* note 35; Jana M. Hawley, "Digging for Diamonds: A Conceptual Framework for Understanding Reclaimed Textile Products," *Clothing and Textiles Research Journal* 24:3 (2006): 264.
[55] As indicated by Ms. Charlotte Ueta, Acting Manager Waste Management Planning, on February 13, 2017.

displayed."[56] Toronto will need to become a member of SMART if it wishes to access the complete database.[57]

Second, SMART offers resources which assist cities to confront political challenges. As discussed, cities are increasingly interested in diverting textiles from their waste streams.[58] However, there are significant costs associated with the establishment of city-wide textile recycling programs. It is possible that SWMS develops an innovative and exciting textile recycling plan, but faces difficulty garnering sufficient political support for its proposed program in City Council. SMART offers several publically available documents on its website to bolster advocacy efforts. For instance, the association has prepared a Municipality Outreach Document,[59]Collection Bin Position Paper,[60] Draft Ordinance,[61] and a Checklist for Communities.[62] Additionally, SMART employs a Government Affairs Consultant.[63] Although Ms. Franken deals primarily with communities in the United States, she would likely be willing to share some of her extensive expertise with the City of Toronto.

Finally, SMART has developed a host of resources which assist cities in targeting consumer behaviour. In section three, this report will make long-term recommendations for the City of Toronto. Many of those recommendations are concerned with ensuring public support for a textile recycling in Toronto as a means to ensure the long-term viability of the program. SMART offers resources which are ready to be used by the city in an educational campaign. The association has developed infographic banners,[64] public service announcements,[65] a media kit,[66] and educational materials for schools.[67] Even if city officials prefer to develop their own materials, SMART's resources can serve as a valuable precedent.

---

[56] *Secondary Materials and Recycled Textiles*, *supra* note 53.
[57] According to SMART's website, parties interested in becoming a member of the association should email SMART staff at heather@kingmgmt.org.
[58] Reed, *supra* note 36.
[59] "Clothing Collection Bins: An Equitable Regulatory Response," *Secondary Materials and Recycled Textiles*, accessed March 14, 2017, http://www.smartasn.org/localgovt/Clothing_Collection_Bins_An_Equitable_Regulatory_Response.pdf.
[60] "Key Elements of an Effective Clothing Bin Ordinance," *Secondary Materials and Recycled Textiles*, accessed March 14, 2017, http://www.smartasn.org/localgovt/SMARTCollectionBinPosition.pdf.
[61] "Draft Ordinance," *Secondary Materials and Recycled Textiles*, accessed March 14, 2017, http://www.smartasn.org/localgovt/SMARTDraftOrdinance.pdf.
[62] Jackie King & Jeff Pearl, "SMART textile recycling checklist for communities," *Secondary Materials and Recycled Textiles*, accessed March 14, 2017, http://www.smartasn.org/localgovt/SMART_Checklist.pdf.
[63] "Government Affairs," *Secondary Materials and Recycled Textiles*, accessed March 14, 2017, http://www.smartasn.org/government/index.cfm.
[64] "Donate, Recycle, Don't Throw Away," *Secondary Materials and Recycled Textiles*, accessed March 14, 2017, http://www.smartasn.org/localgovt/SMARTInfographTextileRecycling.pdf; "The Secret Life of Donated Textiles," *Secondary Materials and Recycled Textiles*, accessed March 14, 2017, http://www.smartasn.org/localgovt/SMARTDoubleLifeofRecycledTextiles.pdf; "Textile Recycling and Greenhouse Gases," *Secondary Materials and Recycled Textiles*, accessed March 14, 2017, http://www.smartasn.org/localgovt/infographic-banner3greenhouse.pdf.
[65] "SMART Videos & PSA's," *Secondary Materials and Recycled Textiles*, accessed March 14, 2017, http://www.smartasn.org/about/videos.cfm.
[66] Erin Stubin, David Bloovman& Jackie King, "Media Kit," *Secondary Materials and Recycled Textiles*, accessed March 14, 2017, http://www.smartasn.org/about/SMART_PressKitOnline.pdf.
[67] "Wear It? Recycle It: Educators and Kids," *Secondary Materials and Recycled Textiles*, accessed March 14, 2017, http://www.smartasn.org/educators-kids/index.cfm.

Salvation Army

The Salvation Army and Diabetes Canada are the City of Markham's primary partners on its textile diversion campaign.[68] The charities play a critical role in the operation of the program. Markham's textile recycling program will be discussed in significant detail in the following section of this report. Here, the Salvation Army is profiled. Their role in Markham represents an example of the type of impact charities can make in the context of the textile recycling industry.

The Salvation Army is responsible for maintaining and servicing collection bins, which were set up by the City of Markham in 2016.[69] Once textiles are collected from the bins, they are brought to the charity's warehouse in Oakville, Ontario.[70] Here, the textiles are sorted by volunteers, who are required to adjudicate whether clothing can be resold for future wear.[71] Clothing that can be resold is sent to Salvation Army Thrift Stores. Other types of textiles, in addition to clothing which is "torn, stained, or overly worn,"[72]are instead sold to private cloth graders.[73]

Charities enjoy a unique ability to benefit from textile recycling since they do not incur direct costs for collection and sorting. The profits made from the sale of used textiles are somewhat underwhelming. In addition to the revenues generated by clothing resold in the charity's thrift stores, the Salvation Army earns approximately 20 cents for each pound of textiles sold to a private company.[74] This amounts to roughly $200 for each 992 pounds sold by the charity. In Markham, the Salvation Army has also agreed to reimburse the city for the costs in incurs in relation to the operation of the collection bins.[75]

Partnership with a charity is an attractive option for cities attempting to divert textiles from the waste stream insofar as they significantly reduce the considerable costs associated with the implementation and ongoing operation of a textile recycling program. However, there are certain issues which may arise if the City of Toronto elects to partner with a charity. Notably, there is currently no publically available information regarding the private cloth graders the Salvation Army works with.[76] Since charities are likely to sell their unusable textiles to private

---

[68] Lynn Rae, "Textile recycling in the city of Markham," *The Torch,* October 18, 2016, http://thetorchgta.com/gta/textile-recycling-in-the-city-of-markham.
[69] Claudia Marsales, "Markham Tackles Textiles," *Solid Waste & Recycling,* June/July 2016, http://www.solidwastemag.com/downloads/427/download/SWR_JJ16_scrn.pdf?cb=5a40ecaece8a5fd70a7e907aa592225c, 14.
[70] Gould, *supra* note 25.
[71] *Ibid.*
[72] "Salvation Army Thrift Store – FAQS," *The Salvation Army*, accessed March 14, 2017, https://www.thriftstore.ca/british-columbia/salvation-army-thrift-store-faqs.
[73] Gould, *supra* note 25.
[74] *Ibid.*
[75] Marsales, *supra* note 69.
[76] In her article in *Solid Waste & Recycling*, Claudia Marsales, Senior Manage of Waste & Environmental Management for the City of Markham notes that The Salvation Army will "provide end accountability." It follows that there may be some accountability mechanisms which were agreed to by the charity. However, there is no publically available information regarding what these mechanisms may be or any information regarding the private companies who purchase textiles from The Salvation Army. See: Marsales, *supra* note 69.

companies, it may be difficult to ensure that the end use of the materials is sustainable. Additionally, the Salvation Army has been the subject of numerous scandals in recent years.[77] Cities should consider the possibility that citizens will limit their participation in textile recycling initiatives if they have the perception that a scandalized charity stands to benefit.

SpinGreen

As discussed, used textiles often make their way into the hands of private cloth graders. SpinGreen was a for-profit corporation, which began operating in February of 2013.[78] Despite initial growth at a relatively rapid pace, the company was no longer in business as of April 2016.[79] Despite its brief existence, the history of SpinGreen reveals three important lessons for the City of Toronto.

First, the company's short lifespan serves as an example of the dynamic nature of textile recycling industry, as discussed above. Toronto should exercise considerable caution before agreeing to partner with a for-profit company like SpinGreen. If SWMS is too reliant on any particular company, it may make the program unsustainable in the long-term.

Second, Toronto must ensure that it has a clear regulatory framework and a clear plan for public messaging in place prior to introducing and implementing a textile diversion program. In New York, a significant increase in for-profit collection bins across the city resulted in public outrage.[80]The New York City Council responded by introducing legislation which made it illegal to place private collection bins on public lands and threatened to fine operators.[81]

SpinGreen's bins were not in contravention of the city's legislation. The company negotiated with private property owners and the bins were only placed on private land.[82] Nevertheless, the company's downfall is, at least partially, attestable to the public outrage resulting from for-profit collecting bins appearing across the city. Prior to announcing its plan to divert textiles from the waste stream, it may be worthwhile for the City of Toronto to take a clear stance on the legality of private for-profit corporations and ensure that the city's laws are consistent with public opinion.

---

[77] Sarah Boesveld, "Directors fired as $2M in toys, nearly $250K in cash go missing from Salvation Army centres," *National Post*, November 21, 2012, http://news.nationalpost.com/news/canada/directors-fired-as-2m-in-toys-nearly-250k-in-cash-go-missing-from-salvation-army-centres; Paul Waldie, "Six figure salaries the norm at top charities," *Globe and Mail*, April 14, 2010, http://www.theglobeandmail.com/news/national/six-figure-salaries-the-norm-at-top-charities/article4352708/; Jo Tweedy, "'It's a disgrace Paul O'Grady wasn't allowed to wear the uniform because he's gay': Twitter rages against 'discrimination' in BBC Salvation Army documentary," *Daily Mail*, May 2, 2016, http://www.dailymail.co.uk/femail/article-3569125/It-s-disgrace-Paul-O-Grady-wasn-t-allowed-wear-uniform-s-gay-Twitter-rages-discrimination-BBC-Salvation-Army-documentary.html.
[78] Flynn, *supra* note 44.
[79] Rick LeBlanc, "SpinGreen Took a Fresh Look at Textile Recycling and New York's Bin-Vasion," *The Balance*, November 2, 2016, https://www.thebalance.com/spingreen-textile-recycling-2878121.
[80] Ned Burke, "SpinGreen: A For-Profit Clothing Donation Bin Company That Isn't a Scam?" *Bklyner*, August 28, 2014, http://bklyner.com/profit-clothing-donation-bin-company-isnt-scam-sheepshead-bay/.
[81] *Ibid.*
[82] LeBlanc, *supra* note 79.

Finally, SpinGreen exemplifies both the promise and the pitfalls associated with for-profit corporations in the industry. Unlike some companies, SpinGreen highlighted its emphasis on charity and insisted that its practices were highly sustainable.[83] The company is a reminder that there is nothing inherently problematic about partnering with a for-profit entity.

On the other hand, SpinGreen failed to meaningfully validate any of its claims on its website. Moreover, shortly after the company began operating in February 2013, the Better Business Bureau raised concerns about some of the assertions appearing on the company's website. Although SpinGreen responded to some of these concerns, the company failed to "provide substantiation or disclosures about their collection bin program or charitable affiliations."[84]

SpinGreen also failed to provide any concrete information on its website regarding the end use of the textiles collected by the corporation. Further research suggests that roughly 10% of the textiles collected by SpinGreen were donated to charities. The other 90% were sold off to private re-graders.[85] This finding in significant insofar as it suggests that it may be necessary to trace collected textiles through numerous for-profit corporations in order to identify their end use. Ultimately, this may create a problem for the City of Toronto since private companies tend to not be overly transparent in revealing their business partners and it is not immediately clear where liability ends in the textile recycling industry.

SECTION 4: POLICY CONSIDERATIONS

Collection

SWMS has indicated that the City of Toronto possesses considerable expertise with respect to the collection of waste. Accordingly, SWMS is confident that the organization will be able to collect unwanted textiles. In accordance with the client's wishes, this report therefore focuses primarily on the city's options for reusing and recycling textiles subsequent to their collection. That being said, textile recycling programs are, at least to some extent, intrinsically connected with method of collection. As such, this section briefly discusses the benefits associated with different collection approaches.

There are two primary approaches employed by jurisdictions in their collection of used textiles. The first approach involves curbside collection. Curbside collection can take place in one of two manners. First, a city can collect textiles alongside recycling and garbage during regularly scheduled collection.[86] Under this model, jurisdictions will either provide a special bag for used textiles or provide a sticker that residents can affix to the bags traditionally used for the

[83] "About," *SpinGreen*, accessed March 14, 2017, https://www.spingreen.com/charities/.
[84] "SpinGreen Inc.: Alerts and Actions," *Better Business Bureau*, accessed March 14, 2017, https://www.bbb.org/new-york-city/business-reviews/recycling-services/spin-green-inc-in-brooklyn-ny-136289/Alerts-and-Actions.
[85] Burke, *supra* note 80.
[86] Waste Resource & Allocation Programme, *Textile Collection Guide: A guide for local authorities and textile collectors*, April 2016, http://www.wrap.org.uk/sites/files/wrap/MST1561_Textiles_Guidance_2015_UPDATE_21.pdf, 27.

collection of waste.[87]Second, a city can delegate curbside collection responsibilities to charitable organizations. Usually, charities will only collect textiles of a bi-weekly or monthly basis. Households that wish to have used textiles collected will be required to inform the charitable organization in advance of a regularly scheduled collection day.[88]

The other guiding approach used by jurisdictions to collect textiles involves collection bins, as opposed to curbside collection. When a city elects to employ this approach, it still faces a choice with respect to the actor that takes on responsibility for collection. Generally, jurisdictions will either choose to purchase and maintain collection boxes themselves or will authorize charitable organizations to do so.[89] Markham's strategy represents a hybrid approach, wherein the city paid for the costs of collection bins, but the Salvation Army and the Canadian Diabetes Association are responsible with ongoing maintenance.[90]

There is also a third option for cities that decide to use collection bins for their primary method of collection. While curbside collection is cost prohibitive for private organizations, the expenses associated with collection bins are less cumbersome. As a result, some jurisdictions, either explicitly, or by failing to legislate, allow private corporations to operate collection bins.[91] Cities that ultimately decide to use collection bins should be cognisant that private corporations have shown a willingness to pose as charities and erect collection bins, even if they are prohibited from taking such action.

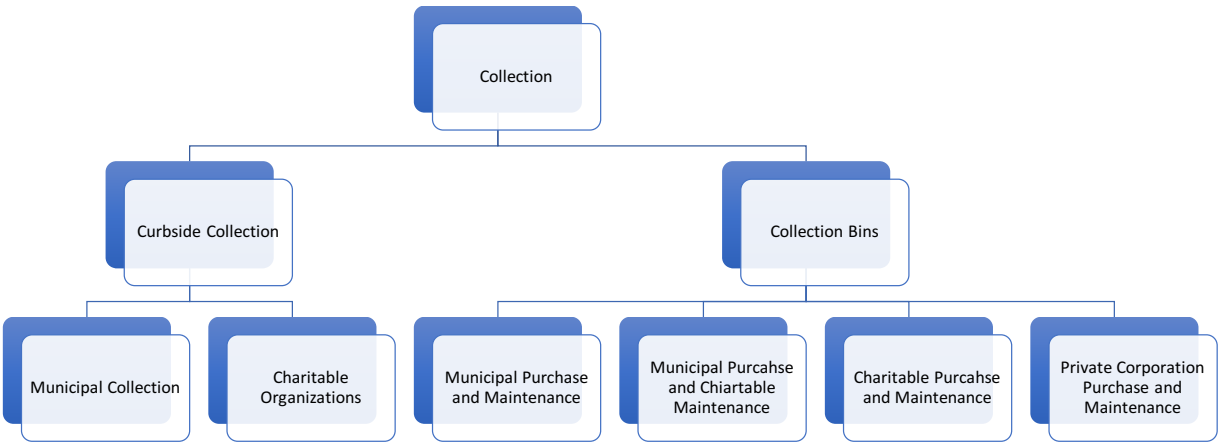


Figure 2: Textile Waste Collection Options

The choice between curbside collection and collection bins sets up three considerations for the City of Toronto. First, there is no reason why the two systems are necessarily mutually exclusive with one another. However, each system requires the city to draft and enforce clear

[87] *Ibid,* 27-28.
[88] *Ibid*, 32-35.
[89] *Ibid*, 40-41.
[90] Marsales, *supra* note 69.
[91] "Clothing donation bins spark turf wars in Ontario," *CBC News*, January 30, 2012, http://www.cbc.ca/news/canada/clothing-donation-bins-spark-turf-war-in-ontario-1.1246132; Waste Resource & Allocation Programme, *supra* note 86, 44.

regulations.[92] By attempting to employ both systems simultaneously, jurisdictions may be prone to enacting unclear and ineffective legislation.

