



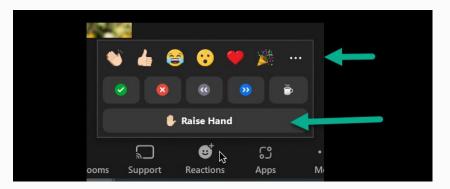
Recycling Market Development Center Advisory Board Meeting April 10, 2024 9am - 11:30am PST





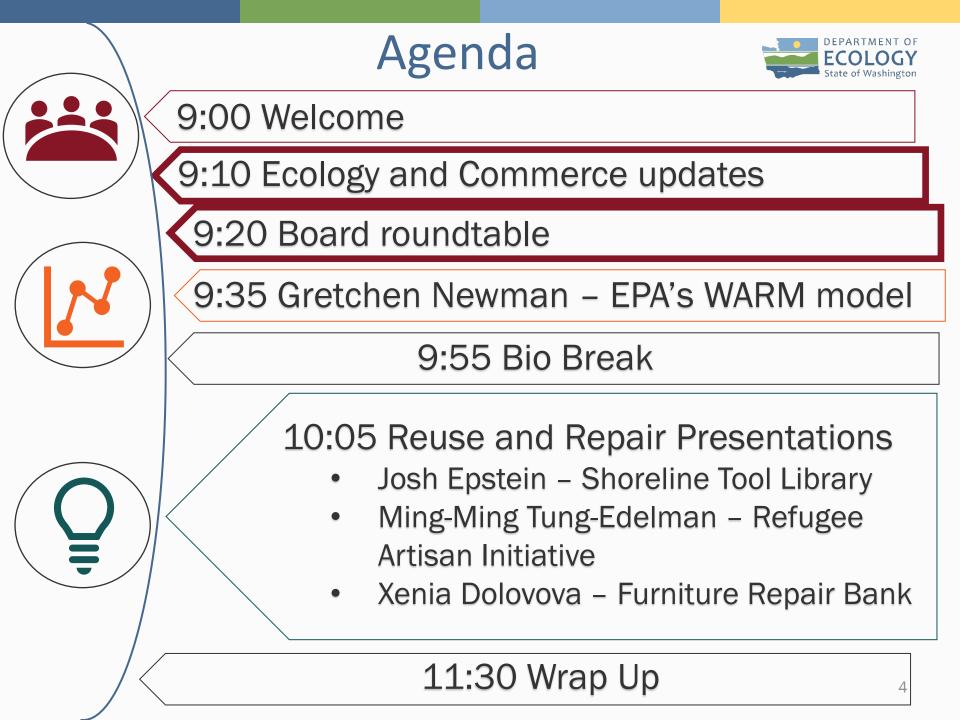
Participating in this meeting:

- Roles
- Host-Caleb
- Facilitator-Mya
- Note taker/chat monitor-Tina



Rules

- Cameras On
- Board members and presenters may unmute themselves
- Questions, please raise your hand or type them in the chat box
- I will call on you or I can read your question from the chat
- Use reactions to keep it interactive





Ecology Commerce Board members











Agency Updates

Kara Steward



Kirk Esmond



Warm Welcome to our new board. members!

Jocelyn Quarrell – CEO/Founder of Bold Reuse

Carly Mick – Director of Sports Product Design, University of Oregon, Portland campus



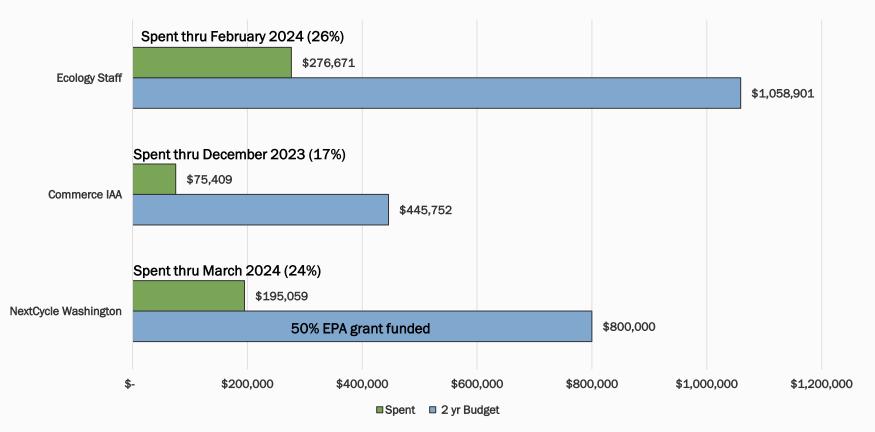






RMDC Budget Status

Biennium - July 2023 to June 2025



Total Biennial Budget: \$2,304,653



NextCycle Washington



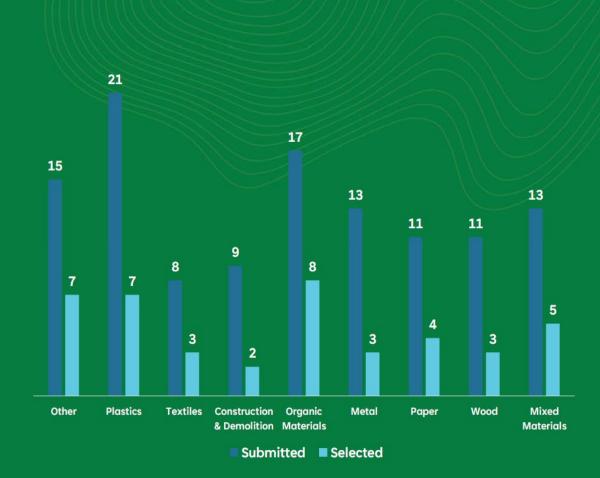


NextCycle Washington



NextCycle Washington





Target Material

Applicants were asked to identify which materials their project targeted to keep in circularity.

Note: Applicants chose all that apply.





2024 Circular Accelerator Cohort

Team	Project	Team	Project		
Atlan LLC	Back to Life Biochar & Soil Regeneration Services	Naturallycontained	Biodegradable Soil Packaging		
Biomass Controls PBC	Post-Consumer Absorbent Hygiene Product Processing	Reclaim Project Recovery	Reclaiming Lives and Landfills		
Biomethane LLC	The Future is Potato Powered	Remakery	Micro-Recycling Local Tacoma Plastics		
Corumat Inc	The Big Green $Loop^{\texttt{B}}$ in WA	Re-Use Consulting	The Reuse Innovation Center Network		
Electra Network LLC	Solving Collection and Logistics for Solar Panel Recycling through a SaaS Digital Network and Ledger	Revino	Wine Bottle Reuse System		
Furniture Repair Bank	Empowering Communities: Scaling the Furniture Repair Bank for Sustainable Business Growth	Revolve Solar	Solar Panel Reuse		
Making a Difference Foundation	Farm to Full Bellies	Tribal Solid Waste Advisory Network	Turning Waste into Commodities; Tribal Recycling Centers Pilot Program		

Washington State Circular Economy

RECYCLING MARKET DEVELOPMENT CENTER, ADVISORY BOARD MEETING — COMMERCE UPDATES – APRIL 10, 2024

Kirk Esmond | Circular Economy Development Director

Office of Economic Development & Competitiveness | Washington State Department of Commerce



