Circular Economy Strategic Plan for Ulster County

SUSTAINABLE HUDSON VALLEY

CIRCULARLY

UCRRA

2026

Contents

Introduction

Look around. More than fifty years after recycling became mainstream, garbage is still a challenge. Recycling has plateaued, and the system that has grown up for managing waste is resistant to major change. Right now, waste management generates 12% of New York's statewide greenhouse gases, produces toxic materials that leach from landfills, relies on polluting diesel trucks and more. The main landfill used by the Hudson Valley, is Seneca Meadows in central New York. Seneca Meadow's permit expired at the end of 2025 and they are nearly at capacity. They have applied for a permit modification that would extend their permit to 2040. While piecemeal efforts are being made to keep it open as alternatives are found, there is no Plan B for dealing with the substantial stream of waste generated by our communities every day when all landfills reach capacity in 2043.

Small steps in waste reduction are not enough. New York's nation-leading Climate Law, and its Solid Waste Management Plan, contain lofty goals to transform our basic systems for dealing with materials, from linear to circular mode. That means shifting from the logic of "take-make-waste," toward recapture and reuse of materials as the new normal, by design.

However, there is not yet a systematic plan to address this challenge at anything like the necessary scale.

This Circular Economy Strategic Plan is intended to address this gap for a motivated county Resource Recovery Agency and its many collaborators within Ulster County and beyond. It is brought to you by a unique public-private-nonprofit partnership:

- Ulster County Resource Recovery Agency;
- Circularly—a Public Benefit Corporation whose purpose is to aid in the shift to circular, community-focused, radically kind & equitable practices;
- Sustainable Hudson Valley, a regional climate leadership organization.

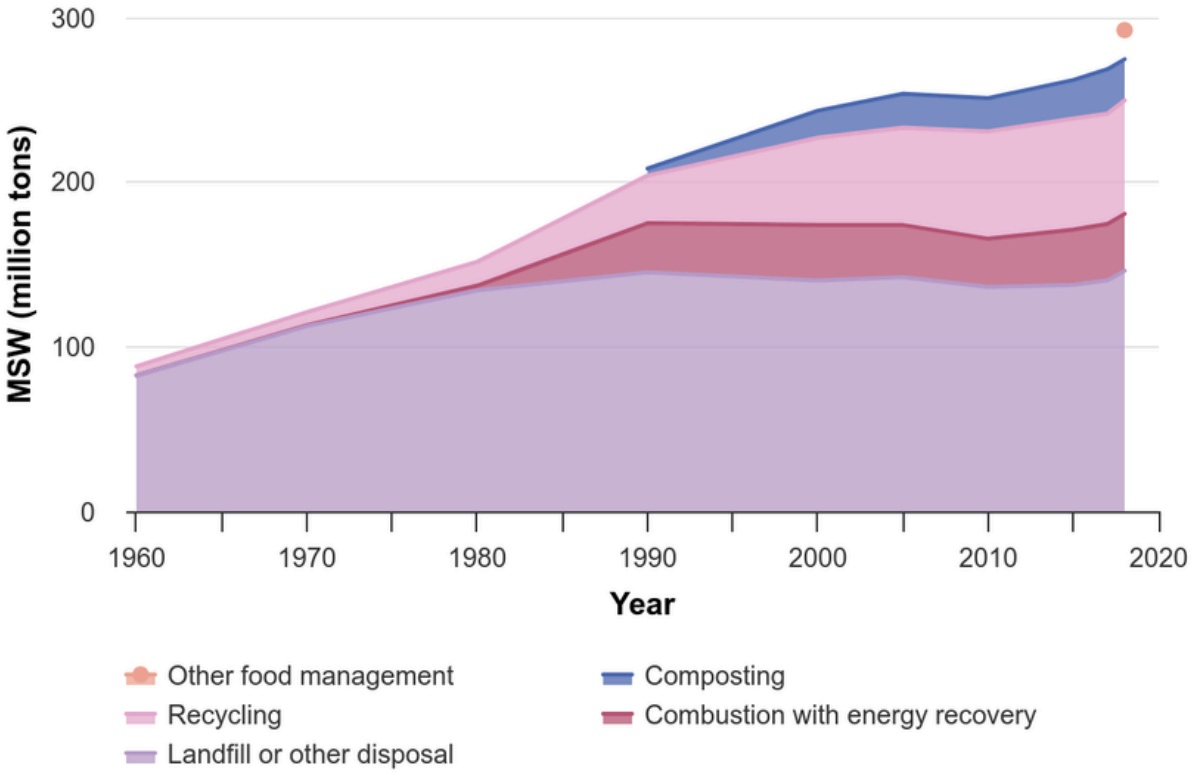
Working together to plan an innovation hub for materials reuse (now coming to life as part of UCRRA's RePØWER Program), we realized a principle for larger-scale action: what you design is what you get. Solid waste managers labor to improve efficiency of a system with major design constraints - a "take-make-waste" system that encourages recycling but is structured to landfill or incinerate waste as the default option. What if we designed a new strategy that supports reduction, reuse and remanufacturing as the norm, working further upstream to connect the materials management system with economic development? What would that look like? By analyzing the system and listening to the players within it, we have identified the major elements of an action plan for Ulster County and beyond.

Today's Reality

Solid waste represents a major societal challenge all across the globe. According to the World Bank, global waste generation is expected to increase from 2.22 billion tons annually to over 3.75 billion tons by 2050. While developing nations are expected to see the fastest increase, the US holds the dubious title of world's largest generator. As a nation, we produce nearly 12% of the world's waste, even with only 4% of the world's population.

From 1960 to 2018, U.S. municipal solid waste (MSW) generation increased by 232%, while the population grew by 81% and GDP by 473%. Although per capita MSW generation peaked in 1990 and has since leveled off, recent trends and more rigorous data collection methods point to a continued rise in waste generation.

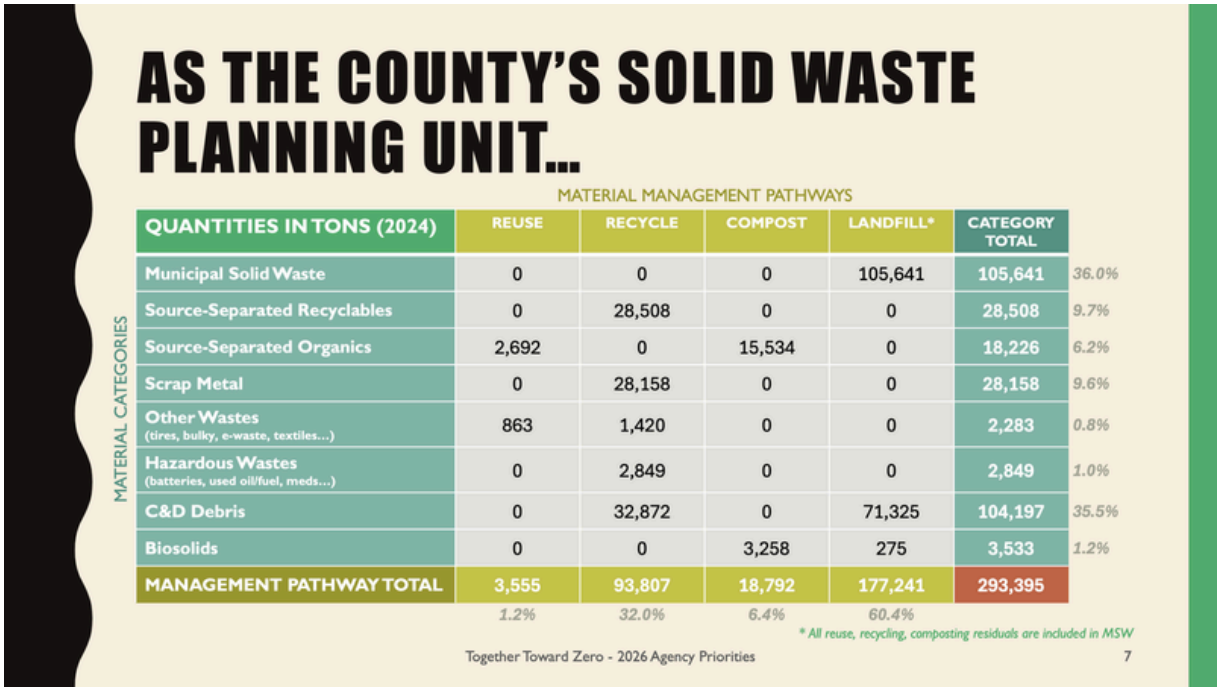
Exhibit 1. Municipal solid waste generated and managed in the U.S., 1960-2018



Data source: U.S. EPA, 2020.
Visit www.epa.gov/report-environment for additional documentation.

Construction and Demolition (C&D) debris, which is tracked separately from MSW, consists of materials like steel, wood, drywall, brick, and concrete used in buildings and infrastructure.

According to UCRRA's 2024 data, 134,000 tons of MSW and 104,000 tons of C&D were generated in Ulster County. Of these amounts, about 21% of MSW and 32% of C&D were recycled.



AS THE COUNTY'S SOLID WASTE PLANNING UNIT...