Second, curbside collection creates upfront costs, but may detract from some costs later in the process. Specifically, the textiles in a collection bin can be contaminated if individuals dispose of other types of waste in the receptacles.[93] Additionally, an empirical study conducted in the United Kingdom suggests that textile collection bins were the subject of theft.[94] Ultimately, cities must consider whether they can mitigate these potential difficulties. If these problems and their associated costs are sufficiently large, then it may make more sense for a jurisdiction to use a curbside collection system.

Finally, one of the main hurdles to an effective textile collection program is citizen engagement.[95] Irrespective of which collection program a city decides to employ, citizen engagement is an issue worth considering. However, different issues take on increased importance in each system. For instance, in a curbside collection system, citizens may find it frustrating to wait multiple weeks for their textiles to be collected. Rather than waiting, citizens may instead take what they consider to be an immediate solution and dispose of their textiles through the traditional waste stream.[96] Comparatively, one of the primary issues detracting from the efficacy of the collection bin approach is a lack of public awareness regarding the location of the receptacles.[97]

In sum, jurisdictions must be cautious not to ignore the importance of their collection approach. Each approach will highlight a range of distinct issues, which must be addressed to ensure the success of a textile reuse and recycling regime.

Partnership

As the case studies below demonstrate, partnership building is one of the most common methods employed by municipalities to address the issue of textile waste. Partnerships can take different forms and can be made on different scales. For instance, cities such as Markham primarily rely on charities, whereas San Francisco uses a hybrid partnership structure wherein both non-profit and business organizations are involved. Despite this, given the novelty of these programs, many jurisdictions have not implemented legislation and policies to regulate and

---

[92] Waste Resource & Allocation Programme, *supra* note 86, 30, 46-47.
[93] Stubin, Bloovman& King, *supra* note 66; David Palm et al., *Towards a new Nordic textile commitment* (Copenhagen: Nordic Council of Ministers, 2014), 129.
[94] Waste Resource & Allocation Programme, *supra* note 86, 45.
[95] Federation of Canadian Municipalities, *Getting to 50% and Beyond: Waste Diversion Success Stories from Canadian Municipalities* (FCM Green Municipal Fund, 2009), 7,13; Leon Kaye, "U.S. Brands Slow To Embrace Textile Recycling Are Missing Opportunities," *Sustainable Brands*, April 16, 2013, http://www.sustainablebrands.com/news_and_views/waste_not/us-brands-slow-embrace-textile-recycling-are-missing-opportunities.
[96] "Contamination of Recycling," *Haringney, London*, November 23, 2016, http://www.haringey.gov.uk/environment-and-waste/refuse-and-recycling/recycling/contamination-recycling; Cole Rosengren, "Cities are still struggling to fix recycling contamination – and now, it's getting personal," *Waste Dive*, February 7, 2017, http://www.wastedive.com/news/cities-are-still-struggling-to-fix-recycling-contamination-and-now-its/435578/.
[97] Waste Resource & Allocation Programme, *supra* note 86, 43.

monitor such partnerships. Similarly, even in jurisdictions where partnerships are considered important in achieving their waste management goals, few policies are in place to define the liability of different parties, or to oversee the end use of textiles. For instance, in New York City, despite the staggering rate at which the general population is discarding used clothing, there is no current requirement to recycle or otherwise responsibly dispose of these items, let alone policies surrounding the development and implementation of recycling programs through partnership.[98]

The City of Markham has, arguably, done more. Markham has banned textiles from landfills, and will no longer accept unwanted textiles in the curbside collection service beginning April 17, 2017.[99] However, it does not have any publically available information on legislation to monitor the liability of its partners.[100]Besides stating that the City of Markham partners with the Salvation Army and Diabetes Canada to collect and recycle all donated textiles, Markham's website does not contain any information about the municipality's and its partners' respective responsibilities in relation to the textile diversion program.[101]

Much like its domestic and international counterparts, the City of San Francisco does not have any legislation and policies on partnerships to monitor the end use of textiles. However, I:CO, San Francisco's major business partner, claims that it is collecting with "end use in mind".[102] More specifically, it states that through I:CO program, retail outlets reward their customers for their efforts, thus effectively "extending product responsibility for manufacturers and allowing them to embrace sustainability as part of their goals".[103]

Currently, discourse regarding extended producer responsibility ("EPR") is limited, but there have been some suggestions that municipalities should adopt these policies as part of their textile waste management programs. Simply put, EPR standards require producers to take responsibility for their products at end-of-life, and are characterized by the participation of companies (either physically or financially) in product take-back, reselling and recycling activities. Current EPR programs in place for glass, paper, and batters and metals, shift waste management costs away from local governments and onto the producers, freeing local governments from the financial and operational burdens of managing product waste.[104]

Given the success of such programs, Weber, in her Master's thesis, recommended that the Ontario government extend producer responsibility, making the producer responsible for the textile products "past the point at which it is sold to consumers."[105] Similarly, in her report to the Vancouver Economic Commission, De Paoli also argued that through EPR, businesses will be

[98] "General Municipal Section 120-AA", *The New York State Senate*, accessed March 20, 2017, https://www.nysenate.gov/legislation/laws/GMU/120-AA.
[99] "Markham Recycles Textiles," *The Official Site of the City of Markham*, accessed March 20, 2017, http://www.markham.ca/wps/portal/Markham/Residents/RecyclingWaste/CollectionServices/sa-textilerecycling/textilerecycling/.
[100] *Ibid.*
[101] *Ibid.*
[102] Mary Mazzoni, "San Francisco Program provides a roadmap for eliminating textile waste," *Trile Pundit*, June 4, 2014, accessed March 20, 2017, http://www.triplepundit.com/special/sustainable-fashion-2014/san-francisco-program-provides-roadmap-eliminating-textile-waste/.
[103] *Ibid.*
[104] De Paoli, *supra* note 1, 5.
[105] Weber, *supra* note 5, 119.

required to play a financial role in product take-back, which would in turn help to catalyze a circular economy in the textile sector.[106]EPR policies are expected to change the way companies design, produce, and market their products, resulting in a more sustainable product, which reduces waste.[107]As detailed in section seven of the report, should the City of Toronto choose to partner with business organizations such as I:CO, imposing EPR-type policy on their partners such as H&M and UNIQLO could be an effective mechanism to reduce textile waste in the long run.

Market Development

In considering the establishment of a textile recycling program, SWMS posed two interrelated questions regarding the market for used textiles. First, the organization asked whether there was an existing market for reused and recycled textiles. Second, if a market did not exist in the GTA, SWMS wondered if it would be possible for the City of Toronto to introduce legislation aimed at incentivizing the creation of a market.

There is evidence that the market for textiles looks virtually identical across the globe. There are five main uses for used textiles. First, clothes which are considered fashionable can be sold in vintage stores for a significant profit.[108] This portion of the market is not particularly developed in North America. However, in the United Kingdom vintage stores are more common and this aspect of the market appears to be more active. Second, some used clothing which is not considered fashionable enough to be sold in vintage stores, can be sold in second-hand or good will stores.[109] Third, some clothes which cannot be sold in North American or the United Kingdom, are shipped to Eastern Europe, China and Africa.[110] In some cases, there is a market for these used clothes overseas, and in other cases, the used clothes are simply donated. There is also a market for textiles which are in sufficiently poor shape that they cannot be immediately resold or donated as clothing. These textiles can be converted into wiping rags or recycled into fibre.[111]

Usually, municipalities and charitable organizations which collect textiles will only directly consider the first two uses. Specifically, they evaluate their prospect of selling used textiles in vintage or good-will stores. The textiles which they deem to be inappropriate for resale in these venues are sold to private re-graders.

The popularity of vintage shops in the United Kingdom cannot be attributed to a particular governmental policy, but instead, to cultural differences. Moreover, even in the United Kingdom, the possibility of selling used clothing to vintage stores has not been enough to shift

---

[106] De Paoli, *supra* note 1, 18.
[107] Weber, *supra* note 5, 119.
[108] Leon Kaye, "Textile recycling innovation challenges clothing industry," *The Guardian*, June 23, 2011, https://www.theguardian.com/sustainable-business/textile-recycling-challenges-industry; Lucy Rodgers, "Where do your old clothes go?" *BBC News*, February 11, 2015, http://www.bbc.com/news/magazine-30227025; Sarah O'Connor, "Prices for second-hand UK clothes soar," *Financial Times*, April 20, 2012, https://www.ft.com/content/44784f66-8ae8-11e1-912d-00144feab49a.
[109] Waste Resource & Allocation Programme, *supra* note 86, 7.
[110] Kaye, *supra* note 108.
[111] *Gould*, *supra* note 25.

the way that most jurisdictions think about textile recycling. Like North America, most cities have decided that the most reasonable approach is to partner with charitable organizations.[112]

It is ultimately quite unlikely that the City of Toronto will be able to enact policy that causes a major disruption to the textile reuse and recycling market. Instead, SWMS should try and design a plan which is responsive to existing market conditions. Specifically, the city will need to partner with charitable organizations unless it is willing to accept a significant monetary loss on the program. However, SWMS must also be cognizant of the fact that, private re-graders are, first and foremost, looking to make a profit. That means they may be willing to send clothing overseas in a manner which disrupts local economies or dispose of unusable textiles unsustainably.[113] The challenge for city planners is to design a process which exploits the natural market, but ensures all collected textiles are disposed of in a manner that is consistent with the LTWS.

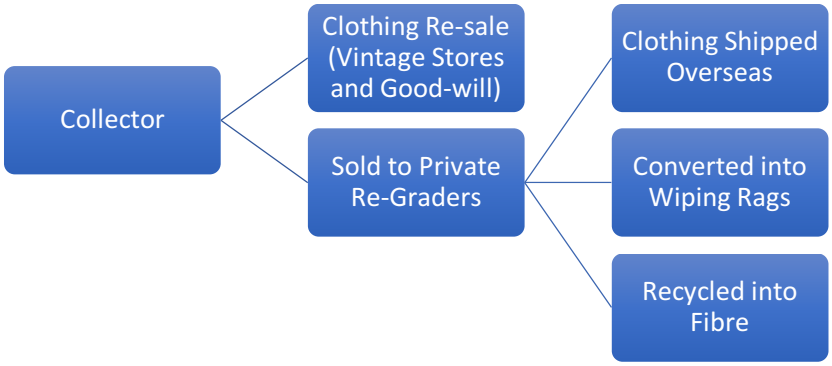


Figure 3: Market for Textile Waste

Communication

Most of the cities that have attempted to introduce textile reuse and recycling programs have accompanied their collection efforts with marketing campaigns. There are two major lessons that can be learned from by looking at other jurisdictions' marketing and communication strategies. First, the success of textile recycling programs is heavily dependent upon a city's capacity to increase basic knowledge and understanding of recycling protocol amongst citizens. Second, a city can design more effective programs by classifying residents into different groups and focusing on specific target audiences.

---

[112] Artjom Roznev et al., "Recycling in Textiles," *HAKM University of Applied Sciences, Supply Chain Management*, accessed March 20, 2017, http://www5.hamk.fi/arkisto/portal/page/portal/HAMKJulkisetDokumentit/Tutkimus_ja_kehitys/HAMKin%20hankkeet/velog/TEXTILE_RECYCLING3.pdf.

[113] Hidegunn Kyvik Nordås, "The Global Textile Clothing Industry post the Agreement on Textiles and Clothing," *World Trade Organization,* 2004, https://www.wto.org/english/res_e/booksp_e/discussion_papers5_e.pdf, 13; Anthony N. Penna, *The Human Footprint: A Global Environmental History* (West Sussex: Wiley-Blackwell, 2010), 178.

Two of the most common barriers which prevent individuals from participating in recycling programs stem from basic misunderstandings. Specifically, 48% of recyclers in the United Kingdom sometimes or often bin things because they are not sure if they can be recycled.[114] In the same survey, 48% of respondents admitted that they did not understand what they are supposed to use their recycling containers for.[115] These figures demonstrate the need for increased education and marketing about recycling programs, generally. However, the lack of public information regarding appropriate recycling behaviours are particularly pronounced in the context of textile recycling.[116] There are similar issues in Toronto, as the client has expressed concerns about the increasing number of textiles ending up in blue bin recycling.

It follows that the City of Toronto should concentrate its efforts on spreading basic information regarding textile reuse recycling. For instance, a marketing campaign might focus on the message that used textiles should be donated instead of being disposed of in the general waste stream and should not be placed in the blue bin. Additionally, if the city elects to employ the collection bin approach, it should consider distributing maps and electronic resources detailing the location of the bins. This importance of spreading basic information regarding textile reuse and recycling is consistent with the marketing materials provided on SMART's website.[117]

Marketing campaigns which offer populations basic information regarding textile reuse and recycle are likely to be effective in increasing textile diversion rates across demographics. However, cities can also benefit by identifying clusters of different groups and designing unique marketing strategies to target each group.