Washington State Department of Commerce

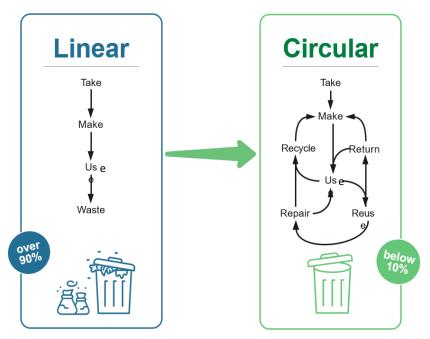
We strengthen communities



High-level Updates Circular Economy Growth

Key initiatives and projects underway

- '24 Legislative Session \$2.5M added funding for program expansion
- Additional Legislative "wins" -- Carbon, climate and organics recycling
- Int'l Industrial Symbiosis Alliance Multinational collaboration
- Circular Economy, Sector Buildout New hire update
- Resource Recycling Systems (RRS) Sole Source contract re: NextCycle
- Plastic Bag Film Study Report to the Legislature



High-level Updates

Recent and ongoing conversations

Qualterra	Double Diamond Fruit Co.	Atlas Agro
Creative Energy	Royal Family Farming	Project Hyas
Double Diamond Fruit Co.	Divert	Wilcox Farms
The Soil Center	Columbia Marketing Int'l (CMI)	Tidal Vision
Lamb Weston	Waste Loop	Corumat
Myno Carbon	Cascadia Produce	Lightning Protection Int'l, AUS
Evergreen Recycling	Rockwool	Royal Danish Embassy, North America
Center for Sustainable	Collaboration amongst programs,	KOSME, Korea
Infrastructure	divisions and agencies	[More]
WA Pulp and Paper Foundation		[more]

High-level Updates Conferences and Events

Helping to drive waste reduction and recycling innovation

Recent (Q1, 2024):

ADO Best Practices – Olympia

RMDC Facility Tours – Seattle

WA Economic Development Assoc. (WEDA) – Olympia

WSU Anaerobic Digesters Workshop – Sunnyside

Green Infrastructure Summit – Bothell

Tasmanian Trade Mission (Delegation) – Seattle

Upcoming (Q2, 2024):

Center for Advanced Manufacturing (CAMPS) – Yakima Flywheel Investment Conference – Wenatchee NextCycle Accelerator Academy – Lacey RMDC Glass Summit – virtual Nordic Innovation Summit – Ballard Circularity 24 – Chicago

Bioeconomy Trade and Study Mission – Finland



www.commerce.wa.gov



Thank you.

Kirk Esmond

CIRCULAR ECONOMY DEVELOPMENT DIRECTOR kirk.esmond@commerce.wa.gov 206-837-2622 www.choosewashington.com

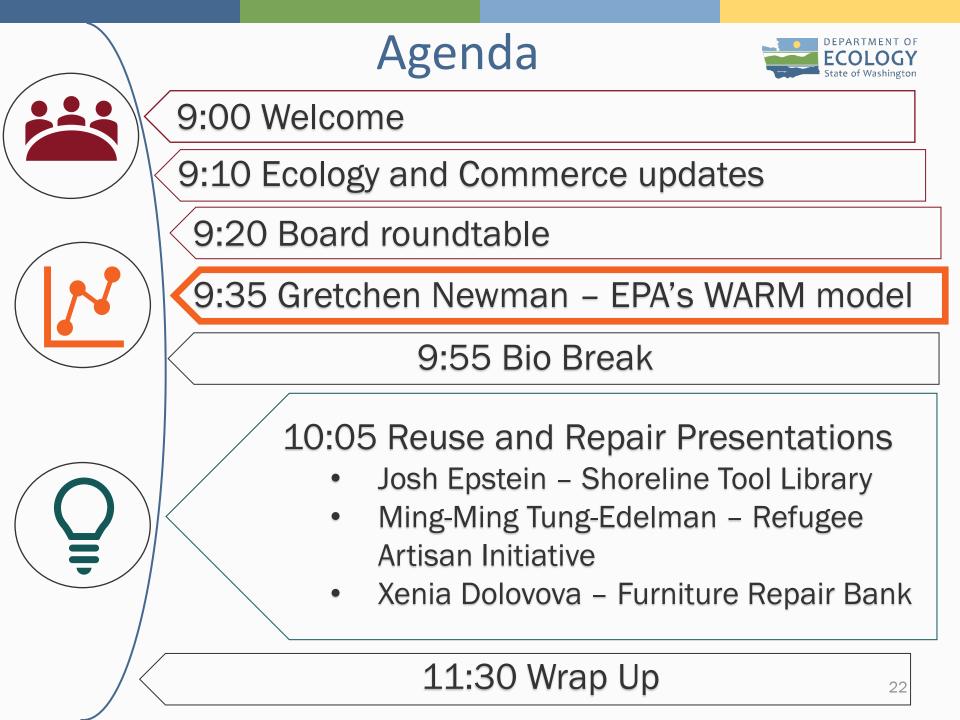


Board roundtable:

- Have you been to a fix it fair or heard about one in your area?
- Have you refurbished furniture?
- •Have you upcycled or mended textiles for reuse?

Board Roundtable







Presentation on EPA's WARM Model

Gretchen Newman Department of Ecology



EPA WARM v15.1

Waste Reduction Model (WARM) provides comparisons of waste materials managed in baseline and alternative materials management scenarios.

For these practices:

- Source reduction
- Recycling
- Composting
- Anaerobic digestion
- Combustion
- Landfilling



EPA WARM v15.1

WARM calculates impacts and "savings" for:

- Greenhouse gas (GHG) emissions (MTCO2E)
- Energy savings (million BTUs)
- Economic impacts (labor hours, wages [\$], and taxes [\$])
- "Savings" or avoided emissions come largely from avoided production emissions or using a recycled material as feedstock in manufacturing.
- Avoided emissions may also come from avoided landfill gas emissions in the case of recovered organics.

Corrugat ed Container s	Magazine s	Newspap er	Office Paper	Phonebo oks	Textbook s	Mixed Paper (general)	Mixed paper (primarily residenti al)	Mixed Paper (primary from offices)	Food Waste
Food Waste	Food Waste (non- meat)	Food Waste (meat only)	Beef	Poultry	Grains	Breads	Fruits & Vegetabl es	Dairy Products	Yard Trimming s
Grass	Leaves	Branches	HDPE	LDPE	PET	LLDPE	PP	PS	PVC
Mixed Plastics	PLA	Desktop CPUs	Portable Electroni c Devices	Flat- Panel Displays	CRT Displays	Electroni c Periphera Is	Hard- Copy Devices	Mixed Electroni cs	Aluminu m Cans
Aluminu m Ingot	Steel Cans	Cooper Wire	Mixed Metals	Glass	Asphalt Concrete	Asphalt Shingles	Carpet	Clay Brick	Concrete
Dimensio nal Lumber	Drywall	Fiberglas s Insulatio n	Fly Ash	Medium- density Fiberboar d	Vinyl Flooring	Wood flooring	Tires	Mixed Recyclabl es	Mixed Organics
Mixed MSW									26

