Quantifying the Economic Impact of Finger Lakes ReUse in Tompkins County, New York

Nika Mikec & Wyeth Augustine-Marceil | March 2023

Executive Summary

Founded in 2008 as a method to reduce waste in Tompkins County, New York, material reuse organization, Finger Lakes ReUse, has achieved this goal and much more. Finger Lakes ReUse has successfully employed a "triple bottom line" strategy to serve the community, economy and environment of Tompkins County. This report attempts to capture some of the economic impact the non-profit organization has had in the county over the past five years from 2018 to 2022. Our findings highlighted here are expanded on throughout the document.

Current Employees

78 (52 full time)

Employee Wages

$6.56 Million

2018-2022

From 2018 to 2022, the number of jobs within the used merchandise industry in Tompkins County grew from 87 to 126. In the same time period, Finger Lakes ReUse added 34 new jobs, making the organization responsible for 87% of the growth within the industry in Tompkins County while paying competitive wages which average $17.95/hr.

Sales Revenue

$8.67 Million

2018-2022

County Sales Tax Paid

$346,000

2018-2022

Finger Lakes ReUse has consistently grown its revenue and in 2022 earned an estimated $2.5 million from sales. As sales revenues grow, so does Finger Lakes ReUse's contribution through county sales tax, in the last 5 years the organization has contributed $346,000.

Diverted from Landfill

9.7 Million lbs

2018-2022

Recirculated Items

2.8 Million

2018-2022

Since 2018, Finger Lakes ReUse has diverted an estimated 2.8 million individual items weighing approximately 9.7 million lbs. By recirculating goods locally, FLR has reduced the materials destined for landfill while providing affordable items to Tompkins County residents.

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1.0. Introduction

1.1. Origin of Paper

This report was prepared in the Fall of 2022 by Nika Mikec and Wyeth Augustine-Marceil as part of Tom Knipe's Economic Development class at Cornell University.

Over the course of several months, the authors worked closely with Finger Lakes ReUse (FLR) Executive Director, Diane Cohen, and Associate Director, Robin Elliot to guide the scope and findings within this report. The scope of the study is focused on measuring FLR's economic impact in Tompkins County, New York over the past five years (2018-2022).

1.2. Purpose of Study

As a leader in the "triple bottom line" material reuse industry, Finger Lakes ReUse is seeking to develop materials that demonstrate the economic impact and future potential of the broader material reuse industry. By analyzing the last five years of sales, employment, environmental and community outcomes, this report aims to quantify the wide-reaching impact FLR has had on the surrounding county.

This document is intended to inform discussion with state and local representatives and other stakeholders to encourage further support for the socially and environmentally conscious material reuse industry exemplified by Finger Lakes ReUse.

1.3. About Tompkins County

Tompkins County is located in the Central Finger Lakes Region of New York State and home to 105,000 residents.[1] The county is largely rural with the City of Ithaca being the county seat and largest population center with more than 30,000 full-time residents. Higher education is a driving component of the regional economy, as Ithaca College, Cornell University and Tompkins-Cortland Community College combine to enroll more than 30,000 students in the county. Due to the outsized presence of higher education in the area, more than 58% of Tompkins County residents hold a Bachelor's Degree or more, 23.5% higher than the national average. The county's median household income in 2021 was $66,441, which is slightly lower than the national mark and considerably lower

[1] U.S. Census Bureau. (2022). 2017-2022 American Community Survey 5-year Public Use.

than that of New York State. Tompkins County's 2021 unemployment rate of 7.1% is lower than the state's but higher than the national average of 6.3%. Likely as a result of Ithaca's desirability, Tompkins County has a relatively high cost of living which can be understood in terms of MIT's living wage calculation. A single adult with no kids must work full time and earn $19.33/hour to adequately support themselves in Tompkins County. Compared to neighboring counties Cortland ($16.98), Cayuga ($16.67), Tioga ($16.62), and Schuyler ($16.43), Tompkins County is clearly an outlier and a comparatively expensive place to live.[2]

	2021					
	Total Population	Pop. Between 18 to 24 Years	Pop. With Bachelor's Degree or More	Median Household Income	Unemployment Rate	Hourly Living Wage (1 adult, 0 kids)
Tompkins County, NY	105,162	31.2%	58.5%	$66,441	7.1%	$19.33
New York State	19,835,913	8.8%	39.9%	$74,314	8.7%	$21.99
United States	331,893,745	9.1%	35.0%	$69,717	6.3%	$17.46

Figure 1. Comparative demographic table. Source: American Community Survey, MIT Living Wage Calculator

1.4. About Finger Lakes ReUse

Finger Lakes ReUse is a 501(c)(3) non-profit organization located in Ithaca, Tompkins County, New York. Through various activities relating to material reuse, they strive to achieve a triple bottom line of Community, Economy and the Environment.[3] FLR's primary business activity is the management of two reuse retail locations, and a nascent online presence, that accept donations and sell building materials, furniture, appliances, electronics, clothing, and household goods among others things. Because FLR receives donated goods for free, they are able to sell goods far below the market price of new alternatives.

The idea for FLR was initially introduced in 1995 when Tompkins County made a commitment to develop a ReUse Center as part of its 20-Year Solid Waste Management Plan. At the time, two landfills in the county had been forced by the State to close, leaving Tompkins County without a landfill, which dramatically increased landfilling costs.[4] The County saw reuse as an opportunity to reduce the quantity of materials sent to landfill and recirculate goods locally. In 2008, largely supported by government contributed revenue and grants, FLR began operating a reuse retail center in earnest. In the ensuing years, FLR has lessened its reliance on external funding and expanded considerably. FLR now operates two locations, employs 78 people (52 of which are full time), and generated $2.5M in retail sales in 2022. FLR's broader aim is "...for everyone in the community to enjoy and partake in the services offered by Finger Lakes ReUse and, in time, to also assist other communities in the region to develop reuse services."