There are a variety of audience classification systems used by cities to disaggregate citizens into categories based on their socio-economic standing.[118] However, one of the most popular systems employed by cities in the context of designing and implementing recycling programs is the ACORN classification system.[119] The ACORN system can be used to segment a population into five categories, with each category further sub-divided into three groupings.[120] A chart detailing the ACORN segmentation system from WRAP's publication concerning *Communication guidance* is reproduced below.[121]

---

[114] Waste Resource & Allocation Programme, *Communications guidance: Improving recycling through effective communications*, 2013, http://www.wrap.org.uk/sites/files/wrap/IRTEC_Revision_12_6_13_0.pdf, 79.
[115] *Ibid.*
[116] *Ibid,* 13.
[117] *Secondary Materials and Recycled Textiles, supra* notes 64, 65, 66, 67.
[118] For instance, jurisdictions in the UK often use the National Readership Survey social grade, and the ACORN, CAMEO, and MOSAIC classification systems have been used across the world. See: Waste Resource & Allocation Programme, *supra* note 114, 76.
[119] Ryan Woodard, Matthew L. Bench & Marie Harder, "The Development of a UK Kerbside Scheme Using Known Practice," *Journal of Environmental Management* 75:2 (2005): 116; Andrew D. Emery, Anthony J. Griffiths & Keith P. Williams, "An in depth study of the effects of socio-economic conditions on household waste recycling practices," *Waste Management & Research* 21:3 (2003): 181.
[120] Waste Resource & Allocation Programme, *supra* note 114, 77.
[121] *Ibid.*

Table 1: ACORN Classification System[122]

ACORN Categories	ACORN Groups
1 - Affluent Achievers	1.A - Wealthy Executives 1.B - Affluent Greys 1.C - Flourishing Families
2 - Urban Prosperity	2.D - Prosperous Professionals 2.E - Educated Urbanites 2.F - Aspiring Singles
3 - Comfortably Off	3.G - Starting Out 3.H - Secure Families 3.I - Settled Suburbia 3.J - Prudent Pensioners
4 - Modest Means	4.K - Asian Communities 4.L - Post Industrial Families 4.M - Blue Collar Roots
5 - Hard Pressed	5.N - Struggling Families 5.O - Burdened Singles 5.P - High Rise Hardship 5.Q - Inner City Adversity

If the City of Toronto decides to use segmentation to supplement its communications strategy, it would likely be best served by a different system. Since the ACORN system is used primarily in the United Kingdom, it may not be appropriate for segmentation of the city's population. Instead, SWMS should consider the PSYTE HD system, which was specifically developed to "assess the socio-economic and geographic profiles of neighbourhoods in Canada."[123]

There are three reasons why segmentation is an effective tool in designing an effective marketing campaign regarding a jurisdiction's newly established textile reuse and recycling program. First, irrespective of whether a city elects to use a curbside collection or collection bin system, its collection and marketing efforts should target communities that are more likely to donate used clothing which can be resold or donated. Second, messaging may be need to be modified based on the target audience. Finally, there is empirical evidence that segmented communication campaigns which employ customized messages targeting specific groups have been extraordinarily successful in increasing recycling rates.[124]

There are, of course, some risks associated with the use of segmented advertising. Primarily, the costs associated running segmented advertising are significantly greater than those associated with broader marketing campaigns.[125] Costs can be particularly prohibitive if a jurisdiction must purchase a classification system or have a classification exercise carried out.[126] Additionally, there are concerns that the use of segmented communication can dilute a city's messaging, making it difficult for any single message to be communicated with the weight

[122] *Ibid.*
[123] "PSYTE HD Canada," *Pitney Bowes*, accessed March 21, 2017, http://www.pitneybowes.com/us/data/demographic-data/psyte-hd-canada.html.
[124] Waste Resource & Allocation Programme, *supra* note 114, 22.
[125] *Ibid, supra* note 114, 77.
[126] *Ibid.*

required to motivate a meaningful shift in behaviour.[127] The City of Toronto will need to weigh these drawbacks against the aforementioned benefits to determine if segmented messaging makes sense for the jurisdiction in support of a textile recycling program. Socio-economic clustering should certainly be considered in the design of a textile diversion strategy and in the crafting of the city's marketing campaign. However, the extent to which segmenting is needed to bolster the city's communication strategy is contestable and depends on the resources presently available to SWMS.

SECTION 5: CASE STUDIES

After conducting a jurisdictional scan on a larger scale, the scope of research was narrowed to focus specifically on four city pilot projects. Each of these case studies provide important lessons on developing a successful pilot project. While the City of Toronto is unique in its specific challenges and opportunities, a closer analysis of other successful programs can be helpful in building a Toronto-specific policy. The four case studies addressed in this paper are New York, San Francisco, the London Borough of Bexley, and Markham.

New York

The basic structure of New York's textile diversion program may provide an appropriate blueprint for the City of Toronto. However, the city's foray into textile reuse and recycling also revealed some of the problems associated with the implementation of a diversion program. Specifically, New York's program failed to provide sufficient donation opportunities for the city's eight million residents,[128] generating a host of problems which undermined the long-term viability of the program.

Partnership with Housing Works

In May 2011, the City of New York formed a partnership with Housing Works to establish the re-fashioNYC program.[129] Apartment, office, and commercials buildings can request a donation bin, which is paid for and delivered by the city.[130] Each building is responsible for monitoring its collection bin. Once a bin is full, representatives from the building can contact Housing Works and the organization will pick up the contents within five business days.[131]

---

[127] *Ibid.*
[128] Ned Burke, "Gentile Bill To Crack Down On Illegal Clothing Donation Bins Wins Support of Mayor, Council Colleagues," *Bklyner*, August 5, 2014, http://bklyner.com/gentile-bill-crack-illegal-clothing-donation-bins-wins-support-mayor-council-colleagues-bensonhurst/.
[129] Mireya Navarro, "Textile Recycling Is Thriving in New York," *New York Times*, February 19, 2012, https://green.blogs.nytimes.com/2012/02/19/textile-recycling-is-thriving-in-new-york/.
[130] "re-fashioNYC," *NYC Recycles*, December 2013, http://www.housingworks.org/i/page-media/refashionyc_broch.pdf.
[131] "re-fashioNYC," *NYC Department of Sanitation*, accessed March 21, 2017, http://www1.nyc.gov/assets/dsny/zerowaste/residents/re-fashionyc.shtml.

Once Housing Works collects the textiles, they are taken to its warehouse in Queens for sorting.[132]"Some donations are sold in Housing Works thrift shops throughout NYC,"[133] while some items are shipped to Haiti and sent to other non-profit thrift shops. Any items remaining are then sold to a private textile merchant, where they are either recycled or shipped overseas.[134]

The program in New York contains many of the elements that the City of Toronto is looking for in a textile reuse and recycling program. SWMS has indicated a willingness to cover the costs associated with providing donation boxes to multi-residential buildings across the city. Moreover, the city is interested in delegating responsibility for the maintenance of the collection bins to a partner charitable or non-profitable organization.[135] It follows that the basic model employed by city planners in their design of re-fashioNYC may be appropriate for the City of Toronto.

There are, however, some key elements of the New York program that should be rejected by SWMS. Specifically, the City of Toronto should be cautious about partnering with a charity that sells a portion of the textiles collected from donation bins to private merchants. It is extremely difficult to ascertain how private re-graders use and dispose of the textiles in their possession. Ultimately, they may be recycling textiles in a manner which is inconsistent with Toronto's LTWS or shipping textiles overseas in a manner which is inconsiderate of the effect on local markets.

The Rise of Private Textile Recycling Corporations

In addition to the basic blueprint of a textile recycling program, there are further lessons that can be learned from re-fashioNYC. Although the program is lauded as a great success, New York City was unable to keep up with demand. Significantly more buildings requested donation bins than the city could provide, precipitating a dramatic rise in private corporations hoping to cash in on the textile recycling trend.[136] Typically, these corporations would assume the role that the city would take in the re-fashioNYC program. In exchange for the providing a building with a donation bin, the corporation would gain ownership over all donated textiles.[137]

The rise of private corporations is not necessarily problematic. Insofar as the goal of re-fashioNYC was to the divert textiles from the landfill, private corporations also contributed to this aim. On the other hand, New York City had no capacity to control, or even influence, how private corporations dealt with collected materials. Accordingly, the corporations may have been disposing of textiles in ways that the city's Department of Sustainability may have internally deemed to be inappropriate.

---

[132] *NYC Recycles*, *supra* note 130.
[133] *Ibid.*
[134] *Ibid*.
[135] As indicated by Ms. Emily Marmoreo, Project Lead Solid Waste Management Services, on March 15, 2017.
[136] Catherine Curan, "Illegal donation bins blight city, spur council action," *New York Post*, August 17, 2014, http://nypost.com/2014/08/17/illegal-clothing-donation-bins-blight-new-york-city-and-spur-council-action/.
[137] LeBlanc, *supra* note 79.

The rise of private textile recycling corporations and the influx of collection boxes appearing across the city led some citizens to question the merits of donating their used textiles.[138] Other residents lobbied City Council, calling for legislation which prohibited private corporations from erecting donation boxes.[139]

City Council responded by passing a bill which offered officials the authority to remove donation boxes which were stationed illegally on public property.[140] Although the bill addressed some of the citizenry's concerns, it can be considered inadequate in two ways. First, it did nothing to deal with the influx of private collection boxes appearing on private property. The city was likely unwilling to interfere with the right of building owners to sign private contracts. However, by refusing to legislate on this matter, City Council failed to meaningfully address that core concern that spurred unrest in the first place. Private organizations were posing as charitable organizations and individuals could not be confident that their used textiles were actually being used to support worthwhile causes.

Second, New York's legislation failed to address the issue of for-profit corporations posing as charitable organizations. Here, City Council cannot be blamed. There were already regulations covering this issue at the state level and New York's municipal government lacked the jurisdiction to enact additional policies.[141]However, the state laws were rarely enforced, thereby playing a critical role in the public relations problem associated with New York's textile collection program. Ultimately, SWMS should consider the possibility that similar issues may arise in Toronto and be prepared to collaborate with the Province of Ontario to craft a comprehensive solution.

San Francisco

Amongst the few jurisdictions that have implemented textile diversion programs, San Francisco is arguably one of the most cited "successful" cases. Every year, San Francisco sends almost 39 million pounds of textiles to landfill, which is equivalent to 4,587 pounds every hour.[142]

Initiatives

In 2002, the City launched its *Zero Waste by 2020* campaign, which aims to divert discarded materials from the landfill through recycling, composting and other means.[143] The city

---

[138] *Ibid*.
[139] Legislative Research Center, "Regulating publically accessible collection bins," *The New York City Council*, accessed March 21, 2017, http://legistar.council.nyc.gov/LegislationDetail.aspx?ID=1853963&GUID=DD159C3E-E9AE-41C7-B8CC-3B561AF91C7C.
[140] *Ibid*.
[141] Mahita Gajanan, "New York company fined over fake clothing donation bins that netted $10m," *The Guardian*, November 2, 2015, https://www.theguardian.com/us-news/2015/nov/02/new-york-fake-clothing-donation-bins-thrift-land-usa-yonkers.
[142] "I:CO city San Francisco," *I:Collect*, accessed March 15, 2017, http://www.ico-spirit.com/en/ico-city-san-francisco/.
[143] "Resolution setting zero waste date," *SF Environment*, March 6, 2003, accessed March 3, 2017, https://sfenvironment.org/sites/default/files/editor-uploads/zero_waste/pdf/resolutionzerowastedate.pdf.

claims to have achieved an 80% landfill diversion rate to this date, although the methods used to obtain this rate has been debated.[144] In January 2014, San Francisco further announced the adoption of the *Zero Waste Textile Initiative* to encourage residents and businesses to recycle unwanted clothing by expanding textile drop-off locations across the City and accepting worn out items such as athletic shoes, torn jeans as well as other items which were previously considered trash.[145] The overarching objectives of this new initiative are to eliminate the 39 million pounds of textiles San Franciscans send to the landfill each year and to help reduce the 25 billion pounds of textile waste generated annually in the United States.

Non-Profit Partners

In support of its new initiative, San Franciscohas collaborated with non-profit and retail businesses at the local level. For instance, residents can donate reusable textiles to non-profits such as S.F. Goodwill, which diverts more than 20 million pounds of clothing and household goods from the landfill annually, while employing 1,000 local residents and providing job training and placement opportunities for those in need of work.[146] In 2015, thanks to a partnership between San Francisco Goodwill, the local design firm, Frog Design, and a property manager trade group, the city placed hi-tech recycle bins – known as "goBINs" – in 100 apartment buildings and condominiums, with the goal of supplying all city high-rises by 2019.[147] Built locally from recycled materials, each goBIN receptacle is equipped with sensors that notify Goodwill when it has reached the capacity and is ready for collection. Furthermore, donors can immediately access an online tax form by using their smartphones to scan a QR code on the bin.[148]

San Francisco's other non-profit partners include the Salvation Army and USAgain. It also collaborates with Recycle for Change, a non-profit organization which provides the opportunity for people to drop off their surplus clothing to be reused through collection boxes placed at publically accessible locations throughout the state. The clothing is collected, packed, and sold, generating money to support the training of volunteers working in the poorest parts of the globe.[149]

---

[144] Although the City of San Francisco claims an 80% landfill diversion rate, the interpretation of this figure is contested. For one thing, it is argued that San Francisco's 80% diversion rate is a unique way of counting by the San Francisco Department of Environment. That is, the rate is so high because the city includes large quantities of very heavy construction materials, such as excavated fill and rubble, which are reused as infill and road base) and biosolids (applied to agricultural land) as part of its "diversion". However, other cities only count reuse and recycling of post-consumer commodities such as paper/car/board, metal, textiles, and composting as part of their diversion rate calculation. It is for this reason that some suggest that the 80% diversion rate should not be held up as a metric of success to which other cities should compared. See: "San Francisco's famous 80% waste diversion rate: anatomy of an exemplar," *Discard Studies*, June 16, 2013, accessed March 15, 2017, https://discardstudies.com/2013/12/06/san-franciscos-famous-80-waste-diversion-rate-anatomy-of-an-exemplar/.
[145] *SF Environment*, *supra* note 5.
[146] *Ibid.*
[147] Kristine Wong, "How San Francisco Outsmarted the Hassel of Donating Old Clothes," *TakePart*, February 7, 2014, accessed March 20, 2017, http://www.takepart.com/article/2014/02/06/san-francisco-goodwill-textile-old-clothing-recycling-gobin.
[148] *Ibid.*
[149] "Becoming a part of positive change in the world," *Recycle for Change*, accessed March 14, 2017, http://www.recycleforchange.org/about-us.

Business Partner: I:Collect

Another key organization that San Francisco partners with is I:CO, "a leading global end-to-end solutions provider," that reuses and recycles unwanted textiles into items such as toys, insulation and carpeting.[150] This partnership was formed as part of San Francisco's objective to achieve the heralded goal of zero textile waste.[151] I:CO, also known as I:Collect, through its offices in Germany, the UK, the US, and Japan, aims to maintain consumers' clothing and shoes in a "closed loop production cycle where these goods can be reprocessed and reused again and again, through I:CO's innovative take-back system and global infrastructure," so that the goals of environment protection, waste reduction and resource preservation can be achieved.[152]

More than 160 textile recycling bins were rolled out in schools, stores and libraries around the City of San Francisco. Several commercial partners are involved with I:CO, including Levi's, Intimissimi, Adler, H&M, Puma, American Eagle, North Face and Reno. In concert with these retail partners, I:CO collects clothing and shoes, organizes transportation to sorting and recycling plants, sorts the items, and promotes a closed loop recycling structure. As textiles are made up of many different materials, sorters at I:CO facilities use 400 different criteria to determine where a particular piece of clothing should be sent. Each retail partner can select a charity recipient for all proceeds created by from the collected clothes.