MATERIAL MANAGEMENT PATHWAYS

MATERIAL CATEGORIES — QUANTITIES IN TONS (2024)	REUSE	RECYCLE	COMPOST	LANDFILL*	CATEGORY TOTAL	
Municipal Solid Waste	0	0	0	105,641	105,641	36.0%
Source-Separated Recyclables	0	28,508	0	0	28,508	9.7%
Source-Separated Organics	2,692	0	15,534	0	18,226	6.2%
Scrap Metal	0	28,158	0	0	28,158	9.6%
Other Wastes (tires, bulky, e-waste, textiles...)	863	1,420	0	0	2,283	0.8%
Hazardous Wastes (batteries, used oil/fuel, meds...)	0	2,849	0	0	2,849	1.0%
C&D Debris	0	32,872	0	71,325	104,197	35.5%
Biosolids	0	0	3,258	275	3,533	1.2%
MANAGEMENT PATHWAY TOTAL	3,555	93,807	18,792	177,241	293,395	
	1.2%	32.0%	6.4%	60.4%		

* All reuse, recycling, composting residuals are included in MSW

Together Toward Zero - 2026 Agency Priorities 7

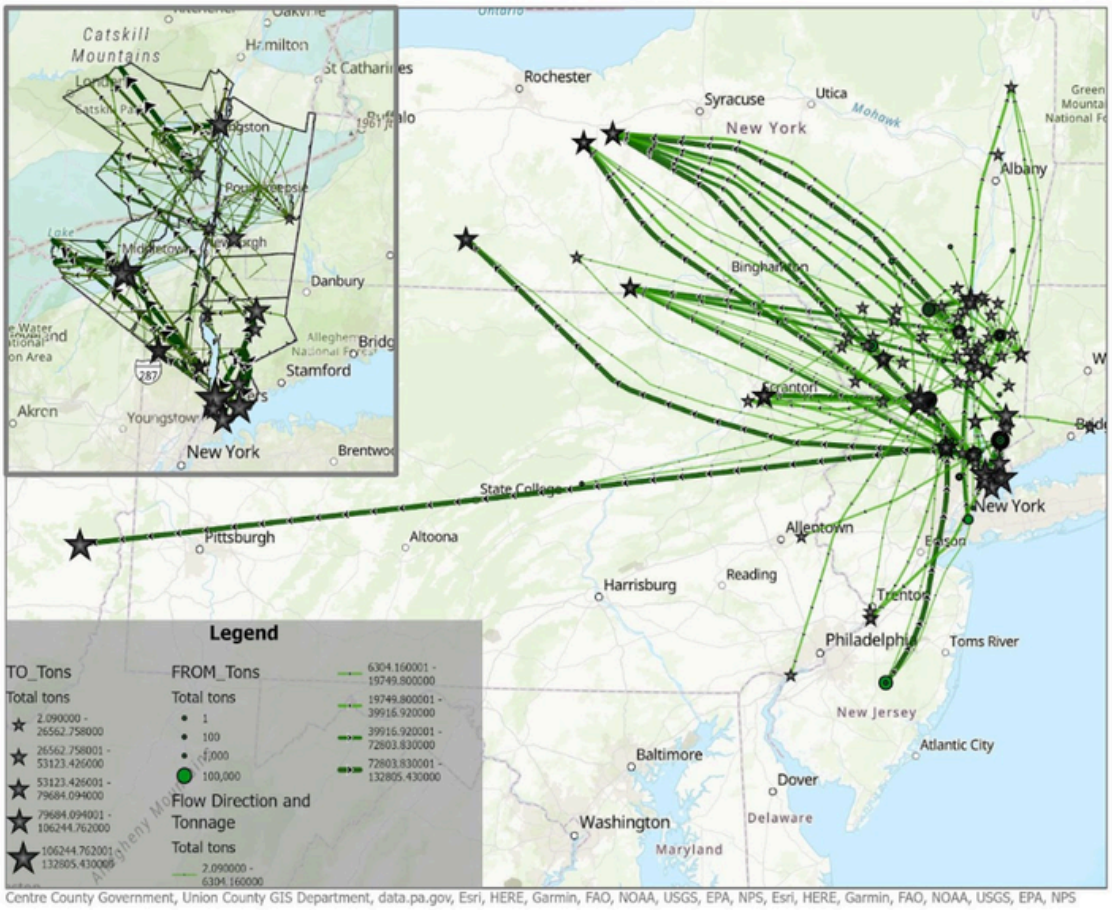
While local recycling rates have trended in the right direction over the years, they remain far too low to avoid reliance on landfilling for disposal of large quantities of Ulster County's waste. Handling that waste is becoming increasingly costly and complicated.

For decades, the MSW and C&D generated in Ulster County, that is not recycled, is destined for a landfill. While the UCRRA has made several attempts to find a suitable site for a local landfill, none of these has been successful. As a result, the UCRRA exports waste via long-haul truck to landfills elsewhere in New York State. For the past decade, the primary destination has been the Seneca Meadows landfill, located in Waterloo, NY.

In 2024, the UCRRA sent nearly 140,000 tons of waste to landfills, at an estimated cost of $12.5 million dollars in transportation and disposal fees. On average, approximately 10 tractor trailers per day, each carrying around 35 tons of waste, travel 240 miles each way to deliver our waste to the landfill. In addition to the financial cost, this solution generates nearly 90,000 metric tons of carbon emissions, not counting the impact from landfill gas and related operations.

Adding to this unfortunate picture, these materials are generally shipped in diesel trucks! This "spider diagram" shows the inherent inefficiency of this approach, as well as its complexity.

Flow of MSW and C&D Debris between Transfer Stations in NYS



On the one hand, finding responsible ways to handle the ever-growing stream of discarded material is becoming more challenging as new materials with complex and often toxic components become more commonplace. On the other, overextraction of natural resources has put modern economies at risk of depletion. Despite obvious flaws, we have developed a modern economic system that extracts natural resources at unsustainable rates to produce cheap, plentiful and short-lived goods, while ignoring the financial and environmental end-of-life costs.

Today's materials management system in the U.S. is linear. Producers of consumer products have limited responsibility to make those products easy to repair, or to dismantle for remanufacturing. Single use disposable items and fast fashion dominate the marketplace. It has taken several years of "right to repair" advocacy to get Apple to design iPhones so that owners can open them, and to provide instructions for repair that can be performed by anyone other than an Apple technician. How different it could be - and just how it could be different - is visible in Europe where the notion of "extended producer responsibility" is much better incorporated into policy. In New York, bills to expand Extended Producer Responsibility systems have been introduced year after year – such as for textiles and for plastic packaging – and their legislative path forward has been multi-year.

Local and county rules (and lack of rules) also shape the flow of materials and the options for circularity.

- Ulster County has a "flow control" policy requiring Municipal Solid Waste to be delivered to approved locations within the UCRRA system; however, for construction and demolition (C & D) materials (one of the heaviest and bulkiest categories of materials transported to the landfill) there is no such rule. In the Hudson Valley, only Rockland County has a flow control policy in place for C & D.
- When a building can no longer be occupied, demolition is the default course of action, and the landfill is the default destination for the materials. The practice of deconstruction is coming into its own, with hundreds of demonstration projects documented around the country. Preliminary data shows that the economics can be competitive, because extra labor is offset by the generation of re-sellable materials, reduction of landfilling waste, and hauling costs. But deconstruction still faces resistance in the world of building – and skepticism among consumers. To counter these barriers, local governments have begun to pass ordinances requiring deconstruction for certain building types such as historic structures. These projects are being used to train the work force, and to document methods and results to help establish this new industry.

In Ulster County, no new landfill has been sited for decades, and recent efforts to identify candidate sites for a local landfill have been paused in the face of stiff community opposition. In neighboring Dutchess, the incinerator that processes most of that county's waste is nearing the end of its useful life, with high replacement costs and public unease associated with this technology. The "take-make-waste" system is the standard, but it is also fragile and under increasing pressure. Given current daily disposal rates across the state, NYS's landfill capacity could be exhausted by 2043; the impacts of dwindling capacity - rising costs, longer transport distances and increasing host-community resistance - have already started to affect waste management organizations like UCRRA.

As it actively searches for new options, Ulster County is well positioned for a breakthrough. It is centrally located in the Hudson Valley bioregion, with access to the New York Thruway, the Hudson River, and CSX rail line. Its elected leadership is committed to reducing climate pollution and waste, and to nnovative government operations. It has a large and growing population of artists, entrepreneurs and investors with an interest in creative solutions. It has a commitment to affordable housing, giving rise to opportunities for innovative uses of building materials. These assets support the kind of systemic innovation that is needed.

This plan has been framed to guide operational decisions of the Ulster County Resource Recovery Agency, as the lead agency charged with planning for and managing Ulster County's waste, as well as to define initial commitments of partners. During its creation, one of the key insights was that the Agency cannot fully implement its role without extensive collaboration.

Furthermore, the strategies for building a circular economy apply to the entire region, not just Ulster County, pointing to a wider opportunity for regional collaboration.

Circular Economy Defined

The circular economy is a system where materials never become waste and nature is regenerated. In a circular economy, products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting. The circular economy tackles climate change and other global challenges, like biodiversity loss, waste, and pollution, by decoupling economic activity from the consumption of finite resources. The circular economy is based on three principles, driven by design:

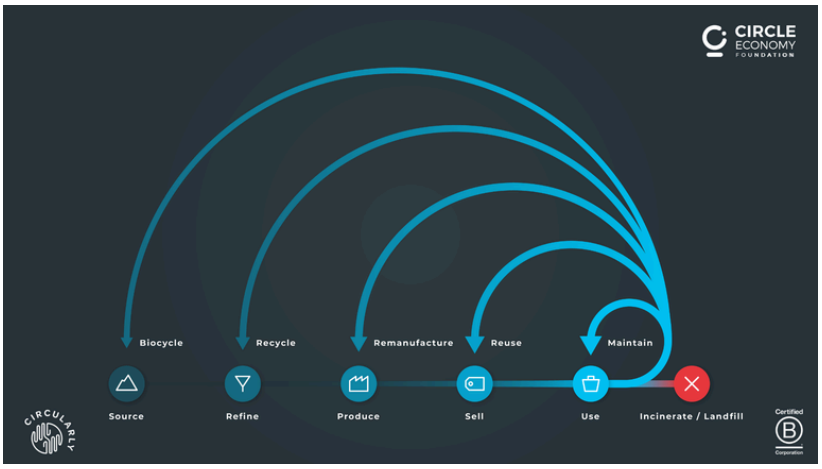
- *Eliminate waste and pollution*
- *Circulate products and materials (at their highest value)*
- *Regenerate nature*

– Ellen MacArthur Foundation

A circular economy supports processes, activities, and systems that make effective use of materials and prevent environmental degradation and economic loss by keeping valuable materials circulating within the economy. Circular economy strategies include designing for durability, reuse, remanufacturing, and recycling, as well as utilizing renewable resources and supporting a more sustainable food system.