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Waste Management Scenarios

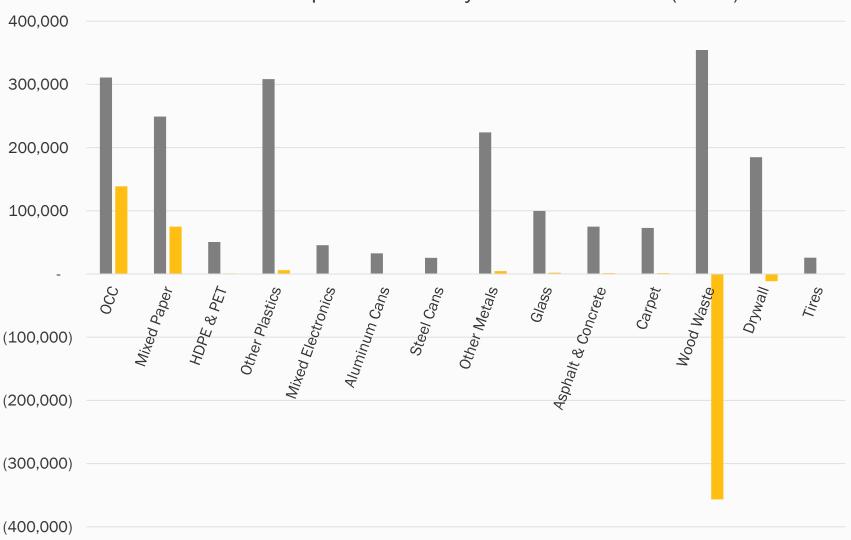
- Ecology uses Waste Characterization Study data with disposal reports for 15 materials.
- We visualized impacts using WARM for:
 - Disposed (baseline) impacts
 - If 10% of baseline were instead recycled
 - If 30% of baseline were instead recycled



GHG Emissions from Landfilling Select Materials in Washington						
			GHG emissions from			
Rank	Material	Tons Landfilled (2021)	Landfilling (MTCO2E)			
1	Corrugated Containers	310,995	138,906			
2	Mixed Paper	249,330	74,981			
3	Other Plastics	308,434	6,247			
4	Other Metals	224,170	4,540			
5	Glass	99,886	2,023			
6	Asphalt Concrete	75,080	1,521			
7	Carpet	73,020	1,479			
8	Mixed Electronics	45,678	925			
9	PET	39,913	808			
10	Aluminum Cans	32,809	665			
11	Tires	26,006	527			
12	Steel Cans	25,648	519			
13	HDPE	10,763	218			
14	Drywall	184,940	-11,289			
15	Wood Waste	354,533	-356,774			
	Total	2,061,205	-134,703			
Sources EDA WADM model version v1E 1, 2020, 2021 Washington Waste Characterization Study, 2021 dispectationers						

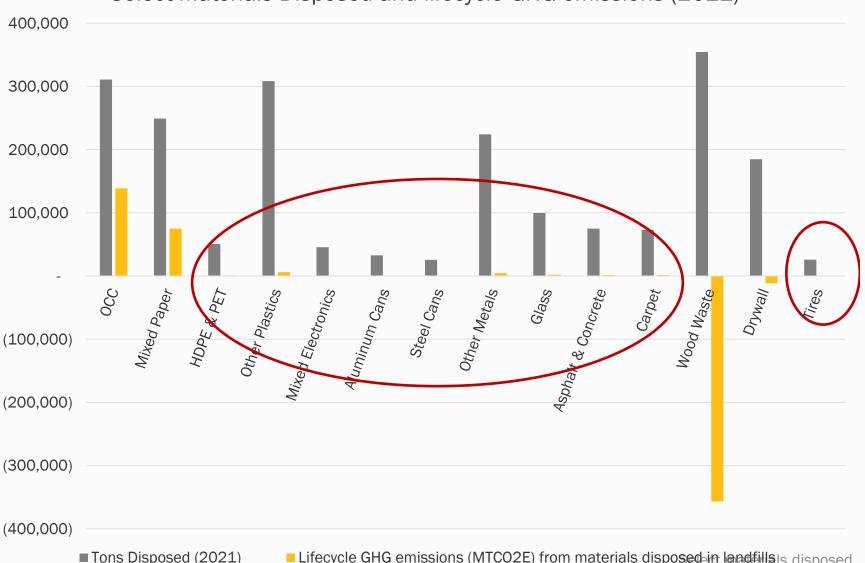
Sources: EPA WARM model version v15.1, 2020-2021 Washington Waste Charaterization Study, 2021 disposal reports.





■ Tons Disposed (2021)

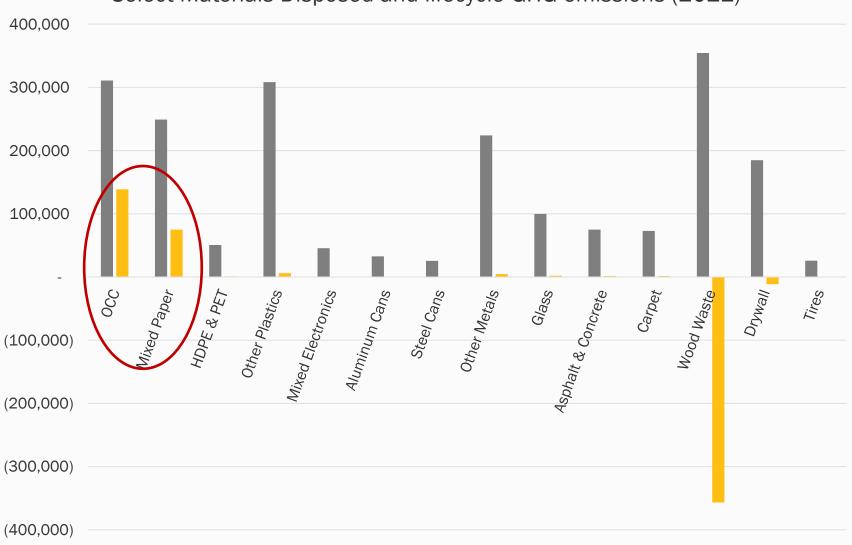




■ Tons Disposed (2021)

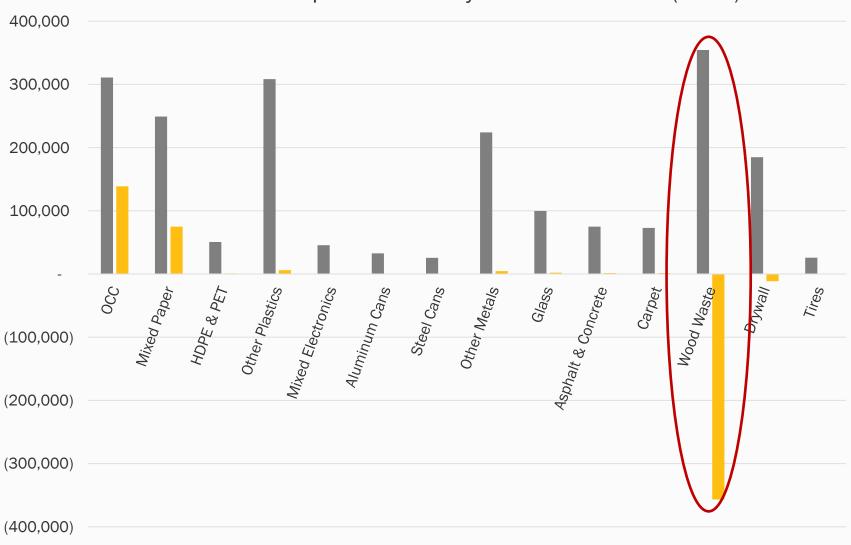
Lifecycle GHG emissions (MTCO2E) from materials disposed in landfills disposed and lifecycle GHG emissions (2021)