According to the company's Chief Marketing Officer, anywhere from 95 to 99% of textiles can be reused or recycled, and about half of the clothing that I:CO receives is reusable and can be sold on the second hand market. The rest can be down cycled into fibre for car upholstery, carpet padding, insulation, and stuffing.[153] With that system, I:CO claims to offer producers and retailers a platform to meet their product responsibility. This creates the basis for a permanent, 100% reuse of resources. The aim is to integrate all collected clothing and shoes into a recycling process, while completely eliminating waste products.[154]

The I:CO take-back system claims to make textile recycling a convenient experience and creates mutual benefits for apparel brands and consumers alike. That is, by bringing their unwanted clothes to the stores of I:CO partner companies, customers receive a redeemable voucher towards future purchases, while clothing brands are held accountable for the end-use of their products.[155] The City of San Francisco and I:CO are currently considering ways to encourage textile recycling without this kind of carrot. At the same time, the City and I:CO are also working without a stick, as textile recycling in San Francisco is voluntary, unlike the City's composting and curbside recycling programs.[156]

---

[150] *SF Environment, supra* note 5.
[151] "I:CO launches first I:CO city initiative with the city of San Francisco," *I:Collect*, January 15, 2014, accessed March 14, 2017, http://www.ico-spirit.com/en/press/ico-launches-first-ico-city-initiative-with-the-city-of-san-francisco,19.html.
[152] "About I:CO," *I:Collect*, accessed March 14, 2017, http://www.ico-spirit.com/en/about-ico/.
[153] *Ibid.*
[154] *Ibid.*
[155] Darby Minow Smith, "This old thing? San Francisco finds new life for dead threads," *GRIST*, January 15, 2014, accessed March 20, 2017, http://grist.org/living/this-old-thing-san-francisco-finds-new-life-for-dead-threads/.
[156] *Ibid.*

London Borough of Bexley

The London Borough ("LB") of Bexley is located in south-east corner of Greater London. It had a population of approximately 232,000 people in 2011, which is when the last census was completed in the United Kingdom.[157] As the LB of Bexley is a unitary waste authority, it is responsible for collecting and disposing of the waste generated within its borders.[158] To facilitate this, Bexley has contracts with a variety of companies for the disposal of non-recyclable and recyclable waste. The majority of non-recyclable waste is incinerated, with the remainder going into a landfill.[159] There are approximately 95,000 households within the Borough, the majority which receive curbside recycling.[160] In 2014/15, 54% of the waste collected in the Borough was recycled.[161] The Borough is a member of WRAP.[162]

Textile Waste Pilot Program

In 2009, an analysis of Bexley's residential waste stream showed that its composition was 2% textiles.[163] In order to meet the Borough's set target of recycling 55% of its waste by 2014, it wanted to investigate the effects that kerbside collection of textiles would have on its recycling rate.[164]

In the long run, the Borough's goal was to develop a kerbside textile collection process which would cover all households in the area. It was also important to maximize the amount of textile waste diverted from residential waste in order to meet its target recycling rate.[165] In order to complete this investigation the Borough sought a partner organization that was:

- capable and willing to collect textiles from all parts of the Borough not just areas that might produce high quality textiles such as high income neighbourhoods;[166]
- "a third sector organization that would bring socio-economic and charitable benefits;"[167]
- could create and deliver a communication strategy and educational programs to the public.[168]

[157] "Demography," *Bexley*, accessed April 8, 2017, http://www.bexley.gov.uk/article/2327/Demography.
[158] "What happens to your waste," *Bexley*, accessed April 8, 2017, http://www.bexley.gov.uk/article/3008/What-happens-to-your-waste.
[159] *Ibid*.
[160] "What can I recycle at home," *Bexley*, accessed April 8, 2017, http://www.bexley.gov.uk/article/12636/What-can-I-recycle-at-home.
[161] "Recycling," *Bexley*, accessed April 8, 2017,http://www.bexley.gov.uk/recycling.
[162] *Ibid*.
[163] "Case Study: Kerbside Textile Collection for Charity: London Borough of Bexley and Traid," *Waste Resource Allocation Program*, accessed April 8, 2017, http://www.wrap.org.uk/sites/files/wrap/Textiles_Guide_CS_Bexley_0.pdf.
[164] *Ibid.*
[165] *Ibid.*
[166] *Ibid*.
[167] *Ibid*.
[168] *Ibid*.

TRAID

Based on the aforementioned criteria, the LB of Bexley decided to partner with organization TRAID. TRAID is a registered charity that works to divert clothing from the landfill and incineration.[169] To accomplish this, it has a network of over 1500 clothing banks, home collections and charity shops across 191 boroughs and districts in the United Kingdom. On average it, diverts approximately 6.6 million pounds of clothing from the waste stream through its network. [170]

This diverted clothing is then hand-sorted by condition, quality, and style and then sold in their charity shops. Proceeds from these sales are then used to improve working conditions and practices across the globe in the textile industry.[171] To date, TRAID has committed approximately £1.5 million to this cause.[172] Currently, TRAID is funding a variety of projects in Benin, Bangladesh, India and Ethiopia.[173] These projects range from helping to expand the production of sustainable cotton to supporting the children of garment worker.[174]

TRAID accepts donations of clothing, shoes, accessories, linen, homeware, books and movies. However, it does not accept damaged clothing or shoes.[175] In addition to diverting clothing from the waste stream TRAID also works to educate the general public about the impacts of clothing on people and the environment. The charity puts on workshops, talks, lectures, events, seminars and assemblies with the goal of informing people and helping them make more sustainable choices when it comes to their clothing.[176]

The Bexley Pilot Program

The pilot program was designed to service approximately 8,000 households within the LB of Bexley, with clothing collection once per month for 6 months.[177] To facilitate the program each of the approximately 8,000 households were given 6 co-branded bags (LB of Bexley and TRAID branding), one for each month of the pilot program, to place clothing in, as well as an information package which explained the pilot program. This service was free to all 8,000 households and LB of Bexley, as TRAID funded the pilot program in return for all income generated by the sale of the collected clothing. TRAID's existing collection contractor, Paper Round, collected the textile filled co-branded bags on TRIAD's behalf.[178]

---

[169] "About TRAID," *TRAID,* 2017, accessed April 8, 2017, http://www.traid.org.uk/about-traid/.
[170] *Ibid*.
[171] *Ibid*.
[172] "Our History," *TRAID,* 2017, accessed April 8, 2017, http://www.traid.org.uk/about-traid/our-history/.
[173] "Current projects," *TRAID,* 2017, accessed April 8, 2017, http://www.traid.org.uk/traid-projects/.
[174] *Ibid*.
[175] "Donate Clothes," *TRAID*, 2017, accessed April 8, 2017, http://www.traid.org.uk/clothes-donations/.
[176] "Education," TRAID, 2017, accessed April 8, 2017, http://www.traid.org.uk/education/.
[177] "Case Study," *supra* note 163.
[178] *Ibid*.

Communication Strategy

In order to facilitate participation from the public in the pilot program a communications strategy was devised which was composed of the following:

1. A press release about the pilot program to the media
2. Articles published in LB Bexley's magazine and on their council's website
3. Promotion of the pilot program on TRAID's website and on their social media
4. Promotional posters were placed in local shops throughout LB Bexley
5. Information packet given to each of the 8,000 households in the pilot program
6. Co-branded bags for the textile diversion which were given to the 8,000 households in the pilot program[179]

Results of Pilot Program

Each month the amount of textiles collected by TRAID, through the pilot program, were weighed. The results can be seen in the table below.[180]

Table 2: Weight of Textiles Collected per Month During Bexley Pilot Program

Month (2011)	June	July	August	September	October	November	Total
Weight (pounds)	243	3197	3538	1559	743	313	9592

On a per household basis this amounts to 1.1 pounds of textiles collected per household during the pilot program. As can be seen, there was an increasing amount of clothing collected during the pilot program for the first 3 months. After the first three months however, the pilot program collected a smaller total weight of clothing each month.[181]This trend can be explained in one of three ways:

1) Residents did an initial clear-out of unwanted clothing, "spring cleaning," and then did not need another collection until the next season
2) The programs communication was very effective at the beginning of the program but as the program continued there was less awareness as the original messaging had faded
3) Fall/Winter weather discouraged people from putting their textiles out for collection[182]

End Markets

Once the clothing was collected by TRAID from the kerbside, TRAID performed an initial sorting of the clothing and removed that of the highest quality to be resold at its charity

[179] *Ibid*.
[180] *Ibid*.
[181] *Ibid*.
[182] *Ibid*.

shops in London. Clothing which was not suitable for resale was then sold via a wholesaler to other parts of Europe, West Africa and Pakistan.[183] On average, 70% of the textiles which are collected by TRAID are reused, 14% is resold in their charity shops.[184]

Markham

Focus Groups

Markham's textile recycling program is a part of a larger 'Best of the Best' diversion strategy for 10 different categories of waste. Prior to the program's introduction, the city had a hands-off approach to textile recycling with charity bins and for-profit collection. In 2012, while building Markham's textile recycling program, the city held numerous focus groups to determine interest in a future program. It became clear in the focus groups that residents wanted more education regarding textile recycling, were not always confident their donations were benefiting charity, preferred 24 hour drop off bins, and supported a Markham sponsored diversion program.[185]

Smart Bins

In 2015, Federation of Canadian Municipalities matched the City of Markham's $67,000 investment in the Smart Bin Textile Recycling Program.[186] The City of Markham was given special recognition for its proposal, which aimed at increased diversion, consumer education and greenhouse gas emissions. The new Smart Bins where designed in the City of Markham and are government property. These bins include solar powered lighting to allow for safe night time drop-offs, surveillance cameras to deter illegal dumping and volume sensors to track volume, and send notifications when the bins are full. All smart bins are clearly branded with both the City of Markham and the Salvation Army logos. These smart bins are valued at $10,000 each, with two already in operation and an additional eight scheduled for release this year at community centres across the city.[187] The Salvation Army has also provided smaller bins to Fire Stations and there are plans to expand these smaller bins to multi-residential units this year.

Partnership and Implementation

After evaluating different charity options, the City of Markham has partnered with the Salvation Army, as they have a strong, 130-year history in Canada and are one of the world's largest providers of social services. The Salvation Army is 100% charity-based and generated funds are used to support the local community.[188] Due to its well-established connection in the community and transparent charitable practices, residents can feel confident that their donations

[183] *Ibid.*
[184] *Ibid*.
[185]Marsales, *supra* note 2
[186] *Ibid*.
[187] http://www.yorkregion.com/news-story/6911042-markham-officially-launches-its-textile-recycling-program/
[188] Amanda Persico, "Markham officially launches its textile recycling program," *York Region*, October 28, 2016, http://www2.markham.ca/markham/ccbs/indexfile/Agendas/2016/General/gc160418/Textile%20Recycling%20Smart%20Bin%20Program.pdf.

are benefiting a worthy cause. The Salvation Army also has an efficient system and is capable of separating, selling and distributing a large volume of textiles. The City of Markham also supports and encourages residents to take advantage of Diabetes' Canada free home pick up services for donating textiles. The clothes collected by Diabetes Canada are then sold to Value Village, with profits going to support the foundation. Clothes that cannot be sold through Value Village are send to textile re-graders or shipped overseas to small business owners in local markets.[189]

Materials are collected from the bins and are then sorted by the charities at no cost to the City of Markham. Approximately 50% of the textiles cannot be sold in stores, leaving The Salvation Army to sell these textiles to private re-graders.[190] The private re-graders are able to recycle or reuse nearly 95% of all textiles in secondary markets including carpet padding, stuffing and insulation. Although it is not made clear in City of Markham documents, The Salvation Army also admits to sending clothes that cannot be sold in stores, overseas to foreign markets. It is unclear whether the City of Markham has arranged for their clothing donations not to be sent overseas, or if this detail was omitted from city reports.

Donation bins are located at City of Markham facilities (including recycling depots, fire stations and community centres) and over 50 multi-residential sites across the city. In the first year of the textile-recycling program, the city saved $86,000 in curbside collection rates based on weight.[191] The City of Markham is now looking to ban curbside textile collection, accompanied by pamphlets and reminder stickers for residents who do not comply. Overall, the program has been widely seen as a success.

The following table summarizes the key findings and lessons learned from our four case studies.

Table 3: Case Studies - Key Findings and Lessons Learned

City	Partnership Model	Takeaway Messages
New York	Charity	• Need a comprehensive regulatory framework to address the issue of for-profit corporations posing as charitable organizations.
San Francisco	Hybrid: charities and private companies	• Usage of bins with sensors to track volume • Redeemable vouchers towards future purchases and easy access to online tax form rebates could motivate residents to donate
The London Borough of Bexley	Charity	• Time (season) of the pilot program could matter • Importance of public awareness campaign on the impacts of clothing on people and the environment

[189] "How Your Donations Help," *Value Village*, accessed April 8, 2017, https://www.valuevillage.com/donate/how-your-donations-help.
[190] Marsales, *supra* note 2.
[191] Amanda Persico, "Markham's textile recycling program to save taxpayers $86,000," June 10, 2017, http://www.yorkregion.com/community-story/7012848-markham-s-textile-recycling-program-to-save-taxpayers-86-000/.

Markham	Charities	• Usage of "smart" bins • Government grants (i.e. the Green Municipal Fund from the Federation of Canadian Municipalities) could be an effective way to incentivize charities to partner with municipalities

SECTION 6: RECOMMENDATIONS

Pilot Project

Based on the four case studies detailed above, consultations with SWMS, and our team's other research, we developed recommendations for how the City of Toronto might structure a textile diversion pilot program. We have also highlighted several items that the City of Toronto should consider when developing such a program.

The City of Toronto should make sure that whatever program it develops does not interfere with already established textile diversion programs run by charities. Therefore, our group is recommending that the City of Toronto develop a small pilot smart bin collection program in four distinct City of Toronto neighbourhoods, which have a high concentration multi-residential buildings where the bins would be located. This program is based loosely off the textile diversion program run by New York City. However, it takes into account of the client's preferences and lessons learned from other cities. The pilot should run for 6 months.

Smart bins were chosen as the method of collection after consultation with the City of Toronto.[192] Using smart bins will allow for the collection of much needed data on the amount of textiles collected. It will also extend the process used by most charities in the City of Toronto to collect textiles for reuse. While smart bins require an upfront investment, in the long-run, they are generally cheaper to finance than a collection program. They also allow for the partnership charity to take ownership of the program, while the City of Toronto remains more of a facilitator and as a lender of legitimacy.[193]

Finally, while some charities offer a pickup service for donations, it is unlikely that many of the City of Toronto's possible charity partners could offer a curbside pickup service on the scale needed for the pilot program. Also, as seen in the Borough of Bexley case study, curbside programs can be expensive and can result in varying amounts of textiles collected each collection period.[194] This variation makes it possible that during a collection period, the value of the textiles collected may not be enough to cover the cost of curbside collection. The main trade off the pilot program is making, is with respect to using smart collection bins instead of curbside collection is

[192] At a meeting on March 15, 2017, Ms. Emily Marmoreo, Project Lead Solid Waste Management Services, indicated that SWMS would prefer to run a pilot project using collection bins placed at multi-residential buildings.
[193] At a meeting on April 3, 2017, Ms. Charlotte Ueta, Acting Manager Waste Management Planning, indicated that SWMS would prefer the partner charity "own the program."
[194] *Waste Resource Allocation Program, supra* note 163.

convenience for residents. One way to help mitigate this problem would be create a map of all textile collection bins within the City of Toronto and include it with the yearly Waste Management Guide and Collection Schedule calendar the City of Toronto provides to residents. This would raise awareness regarding the locations of collections bins within the City of Toronto, so residents could chose a bin location which is most convenient for them.

Multi-residential buildings were chosen as the location for the bins under the direction of the City of Toronto staff.[195] Multi-residential buildings have a high concentration of residents who could participate in the program. However, depending on where the bins are placed (inside or outside of the building), residents of single family dwellings in the neighbourhood may have less access to the bins and consequently, the textile diversion program. In developing the program, the City of Toronto should carefully consider whether it wants the bins placed inside or outside of multi-residential buildings. If the bin is placed inside there is no need to worry about convenience, bad weather, or dumping. But if the bins are located outside, it will be easier for the charity to pick up the diverted textiles and people from single family dwellings could use them. Another consideration is that multi-residential complexes may not agree to let the City of Toronto put bins on their property due to aesthetic, and dumping concerns. A possible extension of the pilot project could include collection bins placed at schools, fire stations and community centres to accommodate single family homes.