–New York State Solid Waste Management Plan

The vision of "Circular economy" builds on the foundation of Zero Waste, a well established framework in materials management which gives priority to efficient design, source reduction, reuse and recycling to minimize the generation of waste, and recommends a hierarchy of priorities that protects as much value as possible in materials. The term "economy" emphasizes upstream approaches that link materials management with economic development, focusing on creating economic incentives to (a) reduce waste generation (and the economic inefficiency it represents) at the source, (b) encourage reuse and recycling of "waste" and (c) substitute more easily reusable new materials for consumption. This allows new markets and supply chains to be created, in order to break through dependency on materials that are hard to reuse or recycle, and creates incentives for private sector collaboration to mobilize new levels of funding, partnership and ingenuity.



Seeds of Circularity

We are not starting from scratch. Ulster County has been an active test bed for policies, programs, and analysis to advance waste reduction and build a circular economy for many years. The County's Ulster 2040 economic development plan explicitly includes the goal of "capturing value from the waste stream." Other innovative County policies include a 2019 Bag Waste Reduction Act, a "skip the straw" measure for restaurants, and funding for zero waste festivals. Well established reuse businesses are active in the County, like NY Heartwoods, which makes fine furniture and building products out of storm-downed wood pieces, and Red Owl Collective, a hub of over 50 reuse based retail stores. Businesses are operating here that would not work just anywhere, like the New Paltz based Second Nature Refillery which provides a wide range of groceries – BYO container. Ulster-based Greenway Environmental Services has identified over 200 community based compost collection sites and has worked with local partners such as housing authorities and community gardens to get initial demonstrations built.

Ulster County was home to one of the first community-based reuse centers, still operating in New Paltz, and the first of many Repair Cafes in the region.

Case Study: *Repair Cafe.* Imported from Europe by creatives in New Paltz in 2013, the Repair Cafe is one of the most dynamic movements in the US. Bringing people together in church basements, libraries and other public spaces, Repair Cafes are highly organized to provide volunteer repair services and education so that people can get their beloved but broken objects fixed by an expert who is also their neighbor. It is a winning formula. Only 13 years old, Repair Cafe of the Hudson Valley now has 72 local groups helping each other to fix more and toss less; local groups are beginning to spin off repair classes to keep up with demand, involve more neighbors and build the skill base.

New York has also framed its materials management policy in terms of circular economy. In late 2023, the New York State DEC published its Solid Waste Management Plan entitled Building the Circular Economy Through Sustainable Materials Management. This framework reflects a growing recognition that how we manage waste and how our economy functions are two sides of the same coin. The NYS SWMP's focus on circularity is directly related to the state's ambitious climate goals, as codified in the Climate Leadership and Community Protection Act. Adopting circular strategies is an essential carbon reduction strategy.

UCRRA has established a vision for the future of waste management in the County that aims to achieve a 90% diversion rate by 2050, consistent with the definition of zero waste established by the Zero Waste International Alliance. With intermediate goals of 30% diversion by 2030 and 60% by 2040, the UCRRA's goals are intended to align with County Executive Metzger's Executive Order 1 of 2023, which calls for 100% reduction of landfilled organic waste by 2030, and the state's goal of 85% diversion of all waste from landfills and incinerators by 2050.

The Ulster County Legislature funded the feasibility study and strategic plan for a Reuse Innovation Center in 2022-23. This plan is now being implemented as one of the key projects in the UCRRA's 2025-2029 Capital Project Plan, laying groundwork for circular industries and also for the business support systems that will allow the existing circular enterprises - and new ones - to flourish.

2025 CAPITAL PROJECT PLAN

6/25/2025 Revision 3

Ulster County Resource Recovery Agency

#	Project Name	Priority	Status	Estimated Cost	Start/End
25-01	Mattress Recycling Area	Med	Complete	$100,000 (+/-10%)	1/1/25 – 12/31/25
25-02	Secondary Diversion Building	Low	Planning	$1,930,000 (+/-50%)	1/1/25 - 12/31/26
25-03	RePØWER (aka Reuse Innovation Center)	Med	Procurement	$6,750,000 (+/-50%)	1/1/25 - 12/31/26
25-04	Admin Building Weatherization Upgrade	Med	Complete	$100,000 (+/-20%)	1/1/25 - 12/31/25
25-06	Compost Expansion (Hub and Spokes)	High	Planning	$1,780,625 (+/-20%)	1/1/25 - 12/31/25
25-07	Alternative Tech Research Plan & Study	Low	Design	$150,000 (+/-10%)	1/1/25 - 12/31/25
25-08	GHG Emissions Study (Scope 1 - 4)	Low	Planning	$75,000 (+/-10%)	1/1/25 - 12/31/25
25-09	New On-Site MRDC at UTS	Low	Planning	$500,000 (+/-20%)	1/1/26 - 12/31/26
25-10	PPE Maintenance & Replacement	High	Ongoing	$3,664,440 (+/-10%)	1/1/25 - 12/31/29
25-11	Landfill Leachate Collection & Treatment	High	Design	$1,560,000 (+/-50%)	1/1/25 - 12/31/27

Project Approach

This document is not a comprehensive plan for materials management or UCRRA operations. It is a focused effort to identify leverage points and courses of action for changing the dynamics of the waste management system, shifting toward circularity by developing new markets, systems and partnerships that can expand through collaborative effort.

PROJECT PURPOSE: Identify strategies that can expand reuse, repair, remanufacturing and recycling, particularly in concert with business and industry partners, to drive a shift away from linear waste management practices.

PROJECT OUTCOME: Create a Circular Economy Strategic Plan for Ulster County that can be implemented at the county level by UCRRA (in coordination with the Executive and Legislative branches of government), in collaboration with the project partners and an expanding network throughout the Hudson Valley.

To focus on fundamental change, this initiative started by considering underlying aspects of the current system that reinforce business as usual and make systemic change so difficult. UCRRA's leadership considers these to be "the big 4":

1. The widespread, often unconscious cultural habit of replacing rather than reusing, and throwing things "away" with limited attention to proper sorting for reuse or recycling;
2. Rapidly-increasing cost of doing business, including cost of transportation, storage and handling of materials, which discourages risk-taking by public agencies and private enterprises alike;
3. Unpredictable markets for reused and recycled materials, making it difficult to design solutions that are enduring and financially viable;
4. The incentive system that guides UCRRA and similar agencies, whose current business model is reliant on ever-increasing volumes of waste, to generate increasing revenue, to offset increasing costs (a vicious cycle if ever there was one).

To address these core challenges, the project revolved around a search for creative problem-solving approaches that are scalable and can be implemented by many parties, but can be seeded with the focused efforts of existing partners. For a waste management agency, collecting materials is at least a familiar activity (though one that must be scaled greatly). Diverting those materials through sorting and repurposing is also a familiar process that needs to be expanded. What has been largely lacking is a driving force to encourage reuse, repair, remanufacturing, and recycling by associating economic or social value with the end products. The ability to move diverted materials into the marketplace is the key driver for reuse at scale.

The project therefore began by bringing together stakeholders in the many practitioner networks that are dealing with transforming waste beyond that

a resource recovery agency alone can do. This Plan focuses on the leverage point of creating markets for reused and recycled materials that allow businesses to start up and grow by providing new solutions. This is the way to sustainably expand markets for reused and recycled materials, thereby incentivizing producers and consumers to shift away from the traditional linear economy.

Initial identification of priority materials for increased diversion was conducted in 2023 by Sustainable Hudson Valley as part of the Reuse Innovation Center Feasibility Study and Strategic Plan, prioritizing materials with:

- High environmental impact in their production and disposal
- High social impact
- Considerable community need
- Reuse value and related economic impact
- Considerable supply and demand

That list (Appendix A) can guide future priorities for diversion. The current project selected two major materials streams with known reuse markets and high volume of flows, building materials and textiles. For these, market opportunities were evaluated for reclaimed materials that can meet needs that people are already spending money on. Using a software called ArcGIS Business Analyst, consumer spending patterns were reviewed and correlated with types of materials with the most obvious reuse value in these categories. For these materials, we looked more closely at the barriers to reuse/ recycling and how those barriers may be overcome, including catalytic projects that could address a particular waste stream at a meaningful scale.

In November, 2025, roundtable meetings were conducted with practitioners representing:

- Architects, builders, contractors, engineers and designers;
- Makers, crafters and manufacturers;
- Waste haulers and others who handle materials;
- Retailers and re-sellers of reused and remanufactured materials;
- General interest in the project.

Insights from these meetings, with supporting research, have given rise to the strategies and initial priorities that follow.

To identify future phases of work across the spectrum of materials, this approach should be frequently repeated or ongoing. Identification of future materials areas for focus, and circularity strategies, should be based on regular evaluation of materials diverted by this initiative, and assessment of new opportunities for diversion and utilization of additional materials categories through technologies, markets and system designs. In working with the initial categories of building materials and textiles, there are obvious sub-categories such as metal, wood, brick, glass, fabrics, and more. As initial projects increase the diversion of these specific materials, additional markets and opportunities can be developed. This process requires robust data about the waste stream and continuous communication with circular economy partners.