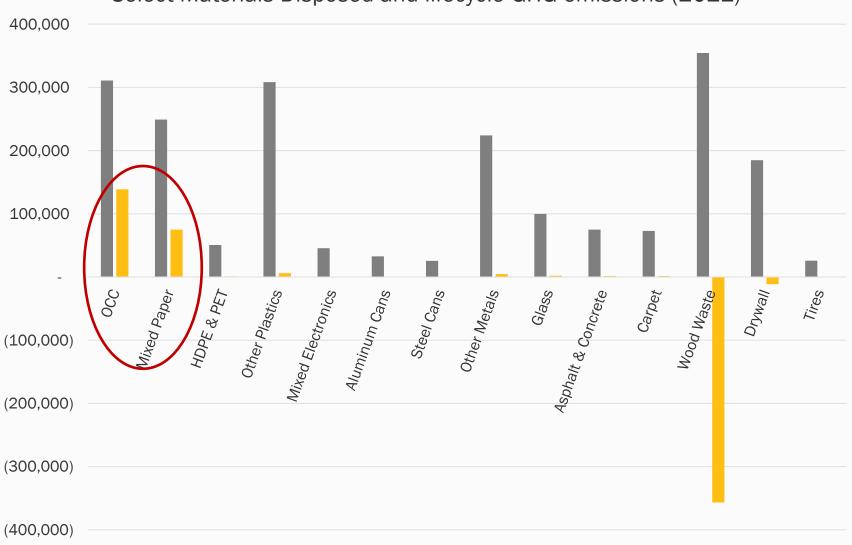
■ Tons Disposed (2021)





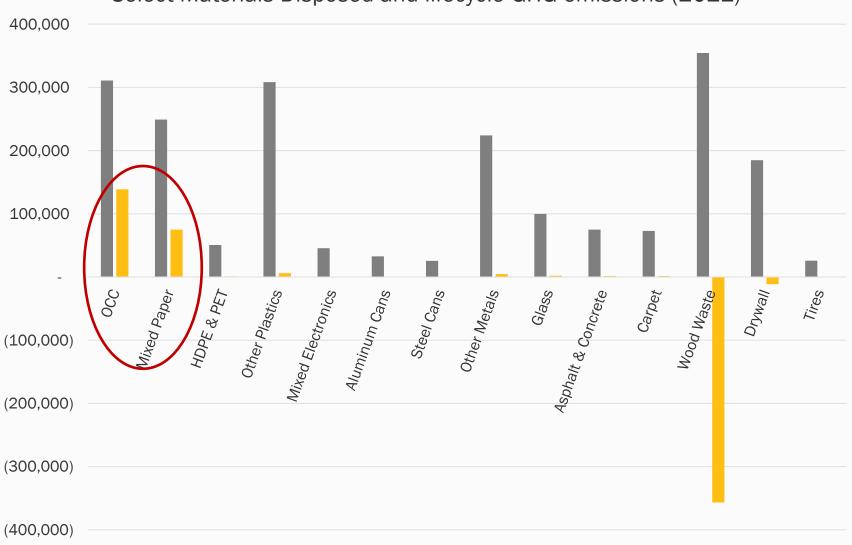
■ Tons Disposed (2021)





■ Tons Disposed (2021)

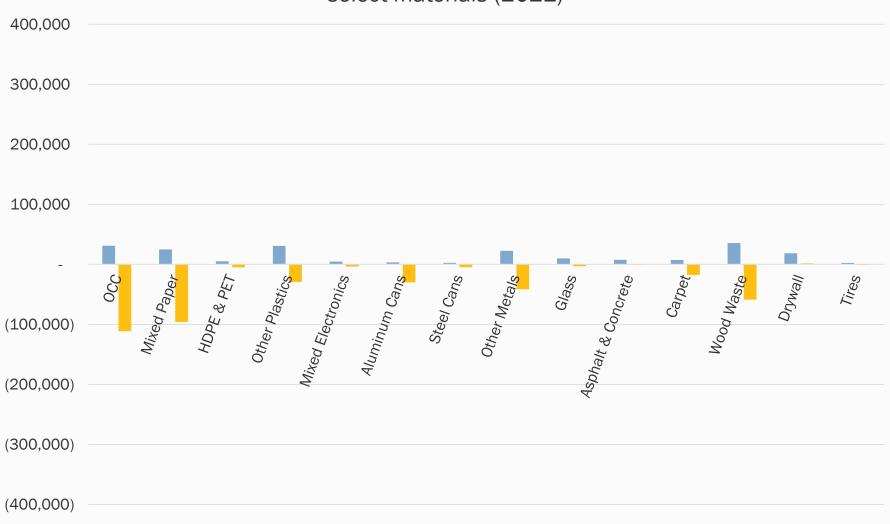




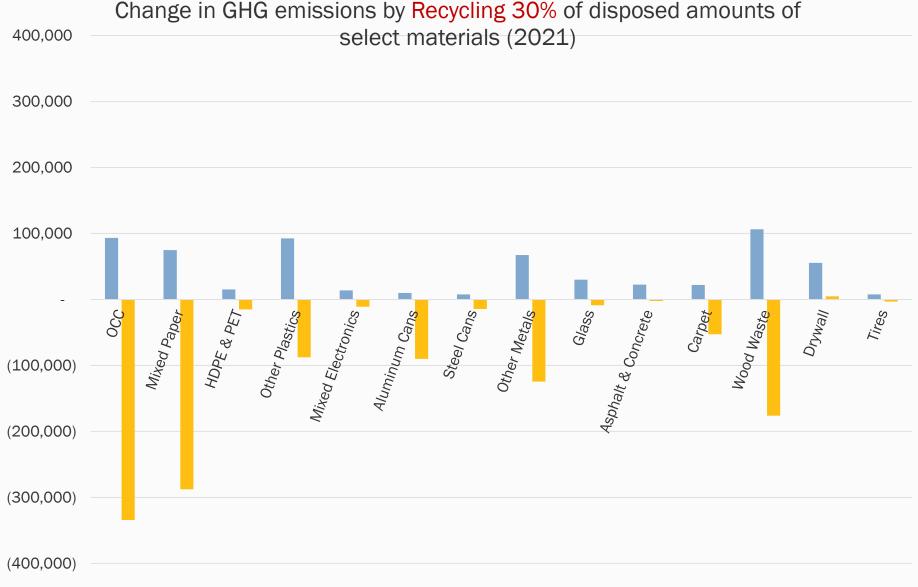
■ Tons Disposed (2021)