[2] *Living wage calculator*. Living Wage Calculator - Living Wage Calculation for Schuyler County, New York. (2023). Retrieved February 2023, from https://livingwage.mit.edu/counties/36097
[3] *About*. Finger Lakes ReUse. (n.d.). Retrieved February 3, 2023, from https://ithacareuse.org/about/
[4] DiNapoli, T. P. (2015). Tompkins County Solid Waste. Office of the New York State Controller - Division of Local Government and School Accountability. https://www.osc.state.ny.us/files/local-government/audits/2017-10/lgsa-audit-county-2015-tompkins.pdf

2.0. Reuse and Circular Economy

2.1. Reuse as Transition to Circular Economy

When utilizing the term reuse, we refer to an alternative course of action to the typical end-of-life recycling or disposing of a good or material. Reuse occurs when an item is used for the similar or exact purpose it was originally produced for, even after it has already been used. Reuse helps to divert materials from waste facilities and requires comparatively minimal energy and resources.[5] The model shifts our perspective from a "take-make-dispose" linear model, where an item goes from production to disposal, toward a more circular model, where items are recirculated and rarely, if ever, disposed of.

Reuse has some characteristics of a "circular economy", which produces objects with the intention of altogether *eliminating* waste, in contrast to recycling, which only *reduces* waste. According to the Ellen MacArthur Foundation, a circular economy is based on three principles that should be considered as a good or service is being designed. These principles are: (1) Eliminate waste and pollution, (2) circulate products and materials (at their highest value), and (3) regenerate nature.[6] Although the reuse industry inherently has little influence over the design and production of items, the practice can move us closer to a circular economy. If consumer preference shifts towards buying goods used rather than new, there may be a corresponding decrease in demand and thus quantity of new goods sold. Recirculating used items in their highest value form (not breaking an object down for its raw materials), reduces waste and may regenerate nature that would be feedstock in new production.

As reuse can only minimize (not eliminate) waste, we can consider reuse as a transitional model towards full circularity. A term that may better suit FLR's business model is "Eco-Innovation," which can be defined as "...a powerful instrument that combines reduced negative impact on the environment with a positive impact on the economy and society."[7]

Regardless of the term, reuse is an environmentally conscious way to manage materials that already exist. In addition to the reuse model's positive environmental impact, it can also produce lower-cost goods, thus providing more people access to resources.

2.2. Reuse in Tompkins County, New York

Reuse is an age-old practice that is nothing new, especially in Tompkins County. Home to many consignment shops, thrift stores, and fixer collectives, Tompkins County has a thriving reuse

[5] Environmental Protection Agency. (2023). *Reducing and Reusing Basics*. EPA. Retrieved February 3, 2023, from https://www.epa.gov/recycle/reducing-and-reusing-basics#:~:text=Benefits%20of%20Reducing%20and%20Reusing,-Reduces%20greenhouse%20gas&text=Prevents%20pollution%20caused%20by%20reducing,the%20environment%20for%20future%20generations.
[6] *Circular economy introduction*. Ellen MacArthur Foundation. (2023). Retrieved February 3, 2023, from https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview
[7] *Eco-innovation*. Green Business. (2022). Retrieved February 3, 2023, from https://green-business.ec.europa.eu/eco-innovation_en

economy centered around clothing, furniture, books, and antiques. Tompkins County has even established a database called the "Reuse Trail" which identifies 46 different entities within the county participating in reuse activities.[8]

To quantify Tompkins County's reuse industry, we use a tool called a "location quotient." A location quotient (LQ) is an analytical statistic that measures a region's industrial specialization relative to a larger geographic unit.[9] In this case, the region we measure is Tompkins County, and the larger geographic unit is the United States as a whole. LQ is a useful tool to analyze the concentration of industries because it provides one simple figure that can demonstrate whether an industry in a given area makes up a larger share total than it does for the nation as a whole. If an LQ is equal to 1, then the industry has the same share of its area employment as it does in the nation. An LQ greater than 1 indicates an industry with a greater share of the local area employment than the national average. For example, because Cornell University, Ithaca College and Tompkins-Cortland Community College are all located in the county, Tompkins County has an Education and health services LQ of 2.82, which demonstrates a much higher concentration than that of the U.S. as a whole.[10]

For this report, we compare the number of people employed in Tompkins County's used merchandise industry (North American Industry Classification System (NAICS) code 4533) to that of the United States. Using figures reported by the U.S. Bureau of Labor Statistics (BLS) in 2021, we find that Tompkins County has a used merchandise industry LQ of 2.28, which is the highest of any county in New York State. Further, Tompkins County's used merchandise LQ places in the 83rd percentile of all U.S. Counties. A LQ of 2.28 demonstrates an industry concentration far above the national average, suggesting the local industry holds some form of competitive advantage as compared to other counties. Our findings suggest Finger Lakes ReUse is that competitive advantage.

2021 | NAICS Code 4533 - Used Merchandise Stores						
	Annual Establishments	Annual Average Employment	Total Annual Wages	Annual Wages per Employee	Annual Average Employment LQ	Total Annual Wages LQ
Tompkins County	11	126	$2,727,539	$21,619	**2.28**	2.03
U.S. Total	17,136	171,262	$4,457,815,885	$26,029	1.00	1.00

Figure 2. 2021 National and Tompkins County Used Merchandise Industry Employment Data Source: US Bureau of Labor Statistics

We believe that the growth and success of Finger Lakes ReUse is the primary factor behind Tompkins County's high LQ in the used merchandise industry; we will attempt to demonstrate this through the following tables. To start, Tompkins County's used merchandise LQ has only recently

[8] *Reuse Trail*. Get Your GreenBack Tompkins. (n.d.). Retrieved February 3, 2023, from https://www.getyourgreenbacktompkins.org/reuse-trail
[9] *What are location quotients (LQs)?* | U.S. Bureau of Economic Analysis (BEA). (2008). Retrieved February 3, 2023, from https://www.bea.gov/help/faq/478#:~:text=A%20location%20quotient%20(LQ)%20is,area%2C%20employment%2C%20etc.)
[10] U.S. Bureau of Labor Statistics. (2023). *Quarterly census of employment and wages*. U.S. Bureau of Labor Statistics. Retrieved February 3, 2023, from https://data.bls.gov/cew/apps/table_maker/v4/table_maker.htm#type=11&year=2021&qtr=A&own=5&area=36109&supp=0

reached its lofty status, in 2018 the same LQ was 1.44, which means much of the employment concentration has occurred in the past five years. The growth in LQ can also be understood in terms of employment. BLS tracks the number of people in "filled jobs," which includes full or part-time, temporary or permanent employment, by place of work.[11] According to these measures, in 2018, 87 people were employed in Tompkins County within the used merchandise industry, in 2021, that number grew by 39 to 126. In the same timeframe, Finger Lakes ReUse itself created 34 new jobs, making the organization responsible for 87% of the growth within the industry in Tompkins County.