Opportunity Spotlight:
The Built Environment

For more than a century, the Hudson Valley was known as the "Brick Capital of the World," producing up to one billion bricks each year and supplying more than 65% of the materials that built New York City. Reclaiming this legacy by centering the built environment in our circular economy strategy presents a powerful pathway for regional economic development, climate impact, and community resilience. Rather than treating construction and demolition debris and surplus building materials as waste, this strategy invites us to view them as valuable local resources that can fuel new businesses, reduce costs, and increase community wealth.

Economic Opportunity

The built environment sector poses the single biggest circular economy opportunity in Ulster County. In Ulster County, the approximate expenditure by households on home related goods and services in 2025 was $673,110,218 or 23% of the Top 25 Retail Goods & Services Expenditure in Ulster County.

	Spending Potential Index	Average Amount Spent (2025)	Total (2025)
Maintenance and Remodeling Services	109	$5,033.70	$378,181,730
Furniture	103	$907.64	$68,190,930
Major Appliances (14)	104	$525.84	$39,506,122
Housekeeping Supplies (17)	104	$896.34	$67,341,649
Maintenance and Remodeling Materials (12)	106	$853.81	$64,146,502
Lawn and Garden (16)	109	$741.96	$55,743,285

he built environment sector also represents a cornerstone of economic activity

in Ulster County, with participating organizations reporting an estimated $735 million in annual revenue and employing roughly 3,588 workers. Because these figures reflect only the subset of businesses that provided data, they likely understate the true scale of economic activity, workforce engagement, and purchasing power across the sector. These numbers demonstrate the outsized importance of construction, building materials, and skilled trades to the regional economy—and suggest that investments in material circularity, efficiency, and innovation have the potential to generate significant economic, environmental, and workforce benefits at scale.

A striking pattern emerging from the data is the mismatch between local spending on building-related goods, and local revenue captured by businesses in this sector. Residents spend hundreds of millions of dollars every year on building materials, services, and products. Much of this money leaves the region immediately— through the import of new materials, purchases from national retailers, hiring of out-of-region contractors, and disposal fees for waste. By contrast, a circular system that recovers, processes, and redistributes materials locally has the potential to keep far more money circulating in the local economy, support small businesses and makers, reduce disposal costs, and create an economy of affordable reused building materials.

Alongside this documented leakage of dollars from our region, we observed the seeds of circular alternatives in the form of businesses, organizations, and experts in the built environment, including landscape designers already experimenting with building deconstruction. Supporting these are organizations with expertise, such as the US Green Building Council, CR0WD, RECLAIM NYC, and others.

Cataloging & Marketplaces

Building materials present a compelling opportunity for digital and physical marketplace development, especially when supported by standardized cataloging processes, storage capacity, and logistics. Several platforms have the potential to support these capabilities:

- Donify NY: A donation-based tool enabling individuals, businesses, and government agencies to channel high-value surplus materials to nonprofits such as Habitat for Humanity.
- iWasteNotSystems Stack
  - Reuses: A generalized reuse marketplace that functions outside of social media platforms and can serve consumers, businesses, and municipalities; simple to implement and broad in applicability.
  - Recap: An inventory management tool.
- Orbit Exchange: A building-material-specific marketplace recently launched in NYC, designed primarily for business-to-business transactions. Orbit serves as a platform for distributing the diverse materials salvaged from the NYC-funded demonstration project, the deconstruction of a full city block CUNY medical campus which will give rise to a reuse-centered Science Park and Research Center (SPARC) Kips Bay.

Policies In Play

The building sector is experiencing a major policy shift at both state and federal levels, with proposed legislation increasingly incentivizing reuse, reducing embodied carbon, and expanding regulatory frameworks to guide deconstruction. Even federal tariffs incentivize national manufacturing and development of local to regional supply chains.

In the 2026 legislative pipeline are five state-level bills were that would significantly improve circular activity:

S2091 / A3029: Establishes standards for the reuse of deconstructed building materials, including grading reclaimed lumber and integrating it into the state building code.

S8168 / A8637: Requires local deconstruction ordinances and reporting; establishes grants and certification programs.

S7998 / A8456: Reduces embodied carbon in buildings by 15% by 2030; provides compliance pathways.

S7648A / A6566B: Creates the Sustainable Building Materials Act, including tax incentives and grants for low-carbon materials.

S8000 / A8202A: Requires state agencies to establish embodied carbon reduction plans and adopt procurement policies for sustainable construction materials.

While state-level action is promising, Ulster County's commitment to reuse positions it to innovate further with local policy in order to fully realize the economic, environmental, and workforce benefits of circularity. The County can lead using the example of states and municipalities with the greatest progress in mainstreaming deconstruction, such as Washington and Oregon, which have used hyper local policy initiatives such as:

- Local deconstruction ordinances to incentivize the practice and fund initial work force and contractor training;
- Building code adjustments to facilitate reuse;
- Procurement policies that prioritize low-carbon and reused materials;
- Permitting incentives for material recovery in construction projects.

Regulations that require reuse, deconstruction, or low-carbon materials will only succeed if local infrastructure, business capacity, and market demand are in place first. Local policy must be sequenced thoughtfully from this perspective. Building significant workforce capacity, along with robust collection, storage, logistics, and marketplace systems, plus targeted incentives and risk-sharing mechanisms, will be critical to ensuring that policy is not only aspirational, but implementable.

By moving ahead with local policy innovation to support reuse of building

materials, Ulster County has an opportunity to act as a test bed and early adopter, aligning local action with emerging state policies, and using policy as atool to accelerate innovation, investment, and job creation in the built environment.

Affordable Housing & Building Material Reuse

Ulster County is facing a significant housing affordability crisis driven by high costs, limited housing stock, and long construction timelines, challenges that are exacerbated by rising material prices and supply chain delays. In this context, building material reuse presents a practical and high-impact opportunity to reduce project costs, shorten procurement timelines, and increase access to construction materials that are otherwise expensive or difficult to source. Organizations such as RUPCO, Habitat for Humanity, Kingston City Land Bank, and Taproot Community Land Trust already play a central role in addressing housing challenges and are well supported initiatives in our community. By developing local systems to recover, process, and redistribute building materials, Ulster County can support these projects while creating living-wage jobs in deconstruction, fabrication, and construction trades. This approach not only advances affordable housing goals, but also aligns with broader economic development and climate priorities by keeping valuable materials in circulation and building a more resilient, locally rooted construction economy.

Workforce Development & Existing Communities

Expanding materials reuse in Ulster County will require a skilled workforce capable of deconstructing buildings, processing materials, and preparing them for reuse. Making emerging technologies available such as automated denailing equipment (for example, Urban Machine), mortar removal tools, and advanced sorting systems are making this work safer, faster, and more economically viable, while creating opportunities for entry-level and skilled trades jobs in a growing sector.

Ulster County can build on statewide momentum through its working relationships with existing communities of practice, including CR0WD, RECLAIM NYC, and NYSAR3, which are already advancing deconstruction, reuse, and policy innovation. By participating in these networks and developing local training programs, the county can help create living-wage, place-based employment that supports both economic development and circular infrastructure.

Upstream Economic Development Example: Biobased Materials for Re-Usability

The circular economy is more than a new way of processing post-consumer materials. It is an overall approach to designing waste out of the economy, designing to make reuse and recycling the default. An important component of this is developing industries that produce goods that are naturally easy to reuse. A growing movement in Ulster County and the broader Hudson Valley is focused on biobased, low-carbon building materials, including biomass for

panelized building components, carbon sequestering biochar-infused building materials, prefabricated panels, and other alternatives to traditional high-carbon and toxic materials. Organizations such as Hudson Valley Regenerative Housing, Parsons Healthy Materials Lab, International Living Future Institute, New York Carbon and the Biobased Material Collective are creating networks with new approaches to material production, design, and manufacturing that support healthier buildings and reduced environmental impact. These efforts reflect a shifting landscape in construction, where innovation is increasingly aligned with climate goals, community health, and local economic development. A conference on hemp building, produced by Cornell Cooperative Extension in Ulster County in December of 2025, illustrates the growing interest in these opportunities.

There is a significant opportunity to connect materials innovation with building material reuse. This includes biobased materials that can be produced in the region as well as additional streams of reused materials such as glass. Combined, these approaches lead to a more robust ecosystem for circular and regenerative construction. Alignment of interests among practitioners in these areas will advance shared priorities around embodied carbon reduction, local manufacturing capacity, and workforce development, while also positioning Ulster County as a leader in regenerative building practices. Opportunities for collaboration include shared infrastructure, research partnerships, and pilot projects that bridge material reuse and biobased material innovation to accelerate the development of a more sustainable, locally rooted construction economy.

There is a significant opportunity in Ulster County to focus on wood reuse, transforming a large supply of discarded and storm-felled lumber into value-added products and components that support local manufacturing, craftsmanship, and innovation. By engaging millworkers, woodworkers, makers, and artists, the region can build a creative economy centered on regenerative materials and circular design—while aligning with emerging policies that support reclaimed structural lumber as a cost-effective, low-carbon substitute for virgin wood.

Additional building materials with high local reuse potential include reclaimed brick, doors, fixtures, furniture, casework, stone, and glass. Reuse of all these can reduce disposal volumes, lower development costs, and provide feedstock for both affordable housing and local small-scale fabrication. Together, these opportunities create a foundation for a locally rooted circular construction economy that generates and retains material value in the region, supports living-wage jobs, and reduces the environmental footprint of the built environment.

Opportunity Spotlight:

Fashion & Textiles

At its peak, New York's textile industry produced up to 70% of women's clothing in the U.S., with Kingston's factories employing hundreds of skilled workers and shipping garments to major national retailers. The collapse and offshoring of this industry left behind vacant buildings and fragmented supply chains. This, combined with New York City's continued symbolic role as a fashion hub and financial center, makes textiles a strategic focus for regenerating local manufacturing, reducing waste, and building a resilient circular economy.