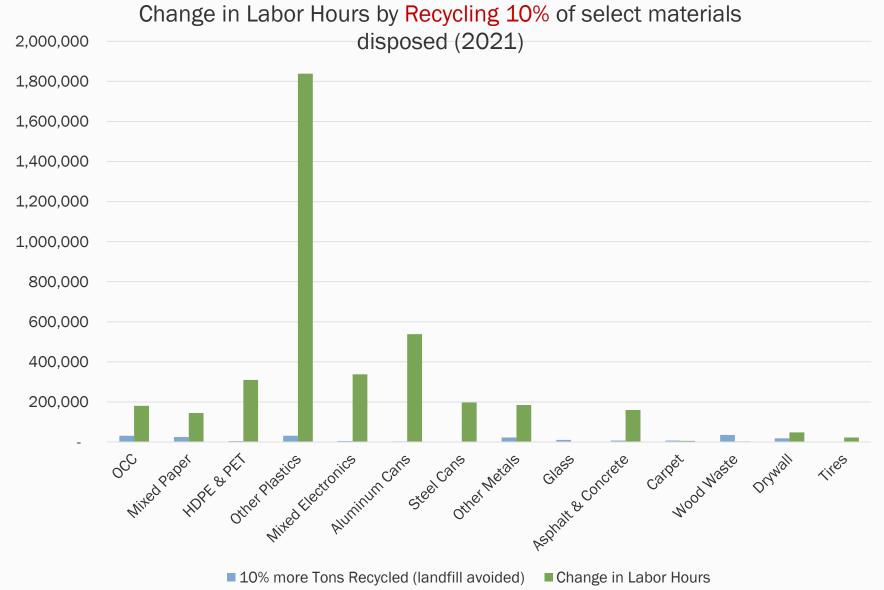
Change in GHG emissions by Recycling 10% of disposed amounts of select materials (2021)



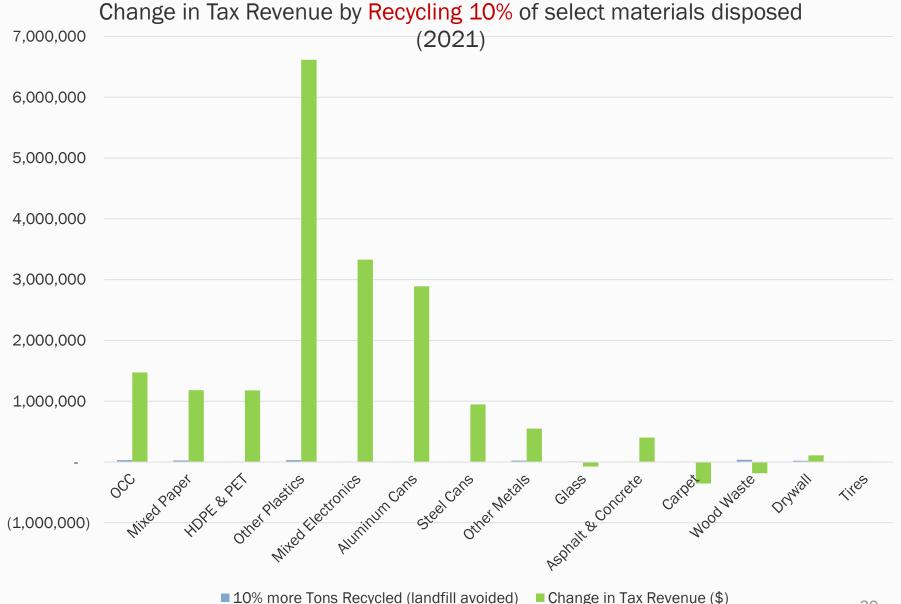














	GHG Emissions from Landfilling versus Recycling Select Materials in Washington						
Rank	Material	Total GHG (MTCO2E) from baseline landfilled (2021)	New GHG (MTCO2E) after recycling 10% of disposed materials	New GHG (MTCO2E) after recycling 30% of disposed materials	Change from 30% recycling (MTCO2E)		
1	Corrugated (OCC)	138,906	27,506	-195,288	-334,194		
2	Mixed Paper	74,981	-20,917	-212,715	-287,696		
3	Wood Waste	-356,774	-415,450	-532,802	-176,027		
4	Other Metals	4,540	-36,983	-120,031	-124,571		
5	Aluminum Cans	665	-29,349	-89,373	-90,038		
6	Other Plastics	6,247	-22,923	-81,266	-87,513		
7	Carpet	1,479	-16,059	-51,136	-52,615		
8	Steel Cans	519	-4,231	-13,733	-14,253		
9	РЕТ	808	-3,406	-11,836	-12,644		
10	Mixed Electronics	925	-2,755	-10,114	-11,039		
11	Glass	2,023	-937	-6,857	-8,880		
12	Tires	527	-505	-2,567	-3,094		
13	HDPE	218	-620	-2,296	-2,514		
14	Asphalt Concrete	1,521	761	-758	-2,279		
15	Drywall	-11,289	-9,678	-6,455	4,834		
	Total	-134,703	-535,546	-1,337,226	-1,202,524		

Analysis by Ecology/SWM, using EPA WARM version v15.1, 2020-2021 WA Waste Characterization Study, and 2021 disposal reports.

Recycling 30% more <u>could save</u> **1.2 million** MTCO2E of GHGs.



	Employment (Labor Hours) from Landfilling versus Recycling Select Materials in Washington						
Rank	Material	Total Labor Hours from baseline (landfilled)	New Labor Hours after recycling 10% of disposed materials	New Labor Hours after recycling 30% of disposed materials	Change from 30% recycling (MTCO2E)		
1	Other Plastics	423,418	2,262,377	5,940,368	5,516,950		
2	Aluminum Cans	45,040	583,185	1,659,429	1,614,389		
3	Mixed Electronics	62,707	400,293	1,075,421	1,012,714		
4	РЕТ	54,793	298,892	787,145	732,352		
5	Other Metals	307,741	504,741	898,742	591,002		
6	Glass	137,124	321,417	689,981	552,857		
7	Corrugated (OCC)	426,934	607,413	968,364	541,430		
8	Carpet	100,242	259,718	578,669	478,427		
9	Mixed Paper	342,280	486,971	776,354	434,074		
10	HDPE	14,775	80,586	212,254	197,479		
11	Tires	35,702	83,419	178,833	143,131		
12	Steel Cans	35,210	57,429	101,868	66,658		
13	Wood Waste	486,702	492,602	504,401	17,698		
14	Drywall	253,886	256,963	263,118	9,232		
15	Asphalt Concrete	103,070	104,319	106,818	3,748		
	Total	2,829,622	6,800,323	14,741,764	11,912,142		

Analysis by Ecology/SWM, using EPA WARM version v15.1, 2020-2021 WA Waste Characterization Study, and 2021 disposal reports.

Recycling 30% more could increase Labor Hours by 12 million.