Annual Average People Employed in the Used Merchandise Industry					
	2018	2019	2020	2021	2022
Tompkins County	87	111	110	126	Not yet published
Finger Lakes ReUse	37	41	59	71	78
% Employed by FLR	42.5%	36.9%	53.6%	56.3%	N/A

Figure 3. Proportion of People Employed in Tompkins County's 2018-2022 Used Merchandise Industry due to FLR

Using another analytical tool, we can further see how FLR may be responsible for Tompkins County's high used merchandise LQ. Shift-share is a standard regional analysis method that attempts to determine how much of regional job growth can be attributed to national trends and how much is due to unique regional factors.[12] In the period between 2018-2021, the national used merchandise industry actually contracted, leaving fewer establishments and employees in 2021 as compared to 2018. If these national trends were to apply in Tompkins County, we would have expected to see a 1.65% decrease (~1.43 jobs) in the number of people employed in the industry. Instead, between 2018-2021, Tompkins County experienced a *44.83% increase* in employment, or the equivalent of 39 new jobs. The difference between the expected change in employment (-1.43 jobs) and the actual change (39 jobs) is called the "regional competitive effect." The regional competitive effect indicates how much of the job change within a given region is the

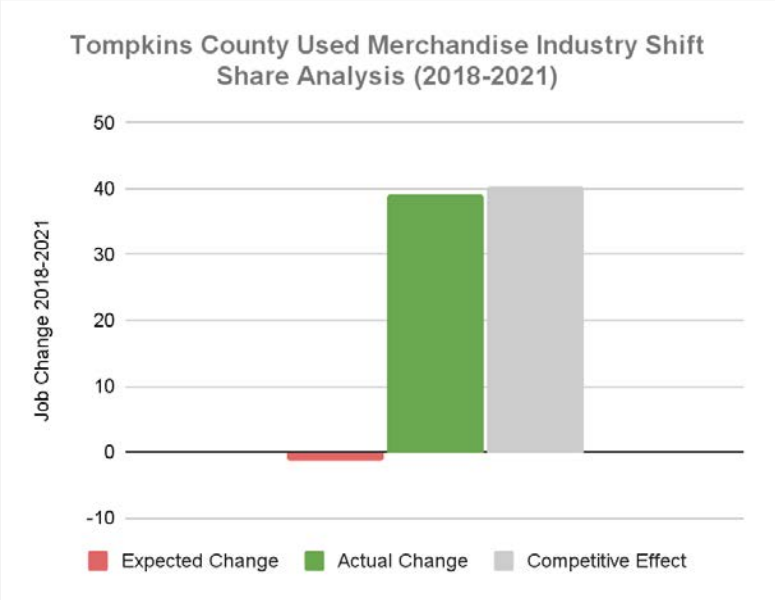

Figure 4. Shift Share Diagram for Tompkins County Used Merchandise Industry for 2018-2021
Source: US Bureau of Labor Statistics

[11] U.S. Bureau of Labor Statistics. (2023). *Questions and answers (Q&A)*. U.S. Bureau of Labor Statistics. Retrieved February 3, 2023, from https://www.bls.gov/cew/questions-and-answers.htm
[12] *Understanding shift share - EMSI*. (n.d.). Retrieved February 4, 2023, from https://www.economicmodeling.com/wp-content/uploads/2007/10/emsi_understandingshiftshare.pdf

result of some unique competitive advantage of the region. In the case of Tompkins County, there is assuredly a regional competitive effect within the used merchandise industry.

It is difficult to precisely identify what exactly Tompkins County's competitive advantage in the used merchandise industry may be. There may be comparatively more governmental support or a more reuse-minded populace, it may even be the business model or strong community ties of Finger Lakes ReUse itself. Whatever the case may be, Finger Lakes ReUse has used this competitive advantage to grow its business and reuse in the county.

2.3. Reuse in New York State

At a state level, New York State is a laggard in the used merchandise industry. With an LQ of 0.50, New York State has the lowest concentration of employment in the used merchandise industry of all 50 states, except Delaware. This lack of concentration presents a clear opportunity for the State to implement more support for the reuse economy, and we feel that Tompkins County and Finger Lakes ReUse can serve as a model. FLR and the county have bucked the downward trend of the broader used merchandise industry and have successfully implemented an enduring triple bottom line reuse business. The remainder of this report aims to quantify exactly how FLR has continued to achieve their triple bottom line of community, economy and the environment.

Figure 5. Finger Lakes ReUse Employees Outside the Elmira Rd. Storefront. Photo: Finger Lakes ReUse

3.0. Impact Analysis Approach

It is common knowledge that the reuse model is environmentally friendly.[13] Among other things, material reuse can reduce the use of virgin materials and energy used to produce new items and defers the disposal of still useful materials. Despite this common knowledge, quantifying the economic impact of reuse has remained a challenge for reuse organizations. In reviewing other best-practice reuse retail organizations, we failed to identify an example that quantified their economic impact in a holistic manner. This report attempts to do that for Finger Lakes ReUse and potentially serve as a template for other organizations.

Our analytical approach focuses on four distinct categories through which FLR has created a positive economic change in Tompkins County between 2018-2022. As FLR considers a holistic triple bottom line approach to business, our analysis follows a similar framework. The four categories we use are: financial impact, environmental impact, and social impact, which is split into community and people impacts. The justification for these four is as follows.

Financial Impact: In analyzing financial impact, we aim to quantify the dollar amount FLR has circulated in the county. This is a traditional economic impact study lens that focuses on elements such as revenue, sales and taxes.

Environmental Impact: In analyzing environmental impact, we aim to quantify the waste and Carbon averted by FLR's activities. Waste and Carbon production are typically externalized costs which may not appear on a balance sheet but are borne by society as a whole. We attempt to make these savings more visible and tangible.