Economic Opportunity

The fashion and textile sector represents a meaningful part of Ulster County's economy, generating an estimated $106.6 million in annual revenue and employing approximately 709 workers across a mix of small businesses including makers, designers, manufacturers, retailers, and services.

	Spending Potential Index	Average Amount Spent (2025)	Total (2025)
Women's Clothing	104	$865.82	$65,048,928
Footwear	100	$547.60	$41,141,347
Men's Clothing	102	$490.33	$36,838,676
Children's Clothing	95	$319.82	$24,027,839

Household spending in Ulster County on clothing and related goods in 2025 totaled approximately $167.1 million, indicating that local consumer demand for apparel significantly exceeds the revenue captured by local businesses in this sector. This disparity suggests that a large portion of clothing-related

spending is leaving the region through online shopping and national retailers, rather than supporting local enterprises, jobs, and creative producers. Because the industry is highly labor-intensive and rooted in small-scale production, even modest investments in circularity—such as textile recovery, remanufacturing capacity, shared production equipment, and cooperative business support—have the potential to strengthen local enterprises, create new jobs, and keep more economic value and physical material circulating within the community. By expanding local infrastructure to recover textiles, extend product life cycles, and build new business models in repair, resale, and local manufacturing, Ulster County can reduce waste while building on its cultural assets and creative economy.

Cataloging & Marketplaces

Textiles present strong opportunities for local resale, repair, and redistribution, yet most recovery systems remain informal, fragmented, and underdeveloped. Establishing marketplace infrastructure can help Ulster County modernize textile flows by supporting donation-based distribution, community resale networks, peer-to-peer exchanges, and small-scale commercial reuse. Efforts to catalog textiles, characterize materials, and integrate digital platforms will be essential for efficiently connecting supply and demand—particularly for clothing, shoes, and household textiles, which are abundant, valuable, and frequently discarded. This includes both physical collection systems such as the B Corporation Helpsy, and software platforms such as Donify NY, Reuses, Aloquia, TrustUp (created in Kingston), and Rheaply (which combines a circular marketplace with a broader spectrum of services).

Policies In Play

State-level policies are emerging that could significantly reshape textile recovery and recycling in New York through extended producer responsibility. Two major bills proposed for 2026 are particularly relevant:

- Textile Extended Producer Responsibility (S3217 / A6193) would require clothing producers to participate in take-back and recycling programs, creating funding and infrastructure for collection. This bill has been in the works for quite some time, and if passed would have major implications for circular fashion in our region.
- The Fashion Act (S4746B / A4333C) would require fashion sellers to implement standardized environmental and social due diligence policies and contribute to a remediation fund.

Together, these policies signal a shift toward producer responsibility, transparency, and accountability, creating an important enabling environment for local circular economies. While these state wide bills are in motion, Ulster County could consider comparable legislation to keep these materials out of the County waste stream and build procurement pathways for locally produced and reused materials.

Policy- and advocacy-oriented communities also offer valuable alignment opportunities. American Circular Textiles, based in New York City, convenes businesses to advance circular fashion policies, while the NYSAR3 Textile Reuse Group brings together practitioners across New York State to enable textile recovery, reuse, and recycling and advance supportive policies.

Workforce Development & Existing Communities

Ulster County can strengthen its textile circularity ecosystem by connecting to and leveraging a growing network of organizations that are already building skills, culture, and capacity for reuse. Hudson Valley Sustainable Fashion Week is championing circular fashion through public education, creative reuse, and community engagement. The New York Fashion Innovation Center is working statewide to build a more sustainable and resilient supply chain by linking farmers, researchers, manufacturers, and designers to strengthen regional production and reduce environmental impacts.

In addition, the region hosts longstanding cultural hubs such as the Sheep & Wool Festival, which celebrates regenerative fiber systems, and a new regenerative textile initiative led by the Eileen Fisher Foundation. These efforts can connect local producers and makers to a growing reused material supply chain. These communities are already supporting workforce development, entrepreneurship, and cultural stewardship, while aligning local action with state and regional momentum.

Emerging Technology

Emerging technologies in the textile sector present a significant opportunity for Ulster County to support local processing, value-added manufacturing, and circular innovation. Investment in infrastructure for textile-to-textile mechanical recycling could enable regional facilities to convert post-consumer materials into new feedstock, supporting local designers and manufacturers. Processes being developed by research centers, such as University of Delaware's ReSpool, demonstrate the potential for new distributed systems that transform textile waste into spinnable fiber. And in early 2026 the textile-to-textile recycling company Reju announced its first US facility to be located at the Eastman Industrial Park in Rochester. Advances in chemical recycling also offer longer-term pathways to recover usable materials from complex blends and synthetics that are difficult to process through mechanical means. These technologies should be considered on a selective basis when more conservative, less energy-intensive methods are not applicable.

Early pilots show how these technologies can scale and regionalize.

Case Study: ***Goodwill's Regional Textile Reuse and Recycling Pilot.*** Goodwill of the Finger Lakes is launching a multi-year pilot with WM and textile recycler Reju to create a regional system for textile collection, sorting, reuse, and recycling using existing donation infrastructure. WM collects the materials. Goodwill sorts and resells usable items, while non-sellable textiles are routed to Reju for textile-to-textile recycling. By leveraging each partner's strengths—reuse expertise, logistics capacity, and recycling technology—the pilot aims to divert textiles from disposal and build a scalable circular model. Goodwill is coordinating with nine other regional organizations, showing how nonprofits can collaborate to meet industry needs and demonstrating the value of using existing infrastructure rather than building new systems from scratch.

These innovations signal a growing opportunity to build regional capacity for textile processing, connect local supply with new manufacturing markets, and create jobs in a sector poised for significant growth.

Stakeholder Round Table Insights

Based on the above analysis of opportunities, round table discussions were held with stakeholders involved in circular economy initiatives, with a special focus on building materials and textiles/ fashion interests. Over 100 people participated in one or more of five sessions:

- Architects, Engineers, Builders
- Makers, Manufacturers
- Materials Managers
- Resellers
- General interest

These sessions provided evidence that circular enterprises are already active, and include a wide range of process and business model innovation.
Ulster County is home to businesses developing methods of reusing abundant materials that can be widely adopted.

- NY Heartwoods produces furniture, art, and building materials from site-based trees.
- FN Furniture is developing scalable methods of manufacturing durable outdoor furniture and structural panels from plastic waste streams.
- 100 Miles North is an eco-design firm that has begun to demonstrate deconstruction and salvage of valuable materials for use in the creation of one-of-a-kind residential and commercial spaces.
- Found and Fixed Hudson Valley reclaims and upcycles furniture at a significant scale.
- Davies Office Furniture in Albany is a large-scale office furniture remanufacturing operation serving the entire U.S. and Canada.
- Kingston Standard Brewing is a food and beverage business that captures process CO2 to carbonate beverages and seeks out additional ways to adopt circular practices such as reprocessing oyster shells.

Stakeholders from throughout the region also participated, representing all the counties of the mid-Hudson and diverse projects ranging from creation of furniture and interiors out of salvaged building materials (by ReDu Studios in Brooklyn and Hudson) to creating products out of Japanese knotweed (by Toolshed in Greene County). Reuse, recycling and repair industries were all well represented.

Repair economy challenges and opportunities

Repair - marginalized in the throwaway culture - has started to make a comeback. Repair organizations and programs have built up a presence in communities and in industrial policy. Repair Cafes have given rise to tool

libraries and repair training at the local level. Pushing back against product design that makes repair more difficult, a national Right to Repair movement which has achieved requirements for manufacturing of consumer electronics so that common items like phones and computers can be taken apart for simple repairs.

Repair Economy Challenges	Repair Economy Opportunities
• Economics & inconvenience • Turnaround time for repair vs instant gratification of an Amazon replacement • Shortage of trained fixers; Inconsistent access to parts • Product design that prevents repair	• Training and engagement via Repair Cafe • Increasing culture change • Nurturing small business opportunities • Shared maker/fixer spaces

Reuse and Remanufacturing Challenges

Major challenges reported by stakeholders range from quality and consistency of materials streams, to business capacity factors, technology, economics of the marketplace and access to capital.

Challenges: building materials	Challenges: textiles	Challenges: overall
• Variable quality, consistency • Lack of storage/ staging/ distribution systems. • Cost of labor for disassembly and processing • Regulatory and building code restrictions on structural use of salvaged materials. Lack of familiarity and training on deconstruction.	• Fragmented systems of collection. • Custom & labor-intensive nature of repair and upcycling. • Norms of fast fashion, poor quality materials in reuse stream. • Large retail practices of destroying unsold merch.	• Collection systems designed for efficiency more than for diversion. • Business scaling barrier: concentration of investment resources at the extremes of early stage and mature companies, limited funding resources in between.

Reuse and Remanufacturing Opportunities

Opportunities: building materials	Opportunities: textiles	Opportunities: overall
• Emerging technologies (e.g. wood de-nailing, brick cleaning). • Clean surplus material is versatile and less regulated than construction material. • "Support system" for deconstruction including audits & planning tools, online marketplaces for materials.	• Integrative orgs like HV Sustainable Fashion Week. • Dynamic upcycling industries. • Large scale reprocessing: Reju in Rochester. • HV Fibershed Initiative.	• Supporting business development for industries with shared services. • Marketplace connections • Systems for distributing, storing, staging materials. • Work force development as funding source for business incubation. • Catalytic funding

The stakeholder round tables brought forth strategies that had clearly been in development by well informed practitioners and were widely shared, providing a more substantial foundation for circular economy strategies than any abstract analysis could have. This is a living movement that will be strengthened through connection.

Based on these insights, two overarching approaches have become clear.