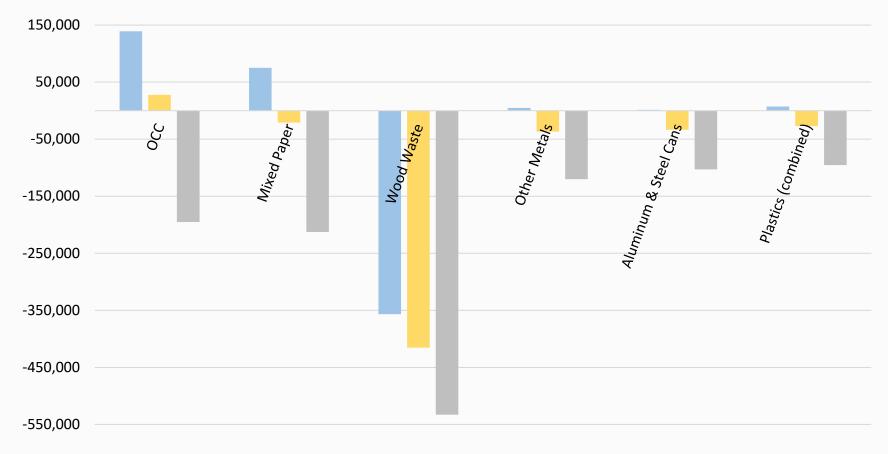
	Taxes (\$) from Landfilling versus Recycling Select Materials in Washington							
Rank	Material	Total Taxes (\$) from		New Taxes (\$) after recycling 10% of disposed materials		New Taxes (\$) after recycling 30% of disposed materials		Change from 30% recycling (MTCO2E)
1	Other Plastics	\$	5,280,393	\$	11,896,534	\$	25,129,086	19,848,693
2	Mixed Electronics	\$	782,007	\$	4,109,644	\$	10,764,480	9,982,473
3	Aluminum Cans	\$	561,692	\$	3,451,705	\$	9,231,494	8,669,803
4	Corrugated (OCC)	\$	5,324,234	\$	6,795,697	\$	9,738,551	4,414,317
5	Mixed Paper	\$	4,268,530	\$	5,448,207	\$	7,807,563	3,539,033
6	Other Metals	\$	3,837,790	\$	4,785,264	\$	6,680,212	2,842,422
7	РЕТ	\$	683,311	\$	1,611,358	\$	3,467,662	2,784,351
8	Glass	\$	1,710,048	\$	2,259,899	\$	3,359,534	1,649,485
9	Carpet	\$	1,250,102	\$	1,650,339	\$	2,450,812	1,200,710
10	HDPE	\$	184,255	\$	434,462	\$	935,055	750,800
11	Tires	\$	445,231	\$	553,301	\$	769,396	324,165
12	Steel Cans	\$	439,095	\$	543,704	\$	543,704	104,610
13	Asphalt Concrete	\$	1,285,370	\$	1,210,379	\$	1,060,398	-224,972
14	Drywall	\$	3,166,171	\$	2,981,452	\$	2,612,012	-554,159
15	Wood Waste	\$	6,069,599	\$	5,715,491	\$	5,007,268	-1,062,331
	Total	\$	35,287,828	\$	53,447,437	\$	89,557,228	54,269,399

Analysis by Ecology/SWM, using EPA WARM version v15.1, 2020-2021 WA Waste Characterization Study, and 2021 disposal reports.

Recycling 30% more <u>could increase</u> Tax Revenue by \$54 million.



GHG Emissions from Landfilling versus Recycling Select Materials



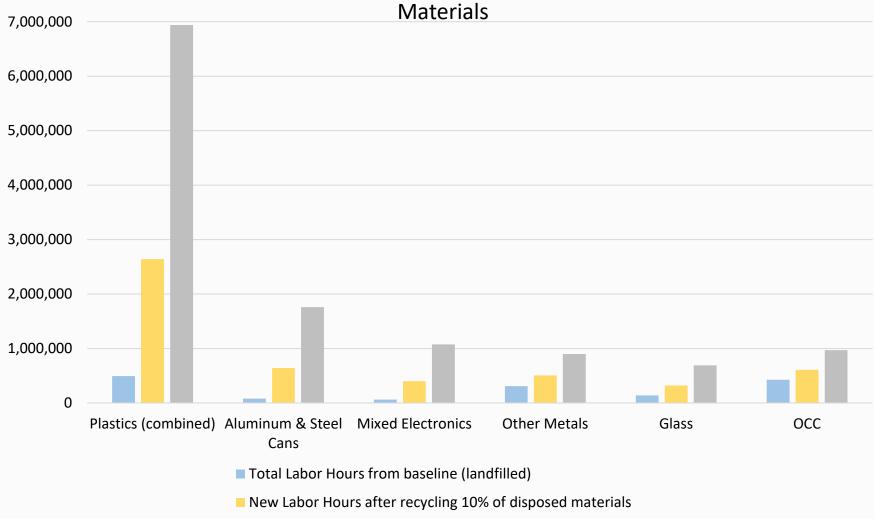
Total GHG (MTCO2E) from baseline landfilled (2021)

New GHG (MTCO2E) after recycling 10% of disposed materials

■ New GHG (MTCO2E) after recycling 30% of disposed materials



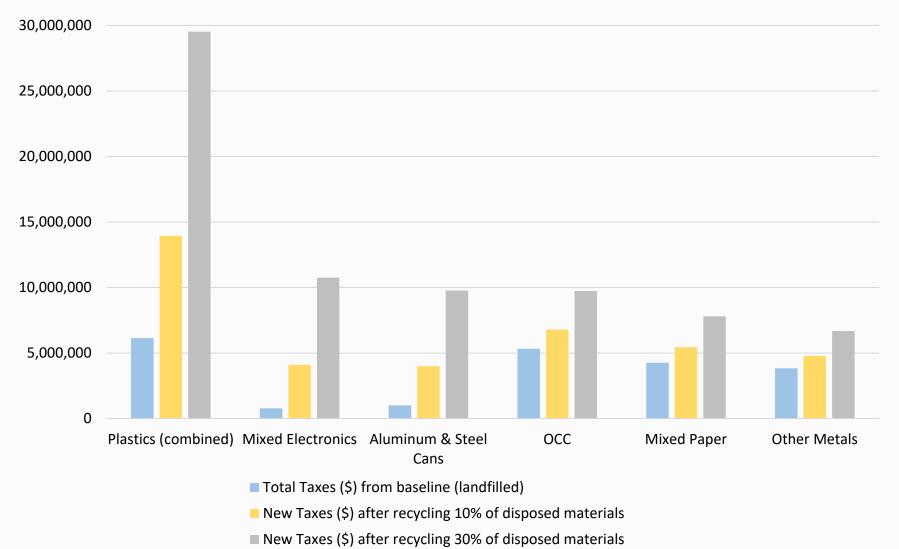
Employment (Labor Hours) from Landfilling versus Recycling Select



New Labor Hours after recycling 30% of disposed materials



Tax Revenue (\$) from Landfilling versus Recycling Select Materials

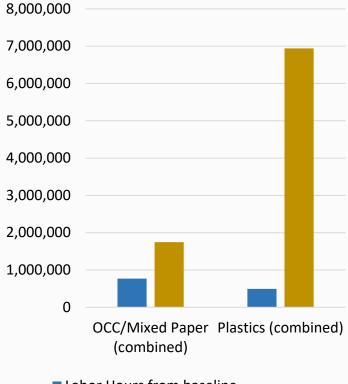




Papers & Plastics - GHG Emissions, 30% scenario 300,000 200,000 100,000 0 OCC/Mixed Paper Plastics (comb<mark>ined</mark>) (combined) -100,000 -200,000 -300,000 -400,000 -500,000 GHG (MTCO2E) from baseline landfilled (2021)

 New GHG (MTCO2E) after recycling 30% more

Papers & Plastics - Labor Hours, 30% scenario



- Labor Hours from baseline (landfilled)
- New Labor Hours after recycling 30% more



Let's take a 10-minute break







Josh Epstein – Shoreline Tool Library Ming-Ming Tung-Edelman – Refugee Artisan Initiative Xenia Dolovova – Furniture Repair Bank





Josh Epstein Shoreline Tool Library





Tool Libraries: A Circular Economy









There is no such thing as "away". When we throw anything away, it must go somewhere.