Community Impact: In analyzing community circulation, we aim to quantify how much capital has been retained within Tompkins County through FLR's low-cost items and local investment.

People Impact: In analyzing FLR's people impact, we aim to illuminate the organization's role in mobilizing the workforce for the used merchandise industry through full and part-time employment and workforce training.

[13] Environmental Protection Agency. (2023). *Reducing and Reusing Basics*. EPA. Retrieved February 3, 2023, from https://www.epa.gov/recycle/reducing-and-reusing-basics#:~:text=Benefits%20of%20Reducing%20and%20Reusing,-Reduces%20greenhouse%20gas&text=Prevents%20pollution%20caused%20by%20reducing,the%20environment%20for%20future%20generations.

4.0. Financial Impact

$8,673,969	21.01%
In retail sales revenue '18-22	Average Annual Growth Rate '18-22

4.1. Reuse as Import Substitution

Import substitution is a trade and economic policy that advocates replacing foreign imports with domestic production.[14] As Finger Lakes ReUse relies on collecting donated goods locally and then selling them locally, the organization's business model could be considered a form of import substitution. Given that Tompkins County does not have a robust manufacturing sector (NAICS code 1013, Manufacturing in Tompkins County has a LQ of 0.63),[15] most if not all items within FLR's stores are not produced locally. However, one could consider the donation of a used good as its production, thus making all of FLR's merchandise locally produced. By this logic, when someone purchases a used item 'produced' in Tompkins County, they are not purchasing an alternate good that was produced elsewhere, thereby circulating monies locally.

Assuming demand for goods is unchanged, in the absence of FLR, Tompkins County residents would seek similar goods elsewhere, whether at another brick and mortar store or online, sending those monies out of the county. By purchasing from FLR, customers invest back into the community as opposed to funding imported goods. Following this logic, Finger Lakes ReUse has kept $8,673,969 in the community over the past 5 years through reuse import substitution.

4.2. Revenue Growth

Retail sales is the FLR's central business activity. With three storefronts in two locations, 29,800 retail square feet and dozens of retail employees, FLR has become adept at processing and quickly selling donated goods. A color-coded inventory management system enables FLR to automatically discount items that sit too long and aids rapid inventory turnover.

Finger Lakes ReUse has experienced consistent, strong growth in annual sales revenue since its founding. In 2011, FLR generated $396,311 in sales, just 11 years later, FLR generated $2.49 million - a 627% growth (see Figure 6). Growth in sales revenue can likely be attributed to efficiency improvements, an increase in donations received (see Figure 7), processing and retail capacity, retail floorspace (see Figure 9) and greater community awareness. Between 2018 and 2022, FLR posted

[14] Rodrigues. (2010). *Import substitution and economic growth*. Journal of Monetary Economics. Retrieved February 3, 2023, from https://www.sciencedirect.com/science/article/abs/pii/S0304393209001858
[15] U.S. Bureau of Labor Statistics. (2023). *Quarterly census of employment and wages*. U.S. Bureau of Labor Statistics. Retrieved February 3, 2023, from https://data.bls.gov/cew/apps/table_maker/v4/table_maker.htm#type=2&st=36&year=2021&qtr=A&own=5&ind=1013&supp=0

an average year-over-year (YOY) retail sales growth rate of 21% and a compound annual growth rate (CAGR) of 14.7%, which are considered strong growth, especially for a triple bottom line organization. In the timeframe this analysis focuses on (2018-2022), FLR produced $8,673,969 in retail sales.

Finger Lakes ReUse Retail Sales 2018-2022							
	2018	**2019**	**2020**	**2021**	**2022**	**2018-2022 Total**	**2018-2022 CAGR**
Revenue	$1,253,605	$1,530,143	$1,358,323	$2,045,689	$2,486,209	$8,673,969	14.68%
YOY Growth	22.11%	22.06%	-11.23%	50.60%	21.53%	--	--

Figure 6. FLR 2018-2022 Retail Sales Data Source: FLR

Finger Lakes ReUse Donation Drop-Offs 2018-2022						
	2018	**2019**	**2020**	**2021**	**2022**	**TOTAL**
Number of Donation Drop-Offs	21,331	35,617	21,357	34,744	34,757	147,806
Sales Revenue	$1,253,605	$1,530,143	$1,358,323	$2,045,689	$2,486,209	$8,673,969
Sales Revenue Per Donation Drop-Off	$58.77	$42.96	$63.60	$58.88	$71.53	$58.68

Figure 7. FLR 2018-2022 Donation Drop-Off Data Source: FLR

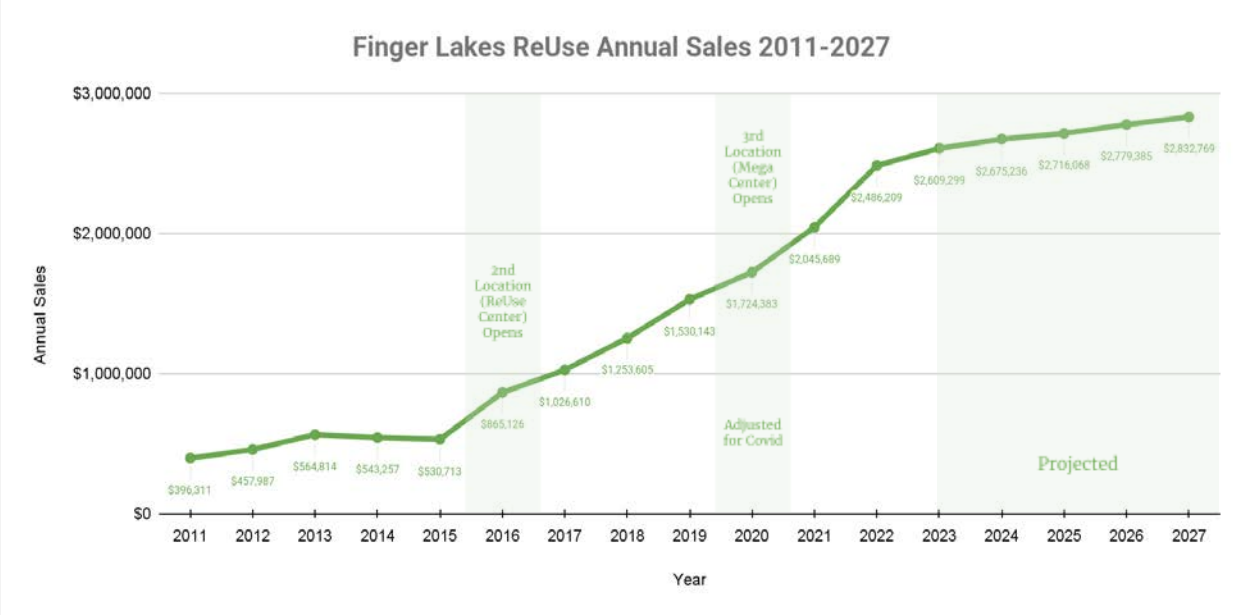

Figure 8. FLR Historic and Projected Annual Sales Data, from 2011 to 2027 Source: FLR