We recommend that, to begin, the City of Toronto runs the pilot program in four distinct neighbourhoods. This report puts forward suggestions for the 4 neighbourhoods which the pilot program should run in. The neighbourhoods were chosen based on three criteria:

1. Percentage of citizens who live in apartments that are 5+ storeys (multi-residential buildings).

2. Percentage of the population that is low-income. The pilot program should run in a variety of neighbourhoods with different income levels in order to collect data on whether there is a difference in the amounts of textiles diverted based on income levels and whether income levels determine the profitability of each neighbourhood for the charity when it comes to selling the reusable textiles to fund their activities.[196]

3. The geographical location of the neighbourhood within the City of Toronto. While the neighbourhoods should be distinct, the report recommends four neighbourhoods which are located sufficiently close to one another that the partner charity could collect from each of the four neighbourhoods in a single day, thereby lowering transportation costs.

Based on these criteria, the recommended neighbourhoods are Regent Park, Waterfront Communities, Niagara and North St. James Town.

[195] At a meeting on March 15, 2017, Ms. Emily Marmoreo, Project Lead Solid Waste Management Services, indicated that SWMS would prefer to run a pilot project using collection bins placed at multi-residential buildings.
[196] *Waste Resource Allocation Program, supra* note 163.

Table 4: Criteria for Four Pilot Cities

Area	Population	% of Citizens Living in Apartments that are 5+ Storeys	% of Population that is Low-Income
Regent Park	10,007	61	46
Waterfront Communities–The Island	43,361	93	17
Niagara	21,274	75	14
North St. James Town	17,832	92	40
City	/	41	19

Source: Neighbourhood Data from the 2011 Neighbourhood Census[197]

These neighbourhoods represent a number of different average income levels and have a high percentage of people living in apartments with more than 5 stories, in comparison to other neighbourhoods across the City of Toronto.

Choosing a Charity

Before choosing a charity the City of Toronto needs to determine a financing model for the pilot program. Once this has been decided, the City of Toronto should draw up an Expression of Interest for the pilot program and release it to potential partners. The expression of interest should lay out the expectations the City of Toronto has for potential partners as well as the partner's responsibilities in the pilot program. The partner's responsibilities should include:

- Procuring, operating and maintaining the textile smart bins
- Sorting and weighing the collected textiles for resale and disposal
- Following the guiding principles that are laid out in the City of Toronto's long-term waste strategy
- Taking part in a joint communication and education strategy on textile waste with the City of Toronto
- Meeting all reporting requirements, which at minimum should include monthly reports on the following:
    - The total weight of textiles collected from each bin

[197] "Toronto Neighbourhoods List," *City of Toronto,* accessed April 8, 2017, http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=100c861b9fdb1410VgnVCM10000071d60f89RCRD.

- The proportion of the textiles collected, by weight, which are determined to be non-reusable and those which are reusable

- The total weight which is sent to the landfill

By ensuring that reporting requirements are part of the pilot program, the City of Toronto can get a better picture of what is actually being diverted for the waste stream and fill in some of the data gaps which currently exist in this infant industry.

Education and Communication Strategy

The City of Toronto and the chosen partner charity should collaborate on an education and communication strategy for the duration of the pilot program in an effort to educate the public about the harmful environmental effects of textile waste and to encourage residents to place their used textiles in the provided smart bins. The education and communication strategy should include:

- Advertisements in local shops, elementary schools, libraries, community centers
- Promotion of the program on the City of Toronto's website and on social media
- A press release
- Informational flyers given out to every household participating in the program
- Co-branding of the collection bins with the City of Toronto's and the partner charity's logo so that residents know that the collection boxes are legitimate

Measuring Success

The City of Toronto can measure if this pilot program has been successful through the data the charities will be required to report regarding the weight of the textiles collected. The City could also do a survey of the garbage collected from the four pilot program neighbourhoods to determine the weight of textiles remaining in the garbage stream. This number can be compared to the number previously determined by City of Toronto: 42-44 pounds of textile waste annually per household.[198]If the weight of the textiles which find their way into the waste stream during the pilot program is less than the weight previously determined by the City of Toronto, then the program can be considered a success.

Future Expansion

If the pilot program is determined to be successful, the pilot program could be expanded to elementary schools, community centers and other public facilities in order to expand the

[198] As indicated by Ms. Charlotte Ueta, Acting Manager Waste Management Planning, on February 13, 2017.

coverage of the program for residents living in single family dwellings. The program could also be expanded to other neighbourhoods within the City of Toronto.

Potential Partners for the City of Toronto

Our geographical scan reveals that jurisdictions often build partnerships with private and non-profit organizations to address the issue of textile waste. For instance, in cities like San Francisco, partnerships with private and non-profit organizations have been essential in diverting textile waste. In Canada, Markham's partnerships with The Salvation Army and Diabetes Canada have been essential in helping the city reduce the amount of textile waste in its landfill sites. The following section will examine some charities that the City of Toronto could potentially partner with. Given the City of Toronto Guiding Principles, partnering with a private re-grader is unlikely to be feasible due to the lack of transparency within the industry. The City of Toronto has strong preferences on how textiles be recycled that can best be upheld by a charitable organization. Many charitable organizations also have a relationship with private re-graders to sell what cannot be resold in stores. Information regarding these relationships is not publically available. If the City of Toronto partners with a charity, it will have to negotiate the level of transparency with respect to the complete lifecycle of collected textiles.

Table 5: Potential Partner(s) for the City of Toronto

Charity	Profile	Positives	Negatives
Clothesline Program, Diabetes Canada – Value Village[199]	• Markham's major partner • Over 30 years of experience in collecting "gently used" textile through drop boxes, home pickups and partnerships • Raises $10 million annually (net) for Diabetes Canada in its research, education and advocacy • Works with 50 municipal partners and collects clothing from 1.7 million homes, 3,500 clothing donation bins, and 2,900 partnerships[200] • Exclusive partnership with Value Village where all items donated generate funding. • The Clothesline program is responsible for soliciting, picking-up and delivering goods to Value Village stores. The program is paid for the volume of goods delivered.	Partnership can help the City with[201]: • Waste management cost-savings • Shared education and awareness campaigns • Regular sustainability and impact reports • Grow multi-residential textile reuse programs • Community environmental days • Increase recycling centers Clothesline can provide: • Free recycling program • Seven day a week service • Supplying, maintaining, servicing and insuring collection bins • Currently its smartphone app allows users to find and locate the closest bins Offers three ways to donate clothes • In person • By phone (toll-free) to schedule pick-up timing • Fill the online form to schedule pick-up	• No transparent and comprehensive information about the complete life cycle of donated textiles • Currently only one drop off location in Toronto (North York)[202]
	• One of Markham's major partners • In urban communities in Canada, most Thrift Stores	• Sell torn/stained/overly worn clothing to cloth graders rather than sending them to landfills	• Currently does not have many drop-off bin locations in Toronto. The

[199] "Clothesline and the Canadian Diabetes Association – Your Textile Diversion Partners," *Recycling Council of Alberta*, Summer 2016, accessed March 21, 2017, https://recycle.ab.ca/newsletterarticle/clothesline-and-the-canadian-diabetes-association-your-textile-diversion-partners/.
[200] *Ibid.*
[201] *Ibid.*
[202] "Contact Clothesline," *Diabetes Canada*, accessed March 20, 2017, https://www.diabetes.ca/how-you-can-help/clothesline/contact-clothesline.

Salvation Army – Thrift Store[203]	are overseen by the Salvation Army's National Recycling Operations (NRO) division. • Those not operated by NRO are overseen by Salvation Army ministries such as the local church or Family Services unit.	• "The cloth graders re-sort the materials; turning some into rags, selling other parts for the fibre content used to make things such as upholstery stuffing and carpet padding, or resells the items in foreign markets."[204]	website only lists 4 locations in Toronto.[205] • Only furniture pick-up service in selected areas • Currently 7 Thrift Stores in Toronto[206] for residents to drop off their unwanted clothes
Goodwill	• Use revenue from donated items to help fund job training and employment placement for people with disabilities	• Donation may qualify for a tax-deductible receipt (need to contact store manager in advance to confirm) • Opportunity for the City: reopening plans have initiated, and as many as 600 jobs could be created in the next five years to the Toronto area through various Goodwill establishments[207]	• Unstable financial situation: Goodwill closed its stores across Ontario at the beginning of 2016, causing 450 job losses.
Oasis clothing banking[208]	• All donated items are either given to participants in the Oasis Addiction Recovery programs who cannot afford simple necessities or sold to partly fund the programs offered. • Accepts gently used clothing, shoes and boots, bedding, drapery, linens	• Bin Placement and Maintenance with no cost[209] • Long list of drop-off locations in Toronto[210] • Currently over 800 individuals participate annually in the Oasis programs, many being reintegrated back into society with meaningful work.	• Requirement on volume in order to be eligible for pick-up service: minimum three large garbage bags of clothing

[203] *The Salvation Army*, *supra* note 72.
[204] *Ibid*.
[205] "Drop bin locations," *The Salvation Army*, accessed March 20, 2017, https://www.thriftstore.ca/central-ontario/drop-bin-locations.
[206] "Thrift Store Locations," *The Salvation Army*, accessed March 20, 2017, https://www.thriftstore.ca/central-ontario/locations.
[207] Holly Honderich, "Goodwill to return to Toronto," *Toronto Star*, June 29, 2016, accessed March 20, 2017, https://www.thestar.com/news/gta/2016/06/29/goodwill-to-return-to-toronto.html.
[208] "Who we are," Oasis Clothing Banking, accessed March 21, 2017, http://clothingbank.ca/Home.inc.
[209] "Host a Bin," *Oasis Clothing Banking,* accessed March 21, 2017, http://clothingbank.ca/delsec_host_a_bin.inc.
[210] "Locations," *Oasis Clothing Banking*, accessed March 21, 2017, http://clothingbank.ca/fnsec_locations.inc.

Ontario Federation for Cerebral Palsy[211]	• Primary focus is to collect clothes, shoes, coats, bedding and linens.	• Free home collection (fill an online form or call to arrange a date) – Free of charge • Currently has clothing donation bins across the Province	• Does not provide information on the full life cycle of donated clothing
Others (with limited capacity)			
Pegasus[212]	• Accepts used clothing (and goods of all kinds) for its thrift shop during store hours. All profits made from the store work to further the work of Pegasus Community Project for Adults with Special Needs.		• Only offers store drop-off options • Operation on small-scale
Yonge Street Mission Double Take[213]	• Profits go to the Yonge Street Mission • Collect gently used clothing, linens		• Pick up of large donation only • Donation at the store during store hours only
New Circles[214]	• Clothing goes to individuals and families who are living on a low income and live in Flemingdon Park, Thorncliffe Park, Victoria Village/O'Connor and Crescent Town – Free of Charge		• Drop-off during store operating hours only • Currently only one store in Toronto

Next Steps

Moving forward, following the model outlined by the T.O Zero Waste campaign, the City of Toronto needs to focus on enforcement and measurement of success, partnerships and collaboration, and the 3R's in apartments and condos.[215] Reducing textile waste was identified as a pillar of the program. Throughout the project, it has become clear there is a lack of data pertaining to current textile diversion and collection rates. The City of Toronto should first focus on how data will be collected, what will be used as a baseline and how success should be measured. Without this data, it will be difficult to demonstrate the success of a pilot project in order to establish a more permanent program. The City of Toronto has already established the amount of textiles by weight found in garbage samples and could use this as a basis of comparison when taking a sample after the pilot project. The City of Toronto could also amend bylaw 395 to include reporting requirements for the weight of textiles collected by charity collection boxes in an attempt to gain a better understanding of the current state of textile recycling in the city.

To address partnerships and collaborations, the City of Toronto could run focus groups in areas where a pilot project may be considered. Similar to the process undertaken during the

[211] "Donate to OFCP," *Ontario Federation for Cerebral Palsy*, March 21, 2017, https://ofcp.ca/donate/.
[212] "Thrift Store," *Pegasus*, accessed March 20, 2017, http://www.pegasustoronto.ca/about/thrift-store/.
[213] "Double Take," *Yonge Street Mission*, accessed March 20, 2017, https://www.ysm.ca/learn/programs/double-take/.
[214] "Get Involved," *New Circles*, accessed March 20, 2017, http://newcircles.ca/get-involved/donate-clothing.
[215] "Long Term Waste Strategy," City of Toronto, accessed April 7, 2017 http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=b2fe8005b7ae7410VgnVCM10000071d60f89RCRD

development of the LTWS Guiding Principles, focus groups could help determine what aspect of a textile recycling program would be most important to residents. At this time, the city can also determine if residents have biases against any charitable organizations as a result of scandal or poor branding. It would also be important to establish an open call for possible program partners. Due to the high standards set by the LTWS Guiding Principles, it will important for the selection process to be transparent regarding the city's criteria. The city may ultimately end up with multiple partnership organizations in order to benefit many charities but not to exceed the operating capacity of any one organization.

Finally, one of the most efficient methods of textile collection may be placing clothing collection bins within multi-residential high rise units. This would help to increase the 3R's within apartments and condos but would require a contract with private building owners. It would have to be determined if those who did not live in the apartment or condo could use the bins if placed inside. If not, in order to ensure equitable services provision (as stated in the LTWS guidelines) bins could also be placed at community centres, libraries or fire stations to help incorporate single family dwellings as well.

SECTION 7: FUTURE OF THE INDUSTRY

Policies

While the City of Toronto is just beginning to design its program for diverting textiles from the waste stream, it should also consider some of the long-term policy options which are available to it with regards to textile diversion. The main two long term textile diversion programs discovered in the geographical scan are EPR and material disposal bans.

Extended Producer Responsibility ("EPR")

As mentioned in section four of the report, EPR is based on the idea that manufacturers should be responsible for the entire life-cycle of the products they produce/import.[216] France is the only country which has a mandatory EPR with regards to textiles, although Ontario is considering implementing a similar policy. The regulations were introduced in 2006 as part of France's Code de l'Environnement.[217] The regulations require that all French companies which produce and/or import clothing, linens and footwear ensure that their products are either being reused or recycled at the end stage of their usage. Companies with which these regulations apply have two options to ensure compliance with the regulations:

1. They can create and run their own internal reuse and recycling programs. (These must be approved by French Authorities.) (Individual System)
2. Provide financial support to an accredited organization to provide reuse and recycling programs for them.[218] (Collective System)

[216] David Watson et al., *EPR Systems and new business models: Reuse and recycling of textiles in the Nordic Region* (Nordic Council of Ministers, 2014).
[217] Palm et al., *supra* note 93.
[218] "Metteurs en Marché," *ECO TLC*, accessed April 8, 2017, http://www.ecotlc.fr/page-297-information-in-english.html.

Companies generally opt to provide financial support to another organization as collective systems costs less when in comparison to individual systems due to logistical and administration costs.[219] There is currently only one organization accredited by French authorities to collect, reuse and recycle the goods as defined in the legislation, the non-profit organization, Eco TLC.[220] The regulation also sets out the requirements for accredited organizations as well as the financial responsibilities placed upon producers and importers.