Linear VS Circular Economy



History

- 2009: Sustainable NE Seattle (nonprofit)
- 2013: NE Seattle Tool Library
 - The \$50,000 Cleanscapes Program
 - \circ 2018: New location!
- 2023: Seattle REconomy
- 2024: Shoreline Tool Library
 - $\circ~$ Grants from DOE and KC



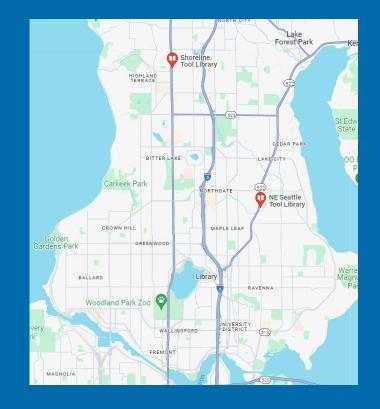
Information

NE Seattle Tool Library

- 10228 Fischer Pl NE
- Tuesday & Thursday 5-8pm; Saturday 9am-12pm; Sunday 2-5pm
- <u>nestl@seattlereconomy.org</u>

Shoreline Tool Library

- 16610 Aurora Ave N
- Monday, Wednesday, & Friday 5-8pm; Saturday 9am-12pm
- <u>shorelinetl@seattlereconomy.or</u>



g

What We Offer

- Over 10,000 Tools
- Classes
- Workshop Space
- ReUsed Building Materials
- Games & Toys
- Seed Library
- Bike Shop & Bike Repairs
- Project Advice & Tool Demos



Why: Save money, space, and the environment

- Reduce your consumption
- Build a community
- Start up a new hobby
- Undertake a fun DIY project
- Complete something for school
- ...and much more!



Becoming a Member

All tools are free with a membership fee

In-kind donation in the form of volunteer hours (one 3-hour shift/month) or tool donations.

All donations are optional and we will not deny applications because of a lack of funds. We do not require proof of income.

Tools can be borrowed for 1 week at a time for up to one month. Late fees are \$0.10 per day.

The suggested membership fees are:

Yearly

- General Public: \$60
- Dual Membership: \$80
- Student/Senior: \$40
- Dual Student/Senior: \$60
- Community Supporter: \$120

Monthly: \$20

Lifetime: \$750

seattlereconomy.org/support -us/membership

Looking to the Future...

- Growing existing tool libraries
- Adding more tool libraries
- National Tool Library Alliance
- ReUse Commons and Circular Business Campus

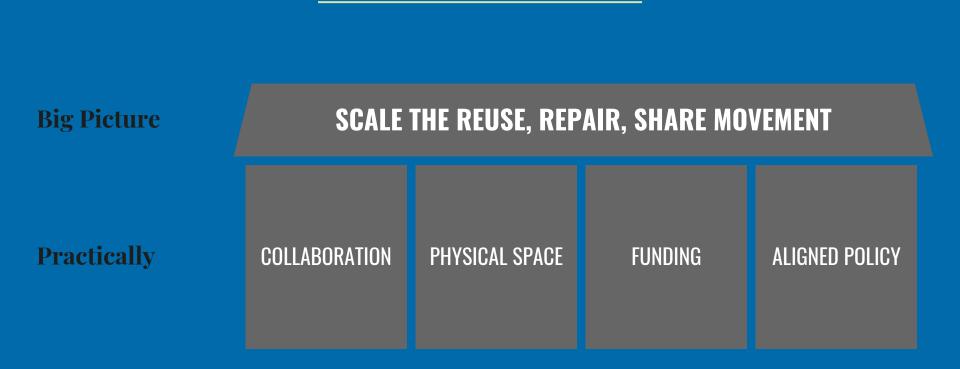


Reuse, Repair & Share Landscape Today

- I5,197 licenced reuse businesses including 2,724 repair, 2,239 rental, and 1,649 second hand shops in WA
- An array of individual organizations, companies, government agencies, and programs working towards similar but distinct goals
- Support from government agencies exists but is sporadic







The Reuse Commons Vision

This **one-stop-shop for getting and getting rid of stuff sustainably** would be a model for cities around the region, country and world.

Equitable access is at the heart of the Reuse Commons: serving and providing economic opportunities for frontline communities. A large physical space shared by a <u>vast array of bu</u>sinesses and programs in the reuse, repair, and circular economy ecosystem.



What can you find at the Reuse Commons?

~	Tool Library/Library of Things		Circular Economy Exhibition
	Building Material Reuse Store		Makerspace
ß	Fix-it Clinics and Mending Circles	₽₽₹	Co-working Space for Circular Economy Businesses
	Furniture Repair Bank	5 ⁵⁵	Sustainable Food Court
Ă	Second Hand Clothing Store	•	Reused Arts and Crafts Store
İ	Workshop Space for Trainings	%	Bike Repair and Reused Parts Store

Get Involved

- Funding
- Connections
- Space
- Volunteer
- Become a member
- Donate tools and/or materials
- Check out our website
- Spread the word!
 - Tell your colleagues and friends
 - Socialmedia



Thank You!

seattlereconomy.org Josh@seattlereconomy.org



Scan for seattlereconomy.org



Ming-Ming Tung-Edelman Refugee Artisan Initiative



Wonder Women: Turning Trash into Treasures

Ming-Ming Tung-Edelman Founder & Executive Director



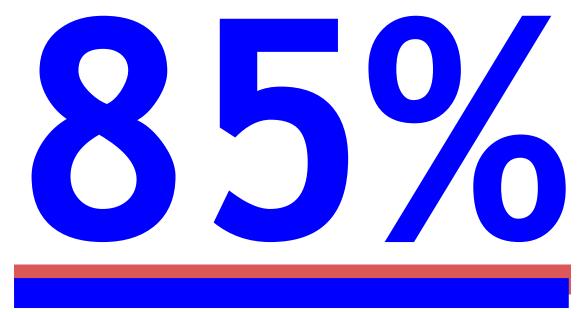


Unemployment rate for refugee women*

*Georgetown Institute for Women, Peace and Security







Textiles end up in the landfill*

*Earth.org







REFUGEE ARTISAN INITIATIVE since 2017



Circular Equitable Economy







REFUGEE ARTISAN INITIATIVE





Upcycled Over 120,000 Items





Becoming Nest Seal







+



Partner with Tommy Bahama



Tommy Bahama

These napkins were handmade from our upcycled linen fabrics by the Refugee Artisan Initiative