Figure 8 visually plots FLR's annual retail sales (adjusting 2020 sales affected by Covid), which illuminates several patterns. First, as mentioned above the organization has experienced retail sales growth since 2011. However, due to retail space constraints in 2013-2015, sales slowed and even experienced slight retraction. In response, FLR opened a second location which increased retail square footage from 9,100SF to 29,800SF which began a new pattern of strong growth in 2016.

Additionally, Figure 8 attempts to project FLR's sales forward the next five years, as informed by historic trends and potential constraints. Historic data suggests sales will continue to experience strong growth, however, retail floorspace may again become a limiting factor. It took approximately six years (2008-2013) for FLR to outgrow its first space. At the time, FLR achieved a peak sales per square foot (SPSF) figure of $62.07 in 2013 before beginning modest retraction (see Figure 9). In 2022, FLR blew past its previous high in this respect, producing $83.43 in SPSF, which suggests FLR has continued to improve operational efficiency.

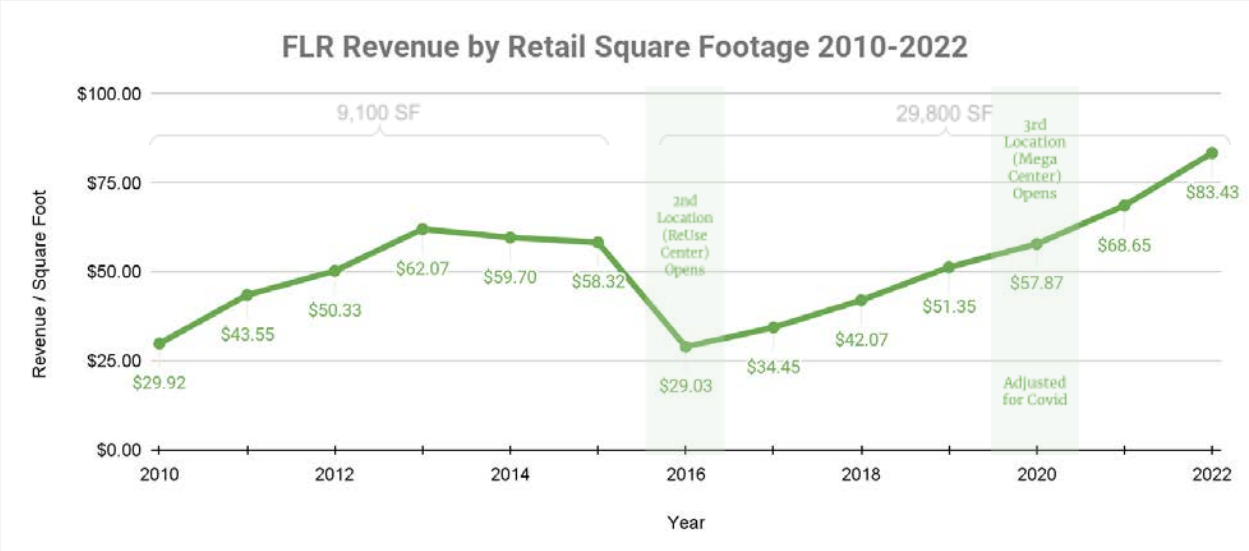

Figure 9. FLR 2010-2022 Revenue by Retail Square Footage Source: FLR

It remains to be seen whether FLR can continue to improve upon its organizationally unprecedented SPSF, thus our 2023-2027 sales projection takes a somewhat conservative approach. We project that given its current constraints, FLR will continue to grow, but the rate of growth will temper. We project a near term annual growth rate around 5%, then a taper to 2.5%. Again, these projections are intended to be conservative and informed by current and near-term circumstances.

These estimations will prove to be too conservative if FLR can achieve some of the following: continue to improve operational efficiency and SPSF, open another retail location and/or expand an online marketplace, expand into another complementary line of business (such as building deconstruction), increase donation intake, or sensitively raise retail prices without discouraging customers. FLR's growth in sales since 2011 is commendable and there is ample room to continue to grow the business.

4.3. Sales Tax Contribution

Every sale FLR makes is accompanied by a sales tax. As of December 2022, the New York State sales tax collected in Tompkins County is 8%.[16] Of that, ½ of the 8% is kept by New York State and the other ½ is returned to Tompkins County where it is distributed to programs, services and organizations within the county. Because FLR generates a considerable amount of sales revenue, they have a sizable contribution to county sales tax. Between the years 2018-2022, FLR contributed $346,959 in sales tax to Tompkins County which was then used to support public transit, mental health and youth programming.[17]

	2018	2019	2020	2021	2022	Total
Revenue	$1,253,605	$1,530,143	$1,358,323	$2,045,689	$2,486,209	$8,673,969
State + County Sales Tax (8%)	$100,288	$122,411	$108,666	$163,655	$198,897	$693,918
County Sales Tax Contribution (4%)	$50,144	$61,206	$54,333	$81,828	$99,448	$346,959

Figure 10. FLR's Sales Tax Contribution to Tompkins County from 2018-2022 Source: FLR

Figure 11. Inside the Finger Lakes ReUse MegaCenter. Photo: Finger Lakes ReUse.