The main regulations state that producers and importers of clothing, linen and footwear within the French market must either arrange for the collection, reuse and recycling of their goods themselves or pay a fee based on the total weight or total number of articles they sell, to an authorized organization, such as Eco TLC.[221] The fee is used to pay for sorting activities, research and development, communication campaigns and the mapping of all textile collection sites in France.[222] In order to encourage more sustainable practices within the textile industry, defined goods which are made from 30% or more pre-consumer recycled fibres receive a 25% rebate while defined goods made from 15% or more post-consumer recycled fibres receive a 50% rebate to the fees charged for these products.[223] All authorized organizations must report annually on the characteristics of the clothing, linen and shoes collected including the total fiscal contribution from producers and importers, the total quantity of goods collected, sorted, reused, recycled, incinerated and put in a landfill.[224] If the goods collected are exported, they must report on the receiving country, the quantity exported, and the end use of the goods in that country.[225]

In 2012, Eco TLC collected 339.5 million pounds of textiles from 26,000 collection sites around France. This is equal to approximately 25% of the French textile market. Of the textiles collected by Eco TLC around 60 - 65% are reused, 25-30% are recycled and 5 - 10% go to waste.[226] The textiles to be reused are generally sent to Africa, the textiles which are recycled are turned into rags and the waste is either sent to a landfill or incinerated.[227] In 2012, Eco TLC received 14 million euros from its members of which 65% went to sorting companies, 25% to local authorities for services, 8% to administration costs, and 2% to R&D.[228]

It may be difficult for the City of Toronto to implement its own EPR policy given the market effects of doing so. However, the city may need to develop a program which complies with a EPR policy in case the Government of Ontario implements an EPR for textiles.[229] As various governments are considering the implementation of an EPR policy, it is important that the City of Toronto keep this in mind in designing a textile diversion policy and program of its

[219] Watson et al., *supra* note 216.
[220] *ECO TLC*, *supra* note 218.
[221] Palm et al., *supra* note 93.
[222] Watson et al., *supra* note 216.
[223] *ECO TLC*, *supra* note 218.
[224] Palm et al., *supra* note 93.
[225] *Ibid.*
[226] Watson et al., *supra* note 216.
[227] *Ibid.*
[228] *Ibid*.
[229] *Ibid.*

own. Based on the French EPR policy and given the City of Toronto's proven ability to collect different types of waste, SMWS should design an initial textile diversion policy and program which can be integrated into a collective EPR system in the future.

Material Disposal Ban

The other long term policy option for the City of Toronto is the introduction of a material disposal ban. Material disposal bans are already in place in many other jurisdictions on items such as food waste and recyclable paper.[230] Jurisdictions such as Vancouver and the City of Markham are currently considering a textile disposal ban.[231] The City of Toronto could institute a ban on the disposal of textile waste in a landfill through a bylaw which prohibits the disposal of textiles at disposal facilities. Enforcement of this type of policy would require collaboration between the City of Toronto, it citizens, and waste management staff/contractors.[232]

Material disposal ban policies need to be carefully executed in order for them to be effective. If there is a low-cost disposal method for mixed waste, then material disposal ban policies will be ineffective.[233] Eliminating low-cost disposal methods can be accomplished through "pay-as-you-throw" pricing.[234] Other regulatory policies which can make material disposal ban polices more effective include fines at the residential and commercial levels as well as waste source regulations.[235] An issue with material disposal ban policies is the increasing levels of waste exportation for disposal which often accompanies the implementation of these policies. It is also difficult to ban materials if waste is collected at the curbside because waste management staff are not allowed to open bagged waste due to health and safety concerns.[236] These issues would need to be considered if the City of Toronto or the Government of Ontario decides to institute a textile disposal ban in the future.

Technology

There are four main areas of the textile recycling cycle where technological advances could help streamline the process and make it increasingly economical; the sorting process, the downcycling process, the upcycling process, and product innovation. In the short run, technological advancement in the sorting process would have the most impact of the economic viability of textile recycling programs, while technological advancement in the upcycling process would have the greatest environmental impact in the long run.

---

[230] Larry Gardner, "Staff Report," *Regional District of Nanaimo*, August 31, 2015, http://www.rdn.bc.ca/dms/documents/solid-waste-management-plan-review/regulatory_tools_to_promote_diversion_report_to_rswac_sept_2015.pdf.
[231] Maryse Zeidler, "Metro Vancouver considers banning clothing and textile from landfills," *CBC News*, August 19, 2016, http://www.cbc.ca/news/canada/british-columbia/metro-vancouver-clothing-waste-ban-1.3727371; Persico, *supra* note 191.
[232] Federation of Canadian Municipalities, *supra* note 95.
[233] Gardner, *supra* note 230.
[234] *Ibid.*
[235] *Ibid.*
[236] *Ibid.*

Sorting Technologies

After collection, sorting is the first step in the recycling process. Textiles are initially sorted based on resale potential and condition. Once the non-reusable textiles have been separated, these textiles are further sorted by fibre type for shredding and fibre re-spinning.[237] The initial sorting process is generally performed by hand in order to determine which textiles can be reused and which need to be recycled. The need for manual sorting causes problems for the textile recycling process as the high minimum wages in areas such as Canada, the US and Europe makes the recycling process costly for governments. This is the reason that most municipalities have partnered with charities.[238] Developing a sorting machine which can sort textiles by condition, fibre type, and colour would greatly improve the process of recycling textiles. There has been some initial success in pilot programs which use a technology which is based on an optical scan: near-infrared spectroscopy ("NIR-spectroscopy").

NIR Spectroscopy

NIR spectroscopy is generally used to sort other types of materials that which recycled, such as plastics.[239] However, the technology may be able to be adapted to the textile industry to identify hazardous substances and eventually to sort fabric type.[240]While this technology shows promise, it cannot replace the initial manual sorting of textiles needed to determine what is reusable and what is not (low grade textiles). The advantages of this technology are that it can eliminate the need for a second manual sorting of the textiles, lowering labour costs, as well as lowering the amount of energy, water and chemicals which are being used in the manufacturing of new textiles.[241]

Textile for textiles ("T4T") is a pilot program which developed an automated sorting system which sorted textile waste based on colour and composition using NIR spectroscopy.[242] The program received 1.3 million euros in funding from the European Commission's eco-innovation initiative.[243] Sorting is conducted according to end-use application. However, when this technology is perfected, it should allow for textiles to be sorted by fibre type instead.[244] This technology is currently being further developed through the Fibersort project, but it has yet to be commercialized.[245]

---

[237] Palm et al., *supra* note 93.
[238] *Ibid.*
[239] *Ibid*.
[240] *Ibid*.
[241] *Ibid*.
[242] RB Chavan, "Environmental Sustainability through Textile Recycling," *Journal of Textile Science & Engineering* S2 (2014).
[243] Rick LeBlanc, "Technologies for Automated Sorting of Textiles for Recycling," *The Balance*, October 18, 2016, https://www.thebalance.com/automated-sorting-for-textiles-recycling-2878011.
[244] "Closing the Loop for clothing," *Oakdene Hollins*, March 2013, http://www.oakdenehollins.com/media/Closed_Loop/Briefing_note-closed_loop_clothing_recycling.pdf.
[245] LeBlanc, *supra* note 243; "Introducing the Fibersort," *Valvan Baling Systems,* accessed April 8, 2017, http://www.valvan.com/uncategorized/introducing-the-fibersort/.

This is an important technology which the City of Toronto should monitor. If the technology is successfully commercialized, it could revolutionize the textile recycling landscape. The lack of automated sorting capabilities presently in textile recycling is one of the main obstacles restricting the sector from recognizing the true value of post-consumer textiles and the closed loop textile industry.[246]

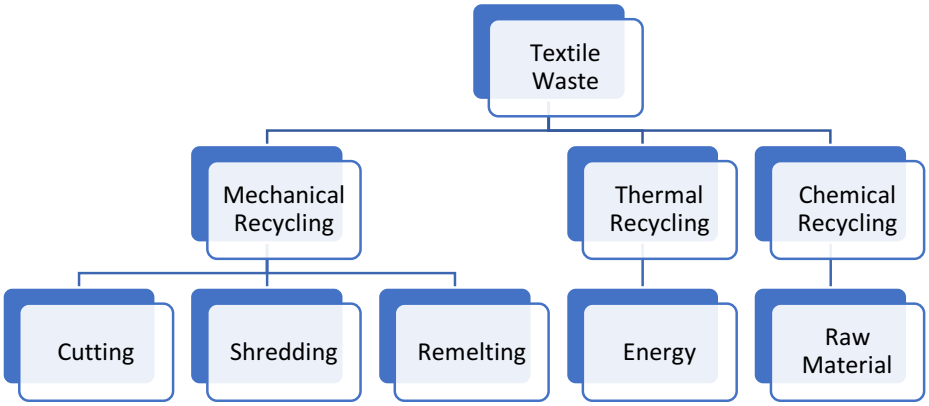
While there are other automatic sorting methods available for other recyclable materials, such as plastics, which could potentially be adapted and optimized for the textile industry, none of them are currently being used on textiles.

Downcycling and Upcycling Technologies

The downcycling and upcycling of textiles are the two different processes which currently exist for recycling textiles. Downcycled textiles are shredded and made into other products such as insulation, while upcycled textiles are broken down into their fibres and then re-spun into new fibres and made into new textiles. Recycling of textiles has many environmental benefits, including:

- Decreasing the amount of waste deposited in a landfill
- Using recycled textiles instead of virgin textiles leads to
    - A reduction in the consumption of water and energy
    - A reduction in emissions[247]

Currently, textiles can be recycled in three main ways; mechanically, thermally or chemically.



[246] LeBlanc, *supra* note 243; "Could Fibersort Change the Textiles Recycling Landscape?" *Circle Economy*, February 5, 2016, http://www.circle-economy.com/the-fibersort-pilot-empowering-enabling-textile-to-textile-recycling/.
[247] Palm et al., *supra* note 93.

Figure 4: Processes for Recycling Textiles

Mechanical Recycling

Mechanical recycling involves breaking down textiles to fibres through a variety of methods including cutting and shredding. The goal of mechanical recycling is to break textiles down into smaller pieces so that they can be used for products such as insulation, rags and matting.[248] Currently there is minimal investment in research and development for new technologies in the mechanical recycling process. Product innovation appears to be the preferred avenue for research and development funding in the mechanical recycling process. Examples of this can be seen in the Product Innovation section of this report.

Thermal Recycling

As the City of Toronto does not approve of the thermal recycling of textiles, only a brief overview is included in the document. Thermal recycling is not recycling in the traditional sense, as it is the process of creating energy from textile waste, usually through incineration. Textile waste can also be used in biogas production, as fabrics such as cotton are made from natural fibres. While this can be a good alternative to putting textile waste in a landfill, it should only be considered if the textiles cannot be recycled using another pathway. [249]

Chemical Recycling

Chemical recycling of textile waste occurs when textile fibres are broken down to the molecular level and then repolymerized.[250] The chemical recycling process is different depending on whether the fibre is cellulose or a plastic based fabric. In the future, both processes are expected to undergo technological advancement with regards to the repolymerization of the recycled fibres.[251]

Cellulose Based Fibres

Chemical recycling of cellulose based fibres has not developed at the same pace as chemical recycling for plastic based fibres. However, there are currently research and development projects in this area in Sweden, the UK, and the Netherlands. These research and development projects are attempting to develop a recycling technology which will take cotton textiles and chemically recycle them into either viscose or lyocell fibres.[252]

Re:newcell is a technology company from Sweden which has developed a chemical recycling process for cotton and other cellulosic textiles.[253] The company produced its first

[248] *Ibid*.
[249] *Ibid*.
[250] *Ibid*.
[251] *Ibid*.
[252] *Oakdene Hollins, supra* note 244.
[253] "About re:newcell," *re:newcell*, accessed April 8, 2017, http://renewcell.se/about/.

garment using recycled blue jeans fibres in 2014. The company is now working to build a textile recycling factory in Sweden which will have a maximum recycling capacity of 7000 tons of textiles per year.[254] The chemical recycling technology developed by re:newcell takes textiles which have a high proportion of cellulosic fibres and dissolves it into a pulp.[255] The process creates a pulp at a cost on par or below that of producing virgin pulp.[256] The pulp can then be used in the commercial textile production chain, manly in the production of textile fibres such as lyocell and viscose.[257] These fibres have shown to be high quality in terms of tensile strength, dye absorption and the ability to withstand abrasion.[258]

Plastic Based Fibres

One of the main emerging technologies in chemical recycling for fabrics made of plastics is the Eco Circle scheme developed by Teijin in Japan.[259] Eco Circle is a closed loop recycling system developed in 2000.[260] The scheme mainly recycles polyester clothing from corporate clothing suppliers, who send Teijin their used uniforms for recycling. In return, they receive new fibres which can be used in the production of new corporate uniforms.[261] The process takes used polyester uniforms and breaks them down using mechanical processes and then granulates them into pellets which can be chemically broken down. The raw material is then repolymerized and spun into polyester fibres.[262] Teijin now has 150 partner companies in Japan, the US, the EU and China which use its Eco Circle technology.[263] In 2012, Teijin expanded into the mainland China market through a joint venture which will follow a similar business model to the one that is currently in place in Japan.[264]Polyester manufacturers such as Toray are also starting to develop chemical recycling process for polyester textiles.[265]

Despite promising advances in the chemical recycling process of polyester and cotton fabrics, there are still many difficulties which need to be overcome. Blended fabrics are one of the main challenges facing the chemical recycling sector, as separating blended fabrics into components is either expensive or not feasible.[266]Additionally, chemical recycling is, in most cases, not an attractive business model, particularly with regards to the chemical recycling of polyester because of the relatively low price of virgin polyester production. Until there is more investment in the research and development of these technologies and the economic benefits of chemical recycling increases, it is likely that the use of this technology will remain limited and inapplicable to the City of Toronto context.[267]

---

[254] *Ibid*.
[255] "The Business Concept," *re:newcell,* accessed April 8, 2017, http://renewcell.se/about/business-concept/.
[256] "The Product," *re:newcell*, accessed April 8, 2017, http://renewcell.se/the-product/.
[257] *Ibid*.
[258] *Ibid.*
[259] "Closing the loop for clothing," *supra* note 244.
[260] Oakdene Hollins, *Maximizing Reuse and Recycling of UK Clothing and Textiles* (Department of Environment, Food and Rural Affairs, October 2009), http://www.oakdenehollins.com/pdf/defra_173_summary_issue_4.pdf.
[261] "Closing the loop for clothing," *supra* note 244.
[262] Oakdene Hollins, *supra* note 260.
[263] "Closed-loop Recycling System," *Teijin*, accessed April 8, 2017, http://www.teijin.com/solutions/ecocircle/.
[264] "Closing the loop for clothing," *supra* note 244; *Teijin*, *supra* note 263.
[265] "Closing the loop for clothing," *supra* note 244.
[266] *Ibid*.
[267] *Ibid*.

Product Innovation

There has been some interesting product innovation with recycled textiles. Examples of this product innovation can be seen below. However, most of these examples remain still small-scale and expensive in comparison to similar items made using more conventional methods.