ndmade in Seattle with imported materia

www.refugeesarts.org



Partner with Starbucks







+



Repurposed Coffee Rollstocks





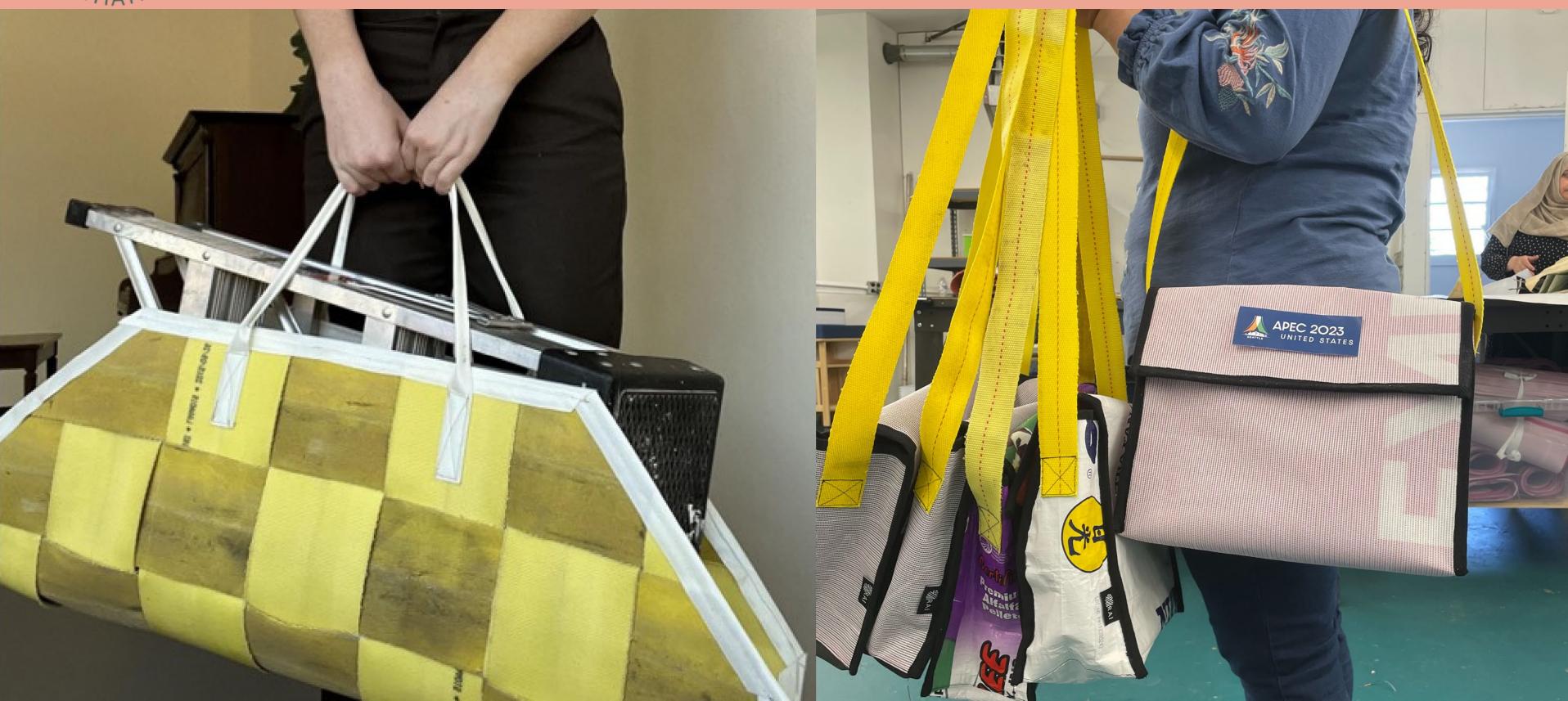


Partner with U.S Forest Service





Repurposed Fire Hoses









Baseerah From Afghanistan



Mahbooba From Afghanistan



Nafisa From Afghanistan



Inzali From Myanmar



Adiba From Afghanistan



Farida From Afghanistan



Yalda

From Afghanistan





From Myanmar



Muntaha from Ethiopia



Noi From Vietnam



Nafisah, Maryam, Nooriah From Afghanistan





From Myanmar



Julie From Myanmar



Nilofar FromAfghanistan From Afghanistan



Razma





From Pakistan







Karima From Morocco



Artisans



How to Engage with RAI?

Purchase our sustainable items

Turn your waste into treasures

Fundourinnovations



Stay Connected



Ming-Ming Tung-Edelman Founder & Executive Director



Refugeesarts.org @refugeesarts @refugeesarts @Artisasnrefugee Refugee Artisan

ming-ming@refugeesarts.org



Xenia Dolovova Furniture Repair Bank



sustainability - community - equity

Why What How of the Furniture Repair Bank Xenia Dolovova

Recycling Development Center advisory board meeting April 10, 2024

https://www.repairbank.org







The Issues



Sustainability

Nine millions tons of furniture are **landfilled annually** in the United States alone according to <u>EPA</u> estimates



Community

Repair skills are disappearing

and less frequently passed down through the generations in our increasingly disposable economy



Equity

Refugees and low-income people emerging from homelessness need support in starting their lives over

Our Activities and Process



Furniture Collection

We collect worn and damaged furniture and focus on basic items that cannot be donated to other organizations.



Repair & Redesign

We revive discarded items by repairing, refurbishing, and redesigning them to like-new condition while teaching and building restoration skills.



Equitable Access

We **support** refugee families, individuals emerging from homeless situations, women fleeing domestic violence, and others in need of timely help.



Furniture Collection

We collect from public*, junk haulers, through organized collection events.

Our volunteers also practice curb side collection.

- 1.To control the inflow, we are **using a vetting process**: a request form and approval.
- 2.Items are **dropped off or collected** for a donation or for free.

*Donors are our most loyal audience.

Repair & Redesign

We are building a community of mighty, courageous, and empathic individuals.

- Teaching the skills and **empower individuals**.
- Running **team building** experiences.
- Developing a Master Restorer (train the trainer) volunteer program.
- Rolling out paid classes.
- Implementing workforce development component.
- Supporting repair micro businesses and furniture flippers with technical support.



Circular Furniture Industry Support

Promoting furniture reuse by individuals and businesses. Empowering the circular economy to keep furniture in circulation longer in WA State.



Furniture flippers and solo-preneurs



Furniture industry small businesses

Workforce Development

Piloting workforce development component.

Training workforce in furniture restoration skills to be employed at FRB, small restoration businesses across WA, or start their own microbusiness.



Equitable access

We work with resettlement agencies, shelters, integration networks, and other orgs that **help** families and individuals **build new lives**.

We support **refugee** families, individuals getting out of **homelessness**, women fleeing **domestic violence**, and other people in need of timely and free help.



Our monthly impact



Bring back in circulation 4,000 lbs. of furniture



Prevent 2,100 kg of CO2e emissions



Empower individuals through hundreds of volunteers hours



Improve lives of 40 new WA community members

https://www.repairbank.org

Current needs



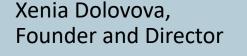
Funds for capacity dev

https://www.repairbank.org

Transportation

Reach out







xenia@zerowastewashington.org



www.linkedin.com/in/dolovova



Sodo, Seattle 1914 Occidental Ave S, Init C





Wrap up

Next meeting:

- Wednesday, July 10th, 2024
- Zoom: 9am to 11am (Pacific)
- Tour: to be determined

Tasks from today:

 Notes and slides from today will be posted to the EZ page next week.