- First is the necessity of an **ecosystem approach**, based on continuous engagement with stakeholders and support for collaborative efforts far beyond what UCRRA or any single organization can aspire to. The network of stakeholders surrounding this initiative represents high levels of expertise, much of it built through one-of-a-kind projects working with specialized methods and challenging materials. This knowledge and expertise is developing in real time through collaboration and knowledge-sharing, outpacing publication in any literature. Implementation of this Strategic Plan will be built on specific commitments by UCRRA and partnerships it develops, but must also allow for ongoing knowledge sharing and unpredictable opportunities that emerge.

- Second is the notion of **catalytic projects**, which are multifaceted initiatives that not only move materials at a significant scale but build new connections and pathways for reuse, remanufacturing and recycling-based industries. These are major initiatives, selectively undertaken, that open up avenues for large-scale change in the behavior of consumers, producers or both.

Catalytic Project:

RePØWER Reuse Innovation Center

The RePØWER Reuse Innovation Center will serve as a ***catalytic project*** for the circular economy, especially in the built environment and textiles. This project is central to a new UCRRA program - the Reuse Pathway for Zero Waste and Economic Resilience, or RePØWER. Through the RePØWER program, the Agency seeks to reduce waste via a robust network of reuse facilities (collection sites, "take it or leave it" sheds, storage warehouses, repair businesses, retailers, contractors, and other businesses that establish markets for reused goods and materials), and by separating out and diverting up to 5,000 tons per year of reusable goods and materials from the county's streams of municipal solid waste and construction and demolition debris. The RePØWER program connects the creation of a central Reuse Innovation Center with the establishment of a network of collection and distribution sites, and the cultivation of a community of practitioners, advocates and customers interested in reuse.

Modeled on successful centers in Bellingham, Washington, New York City, Ithaca and elsewhere, the Reuse Innovation Center is a multi-faceted facility that receives, processes, stores, fixes/ refurbishes and sells materials, and houses businesses that create new products out of the materials received. Building materials and architectural salvage, upcycled fashion, furniture, home and garden products are a small sample of the items that will be produced and sold.

Launching in 2026, the Reuse Innovation Center will be operated by **BIG-Reuse** (managing the enterprise), **Circularly PBC** (developing building materials reuse systems and markets) and **Found and Fixed** (providing repair services and training). With UCRRA financial support over a five year period, the partners will develop the collection and distribution system for reusable materials and a large-scale retail operation, with special attention to creating new systems to make building deconstruction and materials reuse practical. These include pre-deconstruction inventory systems to identify materials that will be available, and pre-sale systems so that these materials have a buyer before a building is deconstructed.

The Center will support an ecosystem of businesses that may share equipment, common space such as showrooms and classrooms, business services and even employees. It will serve as an incubator for business startup and growth, and a point of connection between the reuse economy and surrounding community.

Implementation: Vision, Mission, Goals

Drawing from previous plans and studies and research into promising practices in other communities, and synthezing input from our stakeholder engagement, the Ulster County Circular Economy Strategy is built on the following vision and mission.

VISION
Ulster County's economy maximizes circulation of products and materials, thereby minimizing extraction of natural resources and the generation of waste.

MISSION
This is accomplished through broad collaboration of businesses, government/nonprofits and community members to create an integrated system of materials management and economic development that prioritizes reduction, maintenance, reuse, repair/refurbishment, remanufacture, recycling, composting, and material recovery.

GOALS
Specific actions to achieve the mission and vision are organized under the following seven strategic goals, which are intended to guide Ulster County's circular economy efforts over the next three-to-five years:

1. **OPERATIONS, INFRASTRUCTURE:** Develop operations, infrastructure and logistics to support reuse, remanufacturing, repair and recycling.
2. **COORDINATION:** Establish, organize and grow a working group of partners for implementation of this Plan.
3. **MARKETS & LOGISTICS:** Expand materials markets for reuse and recycling by supporting new and existing circular enterprises, building out logistical systems that connect materials to markets, and developing industry sector partnerships to accelerate uptake of circular practices.
4. **FUNDING:** Create new funding mechanisms for enterprise and partnership development.
5. **POLICY & REGULATION:** Establish policy and regulatory frameworks that support circular practices.
6. **EDUCATION & WORKFORCE:** Develop a comprehensive program of education, marketing, incentives and training for the public and work force.
7. **MATERIAL DESIGN:** Create an upstream economic development strategy to create replacement industries that provide substitutes for hard-to-recycle materials (such designing products for reuse, repair and recyclability and durability, and biobased building materials and textiles produced in the region).

Key Strategies

The vision, mission and goals above form the core of Ulster County's circular economy strategy. The key strategies below offer a snapshot of the priority actions that were identified by stakeholders who were consulted throughout the process of developing this strategic plan. They are presented here in concentric circles expanding outward from internal actions that the UCRRA can undertake to advance the mission, vision and goals to recommended actions by other private and public-sector partners who are committed to growing the circular economy, to broad systems-oriented approaches to shifting toward greater circularity.

Prior to stakeholder engagement, UCRRA's internal analysis identified a cluster of key strategies to reduce barriers to circularity through innovation in the Agency's operations and targeted expansion of the solid waste infrastructure:

Operations & Infrastructure

- **Improve materials management systems to identify and track reusable materials.**
  - Create advanced inventory and logistics systems such as imaging technologies to identify recoverable resources, especially before they enter the waste stream, with a focus on share-able technologies that support economies of scale.
  - Develop systems for real-time data collection, analysis and reporting on the solid waste stream, a priority in itself to support continuous identification of opportunities.

- **Expand collection system infrastructure to support reuse.**
  - Redesign operations at the main UCRRA transfer station to create a secondary diversion center where people can drop off reusable materials in good condition, allowing them to be diverted in good condition and reducing hauling to the landfill.
  - Support local transfer stations in establishing collection systems to support reuse, such as "Take it or Leave it" sheds.

- **Remove disincentives to waste reduction.**
  - Reduce disincentives to diversion in the Agency's revenue model by developing additional revenue streams that can replace dollars lost through waste reduction.

The Round Tables gave rise to additional strategies to address barriers and amplify opportunities, especially focusing on the private marketplace and supporting product/ service innovation.

Coordination

- **Create ongoing communication mechanisms and processes among circular economy stakeholders**
  - Establish online platforms and hold in-person convenings to coordinate implementation of this strategy and expansion to a bioregional approach.
  - Create a small coordinating group to guide and ensure implementation.
  - Hold regular Circular Economy Summits and stakeholder gatherings.
  - Develop a simple online communication platform.
  - Engage one or more partners with expertise in bridging between the domains of materials management and economic development.

Markets & Logistics

- **Grow local repair, reuse and recycling markets through support for businesses with these purposes.**
  - Reduce barriers to startup and scaling of private sector enterprises that create markets for reuse, repair and recycling, by facilitating shared services such as production, showroom and office space, back office services, training, insurance, equipment and more.
  - Develop and pilot an initial program of shared services through the RePØWER Reuse Innovation Center.
  - Identify additional needs/ opportunities and develop further systems with collaborating organizations.
  - Identify recycling markets that are geographically dispersed and dependent on extensive shipping/ trucking, and develop strategies to grow those industries in or closer to Ulster County.
- **Create logistical and marketplace connections to address the disconnect between materials supply and demand.**
  - Improve efficiency and cost-effectiveness of UCRRA's current system by building out collection, staging and distribution facilities through the RePØWER program, starting at the existing network of 19 local transfer stations.
  - Address the lack of storage capacity for materials in transit toward new uses - especially deconstruction products - by developing storage/ staging areas and logistical supports, including materials inventory and matchmaking systems.
  - Create linkage between materials supply and demand through physical and online marketplaces and cooperative marketing activities.

- Improve understanding of uncertain and fluctuating materials markets through data analytics and practitioner knowledge-sharing to create a more robust materials marketplace. Continue using tools like ArcGIS Business Analyst to delve into markets and opportunities with additional materials.

Funding

- **Develop funding mechanisms for circular economy enterprises and infrastructure.**
  - Identify and fill funding gaps for growing circular enterprises and scaling up necessary infrastructure.

Policy & Regulation

- **Develop enabling local policy and codes to support building materials reuse, and support aligned state policies.**
  - With key county stakeholders in the legislative and executive branches and the building trades, develop and pilot model building codes to guide incorporation of reused materials, as well deconstruction ordinances, training and business support programs.
  - Support state policies to establish Extended Producer Responsibility and support circularity, guided by data-driven, robust analytic processes such as the New York State Embodied Carbon Working Group's Material Reuse & Circularity subcommittee.

Education & Workforce

- **Develop Education Linked to Action.** Compared to a generation ago, many more people are drawn to reused and salvaged materials as a result of extensive, creative education and the development of new cultural experiences, from mending classes to Facebook Marketplace to Repair Cafes to Hudson Valley Sustainable Fashion Week. All these new modes of changing behavior involve learning in a social setting that is connected to opportunities for new behaviors. These examples show that the way to **build a culture of responsible stewardship** of materials is not through one-way educational messaging but through social modeling and experiential learning, which works especially well when it is neighbor-to-neighbor and locally customized.
  - Catalogue existing programs including repair classes, tool libraries, and consumer education and document the methods behind successful models.
  - Secure funding to support expansion and replication of successful models.

- **Develop circular economy work force.**
  - Launch concerted work force development initiatives for each priority materials area and for the cross-cutting area of repair, wherever there is clear opportunity.
  - Two key areas are building deconstruction and repair. This clearly requires collaboration with trade associations and training providers but can be catalyzed by the Reuse Innovation Center partners.

The strategies discussed above can be embedded in the work plans of UCRRA, Circularly, and SHV, in collaboration with an expanding network of partners. A particularly important area for new partnerships is involving economic development agencies, private investors, technology developers and others in strategies for upstream material management that reduces consumption (and waste) and designs products and materials for reuse, repair and recycling.