[16] Tompkins County. (n.d.). How Sales Tax is Distributed in Tompkins County. https://www.tompkinscountyny.gov/files2/assessment/docs/salestaaxinfo.pdf
[17] Tompkins County. (n.d.). How Sales Tax is Distributed in Tompkins County. https://www.tompkinscountyny.gov/files2/assessment/docs/salestaaxinfo.pdf

5.0. Environmental Impact

9.71 Million Lbs.
Materials diverted by FLR since '18-22

>$423,014
Saved in disposal costs through reuse

5.1. Waste Savings

Finger Lakes ReUse was originally founded as a strategy to prevent unwanted materials in Tompkins County from being sent to the landfill. By accepting donated materials that may otherwise go to landfill and then reselling them, Finger Lakes ReUse has been able to divert an increasingly significant quantity of materials each year. Since 2018, FLR has accepted, processed and resold 4,406 tons or 9.71 million pounds of materials, much of which may have ended up in the landfill.

To analyze the non-sales economic impact of diverting materials from landfill, we can look at the cost of disposing waste in Tompkins County. The Tompkins County Recycling and Solid Waste Center (RSWC) accepts waste drop-offs from county residents and charges according to weight. Disposal rates vary from 1+ ton bulk prices at $96/ton, to a small scale disposal punch card that costs $15 to dispose 175 lbs (or $171/ton).[18] If we are to assume all 4,406 tons of materials FLR has processed between 2018-2022 would have otherwise been disposed of, considering the bulk disposal cost of $96/ton, FLR would have saved $423,014 in disposal costs. At the small scale rate, $15/175 lab, this would have amounted to $755,312 in disposal costs saved. The incidence of this savings is likely shared between residents, the county and FLR.

	$/Ton	2018	2019	2020	2021	2022	Total
Tonnage Diverted by FLR	--	641.02	769.15	751.89	1033.74	1210.60	**4,406.39**
Disposal Cost Saved	-$96	-$61,538	-$73,839	-$72,181	-$99,239	-$116,217	**-$423,014**
Sales Revenue	~$1,957	$1,253,605	$1,530,143	$1,358,323	$2,045,689	$2,486,209	**$8,673,969**

Figure 12. Disposal cost savings due to FLR's activity '18-22. Source: FLR, Tompkins County Material Management

Regardless of the incidence of disposal savings, by diverting materials from landfill, FLR lightens the direct and externalized cost on individual residents, the county, and the environment. Because there is no longer a landfill in the county, all municipal solid waste from Tompkins County is trucked the 104.6 mile round trip to the Ontario County Landfill just west of Geneva, New York. The long trip from

[18] *Permits and fees: Tompkins County: Recycling and Materials Management*. Tompkins County Recycling and Materials Management. (n.d.). Retrieved February 3, 2023, from https://recycletompkins.org/trash/permits-and-fees/

Tompkins County to the Ontario County Landfill burns gas and produces a considerable amount of Carbon and other pollutants.

By recirculating 4,406 tons of materials, FLR effectively prevented 152 trips or 15,893 road miles driven by waste transfer trucks between Tompkins County and the Ontario County Landfill. According to Tompkins County Recycling and Materials Management, the vehicles used by Tompkins County are waste transfer trailers that weigh on average 29 tons. Given that the Environmental Defense Fund (EDF) estimate that the average freight truck in the U.S. emits 161.8 grams of CO2 per ton-mile,[19] those 152 trips would have produced 74,575kg of carbon emissions.

	2018	2019	2020	2021	2022	Total
Tonnage Diverted by FLR	641	769	752	1,034	1,211	**4,406 tons**
Truck Trips Prevented by FLR	22	27	26	36	42	**152 trips**
Road Miles Prevented	2,312	2,774	2,712	3,729	4,366	**15,893 miles**
Transport Carbon Emissions Prevented	10,849	13,017	12,725	17,495	20,488	**74,575 kg**

Figure 13. 2018-2022 Data on FLR's Influence on Waste Diversion in Tompkins County. Source: EDF

5.2. Carbon Savings

As mentioned above, buying used products uses relatively minimal material and energy when compared to buying new products. So it can be said that Tompkins County residents that shop at FLR are contributing to carbon and materials savings. To illustrate these savings, we have selected two categories of items, clothing and footwear, that are commonly sold at FLR and have readily available production cost information.

By using readily available consumer data,[20] we are able to estimate the total quantity of items in each category that are purchased in Tompkins County. From this we can then compare the quantity of new items purchased in Tompkins County with the quantity of the same, only used, items purchased at FLR. For the purpose of this analysis, we assume that when someone purchases footwear or an article of clothing at FLR, it prevents the production and purchase of a new item. This comparison can provide a glimpse at the amount of carbon FLR has effectively saved by reducing the amount of new items produced and purchased.

For the sake of simplicity, we utilize the carbon footprint of the production of a new shirt (6.75kg of Carbon) as a proxy for all items in the clothing category[21]. Then, the footprint of all clothing purchased annually in Tompkins County is equal to 472.2 tons of carbon. We find that 0.94% of all clothing purchased annually by residents of Tompkins County are sold by FLR. The 'social cost of

[19] Environmental Defense Fund - Green Freight Math: How to Calculate Emissions for a Truck Move. (2015). Retrieved February 3, 2023, from https://business.edf.org/insights/green-freight-math-how-to-calculate-emissions-for-a-truck-move/
[20] *The economics of fast fashion - smartasset*. (2023). Retrieved February 4, 2023, from https://smartasset.com/credit-cards/the-economics-of-fast-fashion
[21] *Your T-shirt traveled 39,000 miles to get to you*. (2022). Retrieved February 4, 2023, from https://www.fastcompany.com/90731230/your-t-shirt-traveled-39000-miles-to-get-to-you-and-its-killing-the-planet

carbon' is a tool used to estimate in dollars all economic damage that would result from emitting one ton of carbon dioxide.[22] In 2022, the social cost of carbon is estimated to be $50/ton, thus in just the clothing category, FLR saves $23,610 of carbon annually. Applying this same logic to footwear, which produces about 10 kg of carbon per pair, FLR saves Tompkins county 52.8 tons of carbon per year, or $2,640 per year[23]. Just these two categories total 476,254 kg of carbon and a social cost savings of $26,250 in one year. When scaled across five years, these numbers increase to 2.38M tons of carbon and a social cost savings of $131,250.