Table 6: Product Innovations in Textile Recycling

Product	Type of Recycling	Pilot Program	Details
Insulation Panels for the construction industry	Mechanical	INPAT Program funded through the EU's CIP Eco-Innovation programme until 2013[268]	• Panels offer noise insulation, stability, good thermal properties and are easy to install • Process uses high temperatures and pressures to create felt which is then coated and formed into panels • Cost approximately 1.83 euros/pound to generate • At the end of the panel's lifetime, it can be further recycled in a similar manner
Acoustic absorption products	Mechanical	VRK Isolatie[269]	• Insulation panels for the roof, floor and walls which provide both thermal and acoustic barriers • Made from used textiles which have been transformed into fibres, mixed with binder and pressed into sheets or rolls • Easy to install
Clothing made from recycled fibres	Chemical	Reblend[270][271]	• Circular fashion and textile agency • Create innovative yarns from recycled textiles • Yarns are made of greater than 70% post-consumer textile waste • Processed 15,433 pounds of post-consumer garments to produce 13,228 pounds of 100% recycled yarns • No additional water, chemicals or dying is used in the process • Yarns which contain 100% recycled fibres reduced water and energy consumption by 62%

[268] "Giving textile waste a second lease of life in the construction industry," *European Commission: Executive Agency for Small and Medium-sized Enterprises*, February 2, 2015, https://ec.europa.eu/easme/en/news/giving-textile-waste-second-lease-life-construction-industry.
[269] "Mētisse," *VRK: Isolatie&Akoestiek,* accessed April 8, 2017, https://www.vrk-isolatie.nl/.
[270] "Closing the Loop: 3 Case Studies Highlighting the Potential Impact of High-Value Textile-to-Textile Recycling," *Circle Economy*, accessed April 8, 2017, http://circle-economy.com/high_value_reuse_textile_recycling
[271] "About," *ReBland*, accessed April 8, 2017, http://www.reblend.nl/about-us/.

			and 33% respectively and CO2 emissions by 18% when compare to virgin fibres
		G-Star Raw[272]	• Creates recycled denim fabric which is made into jeans • Yarn can be composed of up to 30% recycled fibres • Denim fabric which contains 12% recycled fibres reduced water and energy consumption by 9.8% and 4.2% respectively and CO2 emissions by 3.8% when compare to virgin fabric

SECTION 8: CONCLUSION

With the emergence and expansion of the "fast fashion" industry worldwide, increasing amount of textiles are ending up in landfill sites. The issue has drawn the attention of policy makers across jurisdictions, with some having already started to implement programs to divert textiles from the landfills. As part of this global policy development, the City of Toronto has identified textile diversion as one of the goals in its Long Term Waste Strategy, and has targeted a 72-75% reduction rate per household by 2026. To achieve this, the City aims to design and implement a comprehensive program to divert used textiles from its waste and garbage streams.

In consultation with the City's Solid Waste Management Services, our team has produced this report to provide some contextual information as well as potential policy implications that the City of Toronto should take into consideration prior to launching its textile diversion program. More specifically, based on our jurisdictional scan of government programs and the private sector operating within the field, as well as our analysis of diversion programs from other municipalities such as New York, San Francisco, the London Borough of Bexley and Markham, we have come to the conclusion that the City of Toronto's new program should not disrupt the existing established textile diversion programs run predominantly by charities. As such, we recommend that the City partner with a charitable organization and develop a short-term (6 months) pilot smart bin collection program in residential buildings in four distinct neighbourhoods. To ensure the effectiveness, transparency and sustainability of such program over the long run, we have outlined several key areas – including the development of an effective communication strategy, the implementation of a comprehensive regulatory policy framework, and a clear delegation of duties and responsibilities to the program's partner organization, to name a few – that the City of Toronto should address when running the pilot project.

In conclusion, given that textile diversion policies have become prevalent only in the last decade, there is limited publically available information that the City of Toronto can use to develop its diversion program. Nevertheless, this condition could provide the City of Toronto the opportunity to institute innovative policies and become a national or even an international leader

[272] *Circle Economy*, *supra* note 270.

in the textile recycling industry. The City of Toronto's textile program development could also be facilitated by new technologies that may be commercialized in the coming years.

Works Cited

"About." *ReBland*. Accessed April 8, 2017. http://www.reblend.nl/about-us/.

"About." *SpinGreen*. Accessed March 14, 2017. https://www.spingreen.com/charities/.

"About I:CO." *I:Collect*. Accessed March 14, 2017. http://www.ico-spirit.com/en/about-ico/.

"About re:newcell." *re:newcell*. Accessed April 8, 2017. http://renewcell.se/about/.

"About TRAID." *TRAID*.2017. Accessed April 8, 2017. http://www.traid.org.uk/about-traid/.

"About Us." *Secondary Materials and Recycled Textiles*. Accessed March 13, 2017. http://www.smartasn.org/about/index.cfm.

Baxi, Ranjit S. "About BIR." *Bureau of International Recycling*. Accessed March 13, 2017. http://www.bir.org/about-bir/introduction/.

"Becoming a part of positive change in the world," *Recycle for Change*. Accessed March 14, 2017. http://www.recycleforchange.org/about-us.

Boesveld, Sarah. "Directors fired as $2M in toys, nearly $250K in cash go missing from Salvation Army centres." *National Post*. November 21, 2012. http://news.nationalpost.com/news/canada/directors-fired-as-2m-in-toys-nearly-250k-in-cash-go-missing-from-salvation-army-centres.

Burke, Ned. "Gentile Bill To Crack Down On Illegal Clothing Donation Bins Wins Support of Mayor, Council Colleagues." *Bklyner*. August 5, 2014. http://bklyner.com/gentile-bill-crack-illegal-clothing-donation-bins-wins-support-mayor-council-colleagues-bensonhurst/.

Burke, Ned. "SpinGreen: A For-Profit Clothing Donation Bin Company That Isn't a Scam?" *Bklyner*. August 28, 2014. http://bklyner.com/profit-clothing-donation-bin-company-isnt-scam-sheepshead-bay/.

"Case Study: Kerbside Textile Collection for Charity: London Borough of Bexley and Traid." *Waste Resource Allocation Program*. Accessed April 8, 2017. http://www.wrap.org.uk/sites/files/wrap/Textiles_Guide_CS_Bexley_0.pdf.

Cataldi, Carlotta, Maureen Dickson & Crystal Grover. "Slow fashion: Tailoring a strategic approach for sustainability." (2010), https://www.diva-portal.org/smash/get/diva2:832785/FULLTEXT01.pdf.

Chavan, RB. "Environmental Sustainability through Textile Recycling." *Journal of Textile Science & Engineering* S2 (2014): 1-5.

Chua, Jasmin Malik. "San Francisco Launches City-Wide Zero-Waste Textile Recycling Initiative." *Ecouterre*. January 15, 2014. http://www.ecouterre.com/san-francisco-launches-city-wide-zero-waste-textile-recycling-initiative/.

"Circle Economy (a)." The circular textiles program. 2015.

City of Toronto. "Green Lane Landfill." Accessed March 13, 2017. http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=144c2122a1e65510VgnVCM10000071d60f89RCRD.

City of Toronto. *Long Term Waste Strategy*. July 15, 2016. http://www.toronto.ca/legdocs/mmis/2016/pw/bgrd/backgroundfile-94038.pdf.

City of Toronto. "Bad things happen when the wrong items and recycling go together." Accessed March 13, 2017. http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=5627e8660d035510VgnVCM10000071d60f89RCRD.

Claudio, Luz. "Waste Couture: Environmental Impact of the Clothing Industry." *Environmental Health Perspectives* 115:9 (2007): 449-54.

"Closed-loop Recycling System." *Teijin*. Accessed April 8, 2017. http://www.teijin.com/solutions/ecocircle/.

"Closing the Loop: 3 Case Studies Highlighting the Potential Impact of High-Value Textile-to-Textile Recycling." *Circle Economy*. Accessed April 8, 2017. http://circle-economy.com/high_value_reuse_textile_recycling.

"Closing the Loop for clothing." *Oakdene Hollins*. March 2013. http://www.oakdenehollins.com/media/Closed_Loop/Briefing_note-closed_loop_clothing_recycling.pdf.

"Clothesline and the Canadian Diabetes Association – Your Textile Diversion Partners." *Recycling Council of Alberta*. Summer 2016. Accessed March 21, 2017. https://recycle.ab.ca/newsletterarticle/clothesline-and-the-canadian-diabetes-association-your-textile-diversion-partners/.

"Clothing Collection Bins: An Equitable Regulatory Response." *Secondary Materials and Recycled Textiles*. Accessed March 14, 2017. http://www.smartasn.org/localgovt/Clothing_Collection_Bins_An_Equitable_Regulatory_Response.pdf.

"Clothing donation bins spark turf wars in Ontario." *CBC News*. January 30, 2012. http://www.cbc.ca/news/canada/clothing-donation-bins-spark-turf-war-in-ontario-1.1246132.

"Collectors." *Secondary Materials and Recycled Textiles*. Accessed March 13, 2017. http://www.smartasn.org/collectors/.

"Contact Clothesline." *Diabetes Canada*. Accessed March 20, 2017. https://www.diabetes.ca/how-you-can-help/clothesline/contact-clothesline.

"Contamination of Recycling." *Haringney, London*. November 23, 2016. http://www.haringey.gov.uk/environment-and-waste/refuse-and-recycling/recycling/contamination-recycling.

"Could Fibersort Change the Textiles Recycling Landscape?" *Circle Economy*. February 5, 2016. http://www.circle-economy.com/the-fibersort-pilot-empowering-enabling-textile-to-textile-recycling/.

Curan, Catherine. "Illegal donation bins blight city, spur council action." *New York Post*. August 17, 2014. http://nypost.com/2014/08/17/illegal-clothing-donation-bins-blight-new-york-city-and-spur-council-action/.

De Paoli, Andrea. "Towards the Circular Economy: Identifying local and regional government policies for developing a circular economy in the fashion and textiles sector in Vancouver, Canada." *Vancouver Economic Commission.* September 2015. Accessed March 20, 2017. http://www.vancouvereconomic.com/wp-content/uploads/2016/04/Textiles_policyreport.pdf.

"Demography." *Bexley*. Accessed April 8, 2017. http://www.bexley.gov.uk/article/2327/Demography.

"Donate Clothes." *TRAID*. 2017. Accessed April 8, 2017. http://www.traid.org.uk/clothes-donations/.

"Donate to OFCP." *Ontario Federation for Cerebral Palsy*. March 21, 2017. https://ofcp.ca/donate/.

"Donate, Recycle, Don't Throw Away." *Secondary Materials and Recycled Textiles*. Accessed March 14, 2017. http://www.smartasn.org/localgovt/SMARTInfographTextileRecycling.pdf.

"Donating Textiles and Fabric." *Textile Museum of Canada*. Accessed March 13, 2017. http://www.textilemuseum.ca/join-support/donating-textiles-fabric.

"Double Take." *Yonge Street Mission*. Accessed March 20, 2017. https://www.ysm.ca/learn/programs/double-take/.

"Draft Ordinance." *Secondary Materials and Recycled Textiles*. Accessed March 14, 2017. http://www.smartasn.org/localgovt/SMARTDraftOrdinance.pdf.

"Drop bin locations." *The Salvation Army*. Accessed March 20, 2017. https://www.thriftstore.ca/central-ontario/drop-bin-locations.

"Education." TRAID. 2017. Accessed April 8, 2017. http://www.traid.org.uk/education/.

Emery, Andrew D., Anthony J. Griffiths & Keith P. Williams. "An in depth study of the effects of socio-economic conditions on household waste recycling practices." *Waste Management & Research* 21:3 (2003): 180-90.

Federation of Canadian Municipalities. *Getting to 50% and Beyond: Waste Diversion Success Stories from Canadian Municipalities.* FCM Green Municipal Fund, 2009.

Flynn, Kerry. "Textile Recycling: A For-Profit Startup Success Among Controversy." *Forbes*. August 27, 2014. https://www.forbes.com/sites/kerryflynn/2014/08/27/textile-recycling-a-for-profit-startup-success-among-controversy/#d6bda873234e.

Gajanan, Mahita. "New York company fined over fake clothing donation bins that netted $10m." *The Guardian*. November 2, 2015. https://www.theguardian.com/us-news/2015/nov/02/new-york-fake-clothing-donation-bins-thrift-land-usa-yonkers.

Gardner, Larry. "Staff Report." *Regional District of Nanaimo*. August 31, 2015. http://www.rdn.bc.ca/dms/documents/solid-waste-management-plan-review/regulatory_tools_to_promote_diversion_report_to_rswac_sept_2015.pdf.

"General Municipal Section 120-AA." *The New York State Senate*. Accessed March 20, 2017. https://www.nysenate.gov/legislation/laws/GMU/120-AA.

"Get Involved." *New Circles*. Accessed March 20, 2017. http://newcircles.ca/get-involved/donate-clothing.

"Giving textile waste a second lease of life in the construction industry." *European Commission: Executive Agency for Small and Medium-sized Enterprises*. February 2, 2015. https://ec.europa.eu/easme/en/news/giving-textile-waste-second-lease-life-construction-industry.

"Global food waste reduction." *Waste Resource & Allocation Programme*. Accessed March 13, 2017. http://www.wrap.org.uk/unep.

"Go on – Donate Those Unwanted Clothes." *Salvation Army Blog*. Accessed March 13, 2017. http://www.salvationarmy.ca/blog/2012/01/30/go-on-donate-those-unwanted-clothes/.

Gould, Harvey. “Textiles are the next frontier in recycling for cities looking to cut waste.” *CBC News*. May 9, 2016. http://www.cbc.ca/news/technology/textile-recycling-1.3569138.

Gould, Harvey. “Trashing your textiles.” *CBC News*. May 5, 2016. https://www.youtube.com/watch?v=h4WTO6oAfH8.

“Government Affairs.” *Secondary Materials and Recycled Textiles*. Accessed March 14, 2017. http://www.smartasn.org/government/index.cfm.

Hawley, Jana M. “Digging for Diamonds: A Conceptual Framework for Understanding Reclaimed Textile Products.” *Clothing and Textiles Research Journal* 24:3 (2006): 262-75.

“History.” *The Salvation Army*. Accessed March 13, 2017. http://www.salvationarmy.ca/history/.

Honderich, Holly. “Goodwill to return to Toronto.” *Toronto Star*. June 29, 2016. Accessed March 20, 2017. https://www.thestar.com/news/gta/2016/06/29/goodwill-to-return-to-toronto.html.

“Host a Bin.” *Oasis Clothing Banking.* Accessed March 21, 2017. http://clothingbank.ca/delsec_host_a_bin.inc.

“How Your Donations Help.” *Value Village*. Accessed April 8, 2017. https://www.valuevillage.com/donate/how-your-donations-help.

“I:CO launches first I:CO city initiative with the city of San Francisco.” *I:Collect*. January 15, 2014. Accessed March 14, 2017. http://www.ico-spirit.com/en/press/ico-launches-first-ico-city-initiative-with-the-city-of-san-francisco,19.html.

“I:CO city San Francisco.” *I:Collect*. Accessed March 15, 2017. http://www.ico-spirit.com/en/ico-city-san-francisco/.

“Introducing the Fibersort.” *Valvan Baling Systems.* Accessed April 8, 2017. http://www.valvan.com/uncategorized/introducing-the-fibersort/.

“ITWO releases LCA guidelines for wool textiles.” *Fibre 2 Fashion.* March 3, 2017. http://www.fibre2fashion.com/news/textile-news/iwto-releases-lca-guidelines-for-wool-textiles-204408-newsdetails.htm.

Katz, Cheryl. “Putting San Francisco On the Road to Zero Waste.” *Yale Environment 360.* May 22, 2014. http://e360.yale.edu/features/interview_jack_macy_putting_san_francisco_on_the_road_to_zero_waste.

Kaye, Leon. “Textile recycling innovation challenges clothing industry.” *The Guardian*. June 23, 2011. https://www.theguardian.com/sustainable-business/textile-recycling-challenges-industry;

Kaye, Leon. “U.S. Brands Slow To Embrace Textile Recycling Are Missing Opportunities.” *Sustainable Brands*. April 16, 2013. http://www.sustainablebrands.com/news_and_views/waste_not/us-brands-slow-embrace-textile-recycling-are-missing-opportunities.