Material Design

- **Plan and develop replacements for hard-to-recycle/ reuse materials**
  - Produce "circular friendly" alternative materials for construction, textiles/ fabric and other priority categories.
  - Develop an industry strategy in partnership with leading organizations such as the Hudson Valley Textile Project, Cornell Hudson Valley Research Lab, along with economic development organizations.
  - Grow local and regional industries to generate reusable local supply streams such as bio-based building materials and textiles.

The Logic of Scaling

Can these strategies scale sufficiently to tackle the "Big 4" system barriers discussed earlier? These are:

- habitual consumer behavior and culture
- slim margins that inhibit innovation
- uncertain and unstable markets
- disincentives to change, including the revenue models of resource recovery agencies which are normally paid by volume of materials.

While these challenges are huge, the project did identify basic approaches to each one:

- Addressing consumer behavior and culture through a combination of education, marketing, policy, incentives and enforcement.

- Making material-moving, handling and storage more affordable, and materials-reuse businesses easier to scale, by creating systems that can be used by many stakeholders.
- Reducing uncertainty and instability in markets through data analytics, information sharing and collaborative projects to aggregate materials and nurture markets close to end uses.
- Directly addressing operational barriers and disincentives through new revenue models and operational systems at UCRRA.

The actionable strategies identified here will necessarily start small. The ultimate need is enormous and systemic. How will these small steps add up to a worthwhile journey? If they do, it will be because they align with several big ideas about how large, complex systems change.

The first big idea is leverage points, places in the system where small changes have a unique impact. In our context, these include:

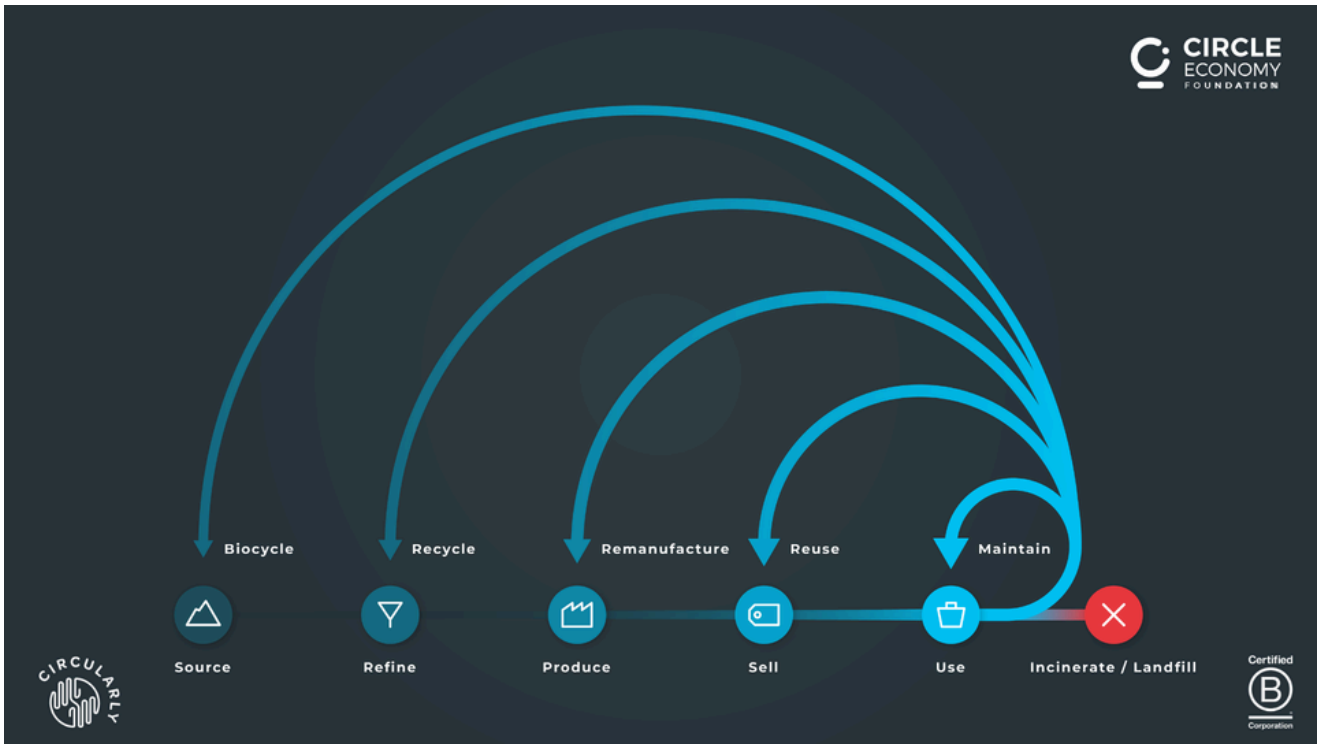
- The ripple effects and replicability of a "waste" agency redefining its scope to include collaborating to develop markets and incubate businesses, as well as re-thinking its own revenue model.
- Systems of collaboration among small business innovators that give rise to economies of scale and reduction of costs through shared resources.
- Creating channels of communication that allow for innovative projects to arise from self-organizing systems, not to be owned by any single entity.

The second big idea is the nature of paradigm shifts in organizations and cultures. Small changes in behavior and understanding, by many people, over an extended period, can build toward common acceptance of a new way of thinking, sometimes invisibly, until it "suddenly" becomes mainstream. This happened with recycling generations ago. It is arguably happening with repair and reuse today.

The third big idea is that small groups can impact complex systems through their relationships, communications and experiments. They can do this by functioning as "coherent microcultures" that maintain a clear vision and model it for others, creating stability in the midst of turbulence. These small groups do influence the big picture. Today, the global supply chain is in a state of extreme turbulence. There are more reasons than ever to appreciate the value of reclaiming and reusing materials, and of generating basic materials nearby to meet our needs.

These strategies start with actions that are small enough to be implemented, but still significant. They are scalable and widely replicable, if the initial

demonstrations are successful, well documented and well led. That leads to one strategy that will support all the others – creating a cohesive community of practice, with a dedicated coordinating structure, as the underpinning of changes that are lasting, beneficial and cascading.



Implementation Plan

The pathway below is an approach to organize the recommended actions for success with a clear mechanism for coordination. While some of these work streams are already being advanced by existing organizations including the project partners, we recommend the establishment of an independent coordinating body with no other responsibility than ensuring the implementation of these recommendations. This group should include key stakeholders with commitment and engagement in the work outlined here. It can be built on a steering committee representing the project team and knowledgeable, credible stakeholders who are motivated and aligned with the mission. It can identify and advance the small steps needed for near-term organizing, and chart a longer-range path in more detail to translate this vision into results.

Strategic Goal	Action Steps	Lead	Other Partners	Timeframe
Operations & Infrastructure	Develop advanced inventory and logistics systems, such as imaging technologies, to track and identify reusable materials before they enter the waste stream	UCRRA	Other RRAs in the region and company partners	3-5 years
	Implement systems for real-time data collection, analysis, and reporting on the solid waste stream to continuously identify new opportunities	UCRRA		1-2 years
	Redesign the main UCRRA transfer station to include a secondary diversion center for reusable material drop-offs	UCRRA		1-2 years
	Establish materials storage and staging hubs revolving around UCRRA's central facility and the 19 local transfer stations	UCRRA	Big Reuse, municipal transfer station operators	1-2 years
	Support local transfer stations in setting up collection systems like "Take it or Leave it" sheds	UCRRA	Big Reuse, municipal transfer station operators	1-2 years
	Identify and invest in enabling technologies for recovery and reuse that benefit emerging sectors	UCRRA		3-5 years
	Identify and plan the next catalytic projects targeting high-value material streams, such as lumber and textiles	Working Group		1-2 years
	Develop new revenue streams for the resource recovery agency to remove financial disincentives and replace money lost as waste volume is reduced	UCRRA		1-2 years
Coordination	Establish an independent coordinating body/working group to guide implementation and set year-by-year goals	SHV	Circularly, UCRRA	This year
	Secure review and approval of the final strategic document by UCRRA's board	UCRRA		This year
	Build inclusive online communication platforms and hold regular in-person events, including Circular Economy Summits, to connect stakeholders	Working Group		This year
	Engage specialized partners with expertise in bridging materials management with economic development	Working Group		1-2 years
	Build an inclusive network to develop longer-range visions and scale strategies	Working Group		1-2 years