To put these carbon savings into perspective, by reducing the production and purchase of new clothing and footwear, FLR effectively prevented 2.38M kg of carbon from being produced which is the equivalent of removing 517 cars from the road for one year.

Annual Carbon Impact of Used Clothing and Footwear Sold by FLR			
	Clothing	**Shoes**	**Annual Total**
Annual Average Quantity Sold by FLR	63,463	4,788	-
Annual Average Quantity Bought by a Single American	64	7.5	-
Total Bought by Tompkins County Residents in a Year	6,730,368	788,715	-
Percentage of Annual Purchases of Tompkins County Residents Made at FLR	0.94%	0.61%	-
Kg Carbon Required to Produce 1 Quantity	6.75 kg	10 kg	-
County Total Kg of Carbon Saved by Purchasing from FLR, as Opposed to New	428,374 kg	47,880 kg	476,254 kg
County Social Cost of Carbon Savings	$23,610	$2,640	$26,250
5 year County Total Kg of Carbon Saved by Purchasing from FLR, as Opposed to New	2,141,871 kg	239,400 kg	2,381,271 kg
5 year County Social Cost of Carbon Savings	$118,050	$13,200	$131,250

Figure 14. Tompkins County's carbon savings as a result of clothing and shoe sales at FLR Source: FLR, SmartAsset, Fast Company, Matter of Trust

The categories of clothing and footwear lend themselves to this analysis because products within the two categories are relatively similar to one another, and thus have similar carbon footprints. Finger Lakes ReUse also deals heavily in higher carbon footprint goods such as appliances, furniture and building materials. An analysis of these categories would likely uncover more substantial carbon savings numbers, but is beyond the scope of this report.

[22] *Professors explain the social cost of carbon*. Stanford News. (2021). Retrieved February 3, 2023, from https://news.stanford.edu/2021/06/07/professors-explain-social-cost-carbon/
[23] Kirchain, Olivetti, Miller, & Greene. (2015). *Sustainable Apparel Materials*. Matter of Trust. Retrieved February 4, 2023, from https://matteroftrust.org/wp-content/uploads/2015/10/SustainableApparelMaterials.pdf

6.0. Community Circulation

52.3%	$4,536,485
Average discount at FLR compared to new	Saved by FLR customers by buying used over new

6.1. Community Savings

In 2022, the consumer price index (CPI) for all consumer items, excluding food and energy goods, indicates an average price increase of 6.3%.[24] CPI is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services.[25] In 2022, as inflation rates reach the highest rates since 1982, used merchandise retailers may be the key to alleviate monetary pressure on lower income households.

Over the past two years, FLR's average per item price has remained below $3.30 for an assorted bucket of goods that includes accessories, appliances, bicycles, books, building materials, clothing, electronics & computers, furniture, housewares, and media among others. Between 2021 and 2022, average per item price at FLR has increased 4%. Still, this 4% increase is less than the 6.3% CPI increase in the same time period, which suggests that FLR's retail prices are more resilient against inflation than the average good.

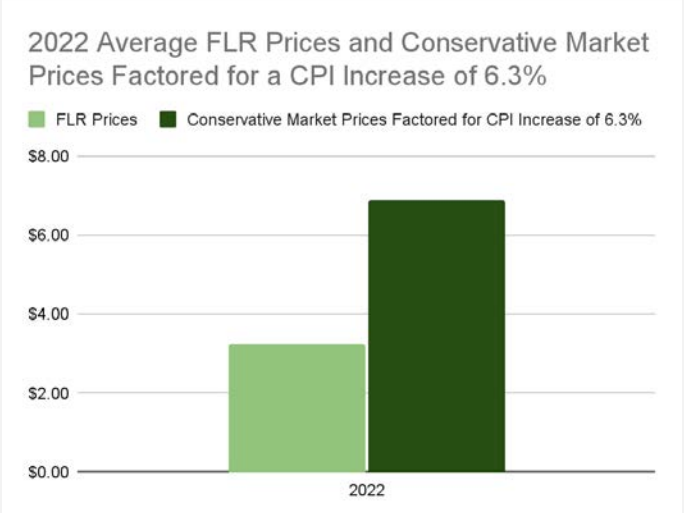

Figure 15. Comparative average price of items at FLR and assumed new retail price, in 2022 Source: FLR, U.S. Bureau of Labor Statistics

In addition to being resilient against inflation, FLR's product prices are comparatively very low when compared to new alternatives. Prices are intentionally set low to move inventory quickly and to ensure items at FLR remain accessible for as many people as possible. We estimate that FLR prices are at least 50% below retail across all categories, and on average, consumers save at least 52.3% by buying at FLR instead of new. As seen in Figure 16, in 2022 the average price for a good sold at FLR was $3.25, compared to the $6.91 new alternate good, which is 52.3% more expensive.

[24] U.S. Bureau of Labor Statistics. (2023). *Consumer price index summary - 2022 M12 results*. Retrieved February 3, 2023, from https://www.bls.gov/news.release/cpi.nr0.htm#:~:text=The%20all%20items%20less%20food,for%20the%20period%20ending%20September.&text=12%2Dmos.

[25] U.S. Bureau of Labor Statistics. (2023). *Consumer price index frequently asked questions*. Retrieved February 3, 2023, from https://www.bls.gov/cpi/questions-and-answers.htm#:~:text=The%20Consumer%20Price%20Index%20(CPI,of%20consumer%20goods%20and%20services.

Using total sales and average savings we find that between 2018-2022, consumers saved at least $4,536,485 by shopping at FLR instead of purchasing new alternatives. Further, CPI and FLR include more expensive items in the shopping mix, such as electronics, appliances, and building materials which at FLR are made even more affordable and are likely marked down more than the average 52.3%. Thus, we believe the above consumer savings estimate is conservative, and may be far greater than $4.5 million over the last 5 years. Regardless of the exact figure, by substituting less-expensive, used goods for new ones, Tompkins County residents are able to stretch their dollar farther to cover other expenses. In a county with a relatively high cost of living and in a time of heightened inflation, FLR is offering valuable product alternatives.