“Key Elements of an Effective Clothing Bin Ordinance.” *Secondary Materials and Recycled Textiles*. Accessed March 14, 2017. http://www.smartasn.org/localgovt/SMARTCollectionBinPosition.pdf.

King, Jackie & Jeff Pearl. “SMART textile recycling checklist for communities.” *Secondary Materials and Recycled Textiles*. Accessed March 14, 2017. http://www.smartasn.org/localgovt/SMART_Checklist.pdf.

LeBlanc, Rick. “SpinGreen Took a Fresh Look at Textile Recycling and New York’s Bin-Vasion.” *The Balance*. November 2, 2016. https://www.thebalance.com/spingreen-textile-recycling-2878121.

LeBlanc, Rick. “Technologies for Automated Sorting of Textiles for Recycling.” *The Balance*. October 18, 2016. https://www.thebalance.com/automated-sorting-for-textiles-recycling-2878011.

Legislative Research Center. “Regulating publically accessible collection bins.” *The New York City Council*. Accessed March 21, 2017. http://legistar.council.nyc.gov/LegislationDetail.aspx?ID=1853963&GUID=DD159C3E-E9AE-41C7-B8CC-3B561AF91C7C.

Leslie, Deborah. “Crafting an Antidote to Fast Fashion: The Case of Toronto’s Independent Fashion Design Sector.” *Growth and Change* 45:2 (2014): 222-39.

“Locations.” *Oasis Clothing Banking*. Accessed March 21, 2017. http://clothingbank.ca/fnsec_locations.inc.

“Markham Recycles Textiles.” *The Official Site of the City of Markham*. Accessed March 20, 2017. http://www.markham.ca/wps/portal/Markham/Residents/RecyclingWaste/CollectionServices/sa-textilerecycling/textilerecycling/.

“Markham Tackles Textiles with Innovative Recycling Program.” *City of Markham*. October 18, 2016. Accessed March 13, 2017. http://www.markham.ca/wps/portal/Markham/AboutMarkham/NewsRoom/NewsReleases/markham-tackles-

textiles/!ut/p/a0/04_Sj9CPykssy0xPLMnMz0vMAfGjzOJN_N2dnX3CLAKNgkwMDDw9XcJM_VwCDX09zPQLsh0VAcc4C2s!/.

Marsales, Claudia. “Markham Tackles Textiles.” *Solid Waste & Recycling*. June/July 2016. http://www.solidwastemag.com/downloads/427/download/SWR_JJ16_scrn.pdf?cb=5a40ecaece8a5fd70a7e907aa592225c.

Marsales, Claudia. “Textile Recycling Program Strategy,” *The City of Markham*, November 7, 2016, accessed March 20, 2017, http://www2.markham.ca/markham/ccbs/indexfile/Agendas/2016/General/gc161128/Textile%20Recycling%20Report%20Strategy%20-%20Next%20Steps.pdf.

Mazzoni, Mary. “San Francisco Program provides a roadmap for eliminating textile waste.” *Trile Pundit*. June 4, 2014. Accessed March 20, 2017. http://www.triplepundit.com/special/sustainable-fashion-2014/san-francisco-program-provides-roadmap-eliminating-textile-waste/.

“Member Locator.” *Secondary Materials and Recycled Textiles*. Accessed March 14, 2017. https://smart.memberclicks.net/index.php?option=com_mcdirectorysearch&view=search&id=10351#/.

“Mētisse.” *VRK: Isolatie&Akoestiek.* Accessed April 8, 2017. https://www.vrk-isolatie.nl/.

Messenger, Ben. “WRAP report: falling overseas reuse & recycling demand for UK textile exports.” Waste Management World. March 8, 2016. Accessed March 21, 2017. https://waste-management-world.com/a/wrap-report-falling-overseas-reuse-recycling-demand-for-uk-textile-exports.

“Metteurs en Marché.” *ECO TLC*. Accessed April 8, 2017. http://www.ecotlc.fr/page-297-information-in-english.html.

“Mission & Values.” *The Salvation Army*. Accessed March 13, 2017. http://www.salvationarmy.ca/missionandvalues/.

Moorhouse, Ellen. “Don’t throw those worn-out clothes in the garbage.” *Toronto Star*. October 9, 2012. https://www.thestar.com/life/homes/2012/10/09/dont_throw_those_wornout_clothes_in_the_garbage.html.

Navarro, Mireya. “Textile Recycling Is Thriving in New York.” *New York Times*. February 19, 2012. https://green.blogs.nytimes.com/2012/02/19/textile-recycling-is-thriving-in-new-york/.

Nordås, HidegunnKyvik. “The Global Textile Clothing Industry post the Agreement on Textiles and Clothing.” *World Trade Organization.* 2004. https://www.wto.org/english/res_e/booksp_e/discussion_papers5_e.pdf.

O'Connor, Sarah. "Prices for second-hand UK clothes soar." *Financial Times*. April 20, 2012. https://www.ft.com/content/44784f66-8ae8-11e1-912d-00144feab49a.

Oakdene Hollins. *Maximizing Reuse and Recycling of UK Clothing and Textiles.* Department of Environment, Food and Rural Affairs, October 2009). http://www.oakdenehollins.com/pdf/defra_173_summary_issue_4.pdf.

"Our History." *TRAID.*2017. Accessed April 8, 2017, http://www.traid.org.uk/about-traid/our-history/.

"Our history." *Waste Resource & Allocation Programme*. Accessed March 13, 2017. http://www.wrap.org.uk/about-us/our-history.

Palm, David, Maria Elander, David Watson, Nikola Kiørboe, Kari-Anne Lyng&StefánGíslason. *Towards a new Nordic textile commitment.* Copenhagen: Nordic Council of Ministers, 2014.

Penna, Anthony N. *The Human Footprint: A Global Environmental History.* West Sussex: Wiley-Blackwell, 2010.

Persico, Amanda. "Markham considering new use for old clothes." *York Region*. January 22, 2016. Accessed March 24, 2017. http://www.yorkregion.com/news-story/6245250-markham-considering-new-use-for-old-clothes/.

Persico, Amanda. "Markham officially launches its textile recycling program." *York Region*. October 28, 2016. http://www2.markham.ca/markham/ccbs/indexfile/Agendas/2016/General/gc160418/Textile%20Recycling%20Smart%20Bin%20Program.pdf.

Persico, Amanda. "Markham's textile recycling program to save taxpayers $86,000." June 10, 2017. http://www.yorkregion.com/community-story/7012848-markham-s-textile-recycling-program-to-save-taxpayers-86-000/.

"PSYTE HD Canada." *Pitney Bowes*. Accessed March 21, 2017. http://www.pitneybowes.com/us/data/demographic-data/psyte-hd-canada.html.

Rae, Lynn. "Textile recycling in the city of Markham." *The Torch,* October 18, 2016. http://thetorchgta.com/gta/textile-recycling-in-the-city-of-markham.

"Recycling." *Bexley*. Accessed April 8, 2017.http://www.bexley.gov.uk/recycling.

Reed, Susan E. "Textile Recycling Could Be Coming to a Curbside Near You." *Cognoscenti*. October 17, 2016. http://www.wbur.org/cognoscenti/2016/10/17/stop-tossing-your-threads-susan-e-reed.

"re-fashioNYC," *NYC Department of Sanitation*, Accessed March 21, 2017. http://www1.nyc.gov/assets/dsny/zerowaste/residents/re-fashionyc.shtml.

"re-fashioNYC." *NYC Recycles*. December 2013. http://www.housingworks.org/i/page-media/refashionyc_broch.pdf.

"Resolution setting zero waste date." *SF Environment*. March 6, 2003. Accessed March 3, 2017. https://sfenvironment.org/sites/default/files/editor-uploads/zero_waste/pdf/resolutionzerowastedate.pdf.

Rodgers, Lucy. "Where do your old clothes go?" *BBC News*. February 11, 2015. http://www.bbc.com/news/magazine-30227025.

Rosengren, Cole. "Cities are still struggling to fix recycling contamination – and now, it's getting personal." *Waste Dive*. February 7, 2017. http://www.wastedive.com/news/cities-are-still-struggling-to-fix-recycling-contamination-and-now-its/435578/.

Roznev, Artjom, Ekaterina Puzakova, Frank Akpedeye, Isabella Sillstén, Olakunle Dele &OlatunjiIloori. "Recycling in Textiles." *HAKM University of Applied Sciences, Supply Chain Management*. Accessed March 20, 2017. http://www5.hamk.fi/arkisto/portal/page/portal/HAMKJulkisetDokumentit/Tutkimus_ja_kehitys/HAMKin%20hankkeet/velog/TEXTILE_RECYCLING3.pdf.

"Salvation Army Thrift Store – FAQS." *The Salvation Army*. Accessed March 14, 2017. https://www.thriftstore.ca/british-columbia/salvation-army-thrift-store-faqs.

"San Francisco launches Zero Waste Textile Initiative to keep apparel, footwear, linens out of the landfill." *SF Environment*. Accessed March 13, 2017. https://sfenvironment.org/news/press-release/san-francisco-launches-zero-waste-textile-initiative-to-keep-apparel-footwear-linens-out-of-the-landfill.

"San Francisco's famous 80% waste diversion rate: anatomy of an exemplar." *Discard Studies*. June 16, 2013. Accessed March 15, 2017. https://discardstudies.com/2013/12/06/san-franciscos-famous-80-waste-diversion-rate-anatomy-of-an-exemplar/.

"SMART Videos & PSA's." *Secondary Materials and Recycled Textiles*. Accessed March 14, 2017. http://www.smartasn.org/about/videos.cfm.

Smith, Darby Minow. "This old thing? San Francisco finds new life for dead threads." *GRIST*. January 15, 2014. Accessed March 20, 2017. http://grist.org/living/this-old-thing-san-francisco-finds-new-life-for-dead-threads/.

"SpinGreen Inc.: Alerts and Actions." *Better Business Bureau*. Accessed March 14, 2017. https://www.bbb.org/new-york-city/business-reviews/recycling-services/spin-green-inc-in-brooklyn-ny-136289/Alerts-and-Actions.

"Spring Cleaning? We Take ALL Textiles." *Textile Waste Diversion*. April 1, 2013. Accessed March 13, 2017. http://textilewastediversion.com/spring-cleaning-we-take-all-textiles/.

Stubin, Erin, David Bloovman& Jackie King. "Media Kit." *Secondary Materials and Recycled Textiles*. Accessed March 14, 2017. http://www.smartasn.org/about/SMART_PressKitOnline.pdf.

"Sustainable Clothing Action Plan." *Waste Resource & Allocation Programme*. Accessed March 13, 2017, http://www.wrap.org.uk/sustainable-textiles/scap.

"Textile Diversion Program: Opportunities and Collaboration." *Clothesline*. Accessed February 23, 2017. http://cw2rc.ca/Portals/0/2016/Textile%20Diversion%20Program%20Opportunities%20for%20collaboration.pdf.

"Textile Recycling and Greenhouse Gases." *Secondary Materials and Recycled Textiles*. Accessed March 14, 2017. http://www.smartasn.org/localgovt/infographic-banner3greenhouse.pdf.

"The Business Concept." *re:newcell.* Accessed April 8, 2017. http://renewcell.se/about/business-concept/.

"The Product." *re:newcell*. Accessed April 8, 2017. http://renewcell.se/the-product/.

"The Secret Life of Donated Textiles." *Secondary Materials and Recycled Textiles*. Accessed March 14, 2017. http://www.smartasn.org/localgovt/SMARTDoubleLifeofRecycledTextiles.pdf.

"Thrift Store." *Pegasus*. Accessed March 20, 2017. http://www.pegasustoronto.ca/about/thrift-store/.

"Thrift Store Locations." *The Salvation Army*. Accessed March 20, 2017. https://www.thriftstore.ca/central-ontario/locations.

"Toronto Neighbourhoods List." *City of Toronto.* Accessed April 8, 2017. http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=100c861b9fdb1410VgnVCM10000071d60f89RCRD.

Tweedy, Jo. "'It's a disgrace Paul O'Grady wasn't allowed to wear the uniform because he's gay': Twitter rages against 'discrimination' in BBC Salvation Army documentary." *Daily Mail*. May 2, 2016. http://www.dailymail.co.uk/femail/article-3569125/It-s-disgrace-Paul-O-Grady-wasn-t-allowed-wear-uniform-s-gay-Twitter-rages-discrimination-BBC-Salvation-Army-documentary.html.

Waldie, Paul. “Six figure salaries the norm at top charities.” *Globe and Mail*. April 14, 2010. http://www.theglobeandmail.com/news/national/six-figure-salaries-the-norm-at-top-charities/article4352708/.

Waste Resource & Allocation Programme. *Communications guidance: Improving recycling through effective communications*. 2013. http://www.wrap.org.uk/sites/files/wrap/IRTEC_Revision_12_6_13_0.pdf, 79.

Waste Resource & Allocation Programme. *Textile Collection Guide: A guide for local authorities and textile collectors*. April 2016. http://www.wrap.org.uk/sites/files/wrap/MST1561_Textiles_Guidance_2015_UPDATE_21.pdf.

Waste Resource & Allocation Programme. *Valuing our clothes: The true cost of how we dispose of clothing in the UK*. May 4, 2016. http://www.wrap.org.uk/sustainable-textiles/valuing-our-clothes%20.

Watson, David, Nikola Kiørboe, David Palm, HabenTekie, Steve Harris, Tomas Ekvall, Thomas Lindhqvist& Kari-Ann Lyng. *EPR Systems and new business models: Reuse and recycling of textiles in the Nordic Region.* Nordic Council of Ministers, 2014.

“Wear It? Recycle It: Educators and Kids.” *Secondary Materials and Recycled Textiles*. Accessed March 14, 2017. http://www.smartasn.org/educators-kids/index.cfm.

Weber, Sabine. “How Consumers Manage Textile Waste.” PhD dissertation, University of Waterloo, 2015.

“What can I recycle at home.” *Bexley*. Accessed April 8, 2017. http://www.bexley.gov.uk/article/12636/What-can-I-recycle-at-home.

“What happens to your waste.” *Bexley*. Accessed April 8, 2017. http://www.bexley.gov.uk/article/3008/What-happens-to-your-waste.

“What we do.” *Waste Resource & Allocation Programme*. Accessed March 13, 2017. http://www.wrap.org.uk/about-us/what-we-do.

“Who we are.” Oasis Clothing Banking. Accessed March 21, 2017. http://clothingbank.ca/Home.inc.

“Why Textile Recycling?” *Canadian Community Support Foundation*. September 26, 2013. Accessed March 13, 2017. http://www.canadiancommunitysupportfoundation.com/why-textile-recycling/.

Wong, Kristine. “How San Francisco Outsmarted the Hassel of Donating Old Clothes.” *TakePart*. February 7, 2014. Accessed March 20, 2017.

http://www.takepart.com/article/2014/02/06/san-francisco-goodwill-textile-old-clothing-recycling-gobin.

Woodard, Ryan, Matthew L. Bench & Marie Harder. "The Development of a UK Kerbside Scheme Using Known Practice," *Journal of Environmental Management* 75:2 (2005): 115-27.

Zeidler, Maryse. "Metro Vancouver considers banning clothing and textile from landfills." *CBC News*. August 19, 2016. http://www.cbc.ca/news/canada/british-columbia/metro-vancouver-clothing-waste-ban-1.3727371.