Strategic Goal	Action Steps	Lead	Other Partners	Timeframe
Markets & Logistics	Launch the RePØWER Reuse Innovation Center by selecting an operator, securing site(s), engaging the initial business ecosystem, and creating shared infrastructure (workspace, equipment, services)	UCRRA	BIG Reuse, Circularly, Found and Fixed	This year
	Reduce barriers for local circular businesses by facilitating shared services like production space, showrooms, back-office support, and equipment	Working Group	Ulster County Economic Development, HV Venture Hub, other private sector partners	1-2 years
	Build staging and storage capacity specifically for deconstruction products	Circularly	UCRRA, Big Reuse	1-2 years
	Launch digital cataloging systems and physical marketplaces to connect available recovered materials with buyers	Circularly	UCRRA, Big Reuse	This year
	Deploy online and print marketing materials for the reuse marketplaces	Big Reuse	UCRRA	This year
	Utilize data analytics tools like ArcGIS Business Analyst to understand market fluctuations and identify opportunities for additional material streams	Circularly	Big Reuse, UCRRA	1-2 years
	Identify geographically dispersed recycling markets and develop strategies to grow those industries closer to Ulster County	Working Group	Ulster County Economic Development, SHV	1-2 years
Funding	Identify and fill funding gaps to help scale circular economy enterprises and necessary infrastructure	Working Group		This year, ongoing
	Raise seed funding to support ongoing coordination efforts	Working Group		This year
Policy & Regulation	Work with county stakeholders and building trades to develop model building codes that guide the incorporation of reused materials	Working Group		This year
	Implement local building deconstruction ordinances, which could include requiring deconstruction audits for county buildings, offering streamlined permitting as incentives, or phasing in deconstruction for older/historic structures	Working Group	Ulster County Legislature and Executive Branch, construction industry orgs, municipal governments willing to pilot	1-2 years
	Support state-level advocacy using data-driven insights (e.g., via the NYS Embodied Carbon Working Group) to establish Extended Producer Responsibility and circularity	Working Group	CR0WD, NYS Embodied Carbon Working Group	This year, ongoing
Education & Workforce	Launch public circularity campaigns to educate residents and businesses about available resources, including RIC, "Take It & Leave It" programs, Repair Cafes, and mending classes	Working Group	Trade Associations, Training Providers, circular businesses, Repair Cafe	This year, ongoing
	Catalogue successful experiential consumer education models (like Repair Cafes and tool libraries) and secure funding to replicate and expand them	Working Group	Repair Cafe	1-2 years
	Launch targeted workforce development and training initiatives, with a specific focus on building deconstruction and repair	Working Group	Ulster BOCES, SUNY Ulster, etc.	1-2 years
	Develop an upstream economic development strategy in partnership with practitioner organizations to grow local industries that supply reusable and "circular friendly" materials and replace hard-to-recycle items, such as bio-based construction materials and textiles.	Working Group	HV Textile Project, The Metro Fab Lab, Cornell Hudson Valley Research Lab, Cornell Bioeconomy Hub, Eileen Fisher Foundation, HV Sustainable Fashion Week, etc.	1-2 years
	Develop a regional strategy to scale proven approaches by working in partnership with industries, other Hudson Valley counties, and regional stakeholders	Working Group	industry associations (food and beverage hospitality, manufacturing, etc) HVRC, Council of Industry, REDC, etc.	3 - 5 years

In the initial phases of implementation, the most important role of the working group will be to build a strong, inclusive network and create systems and resources to guide the work, including sufficient funding for the considerable analysis and project development that is needed.

Conclusion

This plan outlines a new approach to minimizing waste and maximizing the capture of value in materials management, one that is based on building markets, economic opportunity and enthusiasm by aligning resource recovery with economic development in expanding, collaborative networks. The work flow described above creates supporting structures for these networks, allowing for the next wave of innovations to be brought to life in ways we can't yet fully imagine. Next steps to implementation include:

- Review and approval of final document by UCRRA's board.
- Development of working group to guide implementation.
- Launch of the first catalytic project, the RePØWER Reuse Innovation Center.
- Creation of the Ulster County policy framework needed to nurture the deconstruction industry, including supportive building codes, local ordinances and work force/ contractor training, in close coordination with the Legislature and Executive Branch.
- Creation of an ongoing network of regional stakeholders through a formative Summit and ongoing communication channels.
- Establishment of dedicated funding to support these initiatives as they mature.

Appendix A:
Priority Materials Analysis

MATERIALS																
Waste Stream Component	Type	Mass Reduction Potential	Volume Reduction Potential	Reuse/ Repair Potential	Ease of separation/ diversion	GHG reduction potential	Community concern	Commodity market value	Longevity	Toxicity	Barrier-free, less complex diversion	Diversion opportunities exist	Additional Diversion Potential	Handled by other regulations**	PRIORTIZATION SCORE	Prioritization Ranking
Appliances/White Goods	C&D	2	2	10	10	12	6	9	4	8	10	3	4	-4	76	High
Architectural Details	C&D	2	2	10	6	9	8	12	8	2	8	5	4	0	76	High
Bicycles	MSW	1	1	10	10	9	8	9	6	2	10	5	2	0	73	High
Bricks	C&D	3	2	8	8	6	6	9	8	0	8	4	2	0	64	High
C&D Debris	C&D	5	4	8	8	9	6	6	4	2	8	4	8	0	72	High
Cabinets	C&D	2	2	8	8	9	6	12	6	2	8	4	4	0	71	High
Clean Wood	C&D	4	4	10	8	9	6	9	8	0	10	3	8	0	79	High
Doors	C&D	2	2	8	10	9	6	12	8	2	8	4	6	0	77	High
Plastics - durables	MSW	2	3	6	6	9	6	3	8	8	8	5	6	0	70	High
Scrap Metal	C&D	5	3	6	8	15	8	9	8	8	8	5	6	0	89	High
Tires	MSW	4	2	4	10	12	8	6	8	6	8	5	2	-4	71	High

Appendix B:
Enabling Deconstruction

Nationwide, building deconstruction is being established as a reasonable, scalable approach to repurposing structures and capturing materials within them. While first costs are greater than for simpler demolition, the process generates materials with resale value, making it potentially cost-competitive. The steps to mainstreaming deconstruction and capturing building materials for reuse have been worked out in such communities as Portland, Bellingham and San Antonio, and in Washington State. The key steps are:

1. Develop systems for planning and managing projects

- Inventory buildings pre-deconstruction in order to plan and market items in advance;
- Create marketplaces to make salvaged/ reused materials more widely available.

2. Create a local policy climate

a. Building codes typically do not specify how and where reused materials may be incorporated (e.g. in building structures). Specific, technically informed guidance is required to reduce risk for architects, builders, code officials and occupants of buildings that incorporate these materials. Model codes are available (e.g. Washington State) but specific local or County codes should be developed in consultation with the building trades to ensure support.

b. Deconstruction ordinances are a key tool to provide incentives and, where appropriate, regulation. Approaches include:

i. Requiring at least deconstruction audits and economic assessments for county-owned buildings

ii. Providing incentives such as streamlined permitting or additional points in county contracts

iii. Phasing in requirement to deconstruct, by type/ age of building (e.g. all historic structures, buildings constructed before 1970) with exemptions where safe conditions are lacking.

3. Train and prepare contractors and the work force

- Initially, construction management must understand the procedures to prepare for and conduct deconstruction properly.
- With their support, local ordinances and building codes can be developed.
- Work force training follows, with pilot projects to document results as a foundation for scaling up the practice of deconstruction.

Appendix C:
Active Stakeholders

Round Table 1: Amy Stanfeld, Buro Happold; Flynn Wiley, 100 Miles North; Brigid Walsh, founder 100 Miles North; Stephanie Bassler, architect & just elected Saugerties Town Board; Barry Price, architect; Manna Jo Greene, Ulster County Legislator; Stephen Stuart, Sullivan County Office of Sustainable Energy and Yestermorrow Design Build School; David Todd, regenerative entrepreneur (structural panels, design build studio); Daniel Gasen, Red Hook real estate & building innovator; Sonia Lemus-Wright, architect/ builder; Melissa March, Plastarch; Oak Marsh (Melissa's son) SUNY New Paltz student; Laura Petit, former UC legislator; Celeste McMickle, US Green Building Council (TRUE program); Amber Lasciak, ReDu Studios, Hudson; Karine Duteuil, Landscape Architect; Taleen Josephsen, Architect, Putnam County

Round Table 2: Celeste McMickle, USGBC; Megan Offner, NY Heartwoods; Laura Petit, former UC legislator; Caitlyn Murray, La Vie Apres L'Amour, and Joanne Louis-Paul, collaborators on board of HV Sustainable Fashion Week; Stephanie Erwin, Found and Fixed; Robbie Lee, artist and designer; Luis Rosado, Rosado Works; Amy Stanfeld, Buro Happold; Janet Hollingsworth, Metropolitan; Tait Simpson, owner Kingston Standard Brewing; Dave Zimmel, Repair Café volunteer and lamp fixing business; Tim Furstnau, Hudson Tool Library and pilots using Japanese knotweed in building mat'l; Bridget Rockwell, Davies Office Furniture.

Round Table 3: Manna Jo Greene, Ulster County legislator; Celeste McMickle, US Green Building Council; Julie Noble, City of Kingston Sustainability Coordinator; Ryan Kuhn, City of Kingston Deputy Supt Public Works; Laura Petit, former UC Legislator

Round Table 4 (Retailers, Resellers): Lauren and Arabella, ReRacked Vintage; Christine Hein, Executive Director, People's Place; Heidi and Linda, Frugal Fabrics Creative Reuse Shop; Lee Anne Albritton, Manager, Habitat ReStore; Patty Mitchell, Victorian Muse; Cassandra Quackenbush, Mother Earth's Storehouse (produce buyer); Chris Pletcher, reuse consultant (zoom).

Round Table 5 (General Interest): Regis Obejiski, Victoria Lucarini, Donna Egan (UCRRA Board), Tim Furstnau (Toolshed +), Chris Hewitt (Ulster County Legislator), Marc Rider & Tim Weidemann (UCRRA), Melissa Everett (SHV)

Appendix D: Meet the Team

Melissa Everett, PhD,
Executive Director, Sustainable Hudson Valley

Casey Plasker,
Founder & CEO Circularly PBC

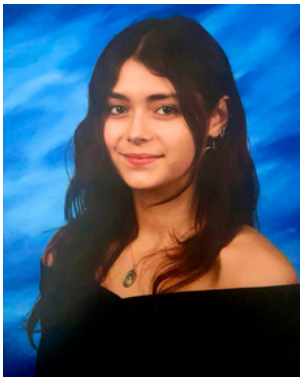
Marc Rider,
Executive Director, UCRRA

Tim Weidemann,
Coordinator of Performance & Development, UCRRA

Kevin Anthony Treutler,
Reuse Coordinator, UCRRA

Suzie Fromer,
Repair Cafe Coordinator and Circular Economy Program Lead, Sustainable Hudson Valley

Jessie Cai,
Research Intern, SHV



Mary Gotsch,
Research Intern, SHV