6.2. Community Spending

Operating a business with three storefronts in two locations plus a warehouse requires considerable upkeep and expense. In the case of FLR, many expenses, such as maintenance and repair are provided by local entities, meaning the money spent on these services is retained and recirculated within the local economy. The following table aggregates rents, fees, maintenance and repair costs that FLR pays to local vendors.

Location	2018	2019	2020	2021	2022	Total ('18-22)
Elmira Rd	$75,982	$61,939	$120,194	$85,264	$99,046	$442,426
Triphammer (T)	$77,155	$83,029	$80,760	$82,577	$116,794	$440,314
Triphammer (R)	--	--	$49,563	$100,212	$111,491	$261,266
Warehouse	--	--	$31,980	$59,438	$83,873	$175,291
	$153,138	$144,968	$282,497	$327,492	$411,203	**$1,319,298**

Figure 16. FLR 2018-2022 Property Expense Data across Three Storefronts and a Warehouse Space

7.0. People Impact

78	$6,558,323	147
Total Employees	Gross wages paid to employees '18-'22	Job Training Graduates

7.1. Employment

Intake, pricing and selling materials is what keeps Finger Lakes ReUse going, and it takes a lot of people to keep things running smoothly. FLR employs many people across managerial, administrative, and retail roles, emphasizing well-compensated jobs for people that may be considered "difficult to employ." FLR has consistently grown its staff through hiring, retention, and training programs and as of December 2022 employs 96 people, of which 52 are in full time roles that include benefits. Since 2018, FLR has increased its full time staff from 33 to 52 in 2022, all while increasing average wages with aims to provide a living wage. Though average wage at FLR falls just short of the current MIT defined living wage in Tompkins County ($19.33), given that the majority of jobs offered at FLR do not require advanced education or training, an average hourly wage of $17.95 is quite competitive for the region. Further, as FLR emphasizes finding roles for people who may be considered difficult to employ, many of FLR's employees may not otherwise be earning such a substantial income.

In summation, between 2018 and 2022, FLR has paid employees a cumulative total of $6,558,323, which amounts to 76% of the sales revenue earned in the same time period. We believe the proportion of FLR's operating income allocated to its employees demonstrates a strong commitment to invest in the community. Due to the organization's low variable costs, non-profit status, and external funding, FLR's business model has the provision of a living wage at the heart of its business.

Finger Lakes ReUse Employment 2018-2022						
	2018	**2019**	**2020**	**2021**	**2022**	**Total**
Full Time Equivalent Employees	33	41	–	53	52	–
Hours Worked	70,560.04	88,942.07	111,258.24	110,000.00	110,618.73	420,819.04
Total Gross Pay	$982,868	$1,192,816	$1,489,668	$1,890,681	$1,985,157	$6,558,323
Gross Ave. Hourly Wage	$13.93	$13.41	$13.39	$17.19	$17.95	$15.58

Figure 17. FLR 2018-2022 Staff Size, Hours Worked, and Salary Employment Data Source: FLR

7.2. ReSET Program

In 2013, Finger Lakes Reuse introduced a new job training program, ReSET. The program provides any community member with free entry-level training designed to help integrate people without jobs, or in between jobs, back into the workforce.[26] The program is offered on a rolling basis, and upon successful completion provides opportunities for paid traineeship at Finger Lakes ReUse. From 2013 to 2022, a total of 225 people enrolled as participants, 147 of which successfully completed the 140 hours required to graduate from the program.

ReSet Job Training Program (2013-2022)	
Enrolled	225
Completed	147
Success Rate	65.3%
Average Days to Complete	104.3

Figure 18. FLR 2013-2022 ReSet Training Program Success Rate Data Source: FLR

Although there is limited information on where many ReSET participants are today, we do know that at least 9 graduates are now full time employees at FLR. Additionally, FLR employs another 12 people that graduated from other bridge and trainee programs, meaning 22% of the current staff has gone through a workforce training program. By committing to hiring people who may be considered difficult to employ, FLR has created opportunities for 21 people who successfully re-entered the workforce and now earn a competitive wage.

Figure 19. Exterior of Finger Lakes ReUse Center. Photo: Ithaca Murals.

[26] *Training (reset)*. Finger Lakes ReUse. (n.d.). Retrieved February 3, 2023, from https://ithacareuse.org/reset/

8.0. Conclusion

Originally started as an effort to prevent materials from ending up in landfill, Finger Lakes ReUse has had a profound impact on Tompkins County. Not only has FLR been effective at diverting waste, but they have demonstrated that a reuse retailer can effectively pursue a triple bottom line while continuing to grow and scale operations.

Economy. In the past five years, Finger Lakes ReUse has bucked national trends in their industry to grow and help Tompkins County become a leader in reuse in New York State and nationally. FLR has garnered the affection of the local community, which has led to more donations, more sales and thus more job opportunities for residents. FLR has made more than $8.6M in sales, distributed more than $6.5M to its employees and now employs 78 people.

Community. Finger Lakes ReUse has become the known hub for affordable goods in Tompkins County. Their already low prices have been shown to be more reliant against inflation and by saving on average at least 52.3%, FLR has saved customers more than $4.5M in the past five years. The revenue the FLR generates is then reinvested into the community through contracted maintenance and services ($1.5M since 2018) and workforce training (147 graduates since 2013) to keep goods and services circulating locally.

Environment. Finger Lakes ReUse has demonstrated an ability to have an environmental impact on the beginning and end of life of products. By diverting 2.8M items from potentially being disposed of, FLR has kept 4,406 tons of materials out of landfill and preempted 30,000 truck road miles from emitting 101,000 kg of carbon into our atmosphere. And by reducing the demand for new goods in Tompkins County, FLR has preempted the production of new goods that would have produced at minimum 2.38M kg of carbon.

The success of Finger Lakes ReUse in Tompkins County demonstrates the broader potential of the reuse economy. Finger Lakes ReUse has established a successful triple bottom line business within an otherwise stagnant industry and a state with no competitive advantage. They have helped numerous people re-enter the workforce, diverted a huge quantity of materials from landfill and made a significant contribution to the local economy.

Today, Finger Lakes ReUse is unique, but tomorrow, it does not have to be. FLR is hopeful it can serve as a model for other reuse organizations in the region, state, and nation, and we hope this report can support its mission in doing so.

8.0. Conclusion

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