



“Hard To Handle” Materials

Moderator, Darla Arians (PSI)

Amanda Trinh, Product Stewardship Institute

Cameron Hodges, Recycle Colorado



Amanda's 'hard to handle'



Cam's 'hard to handle'



Darla's 'hard to handle'

*Let's hear
from you!*

Got a material you just can't solve?

- Write it down, toss it in the bin, and let it go – at least for now.



Activity Instructions

Table Discussion (10 minutes)

1. **Group similar materials.**
2. Identify your **top 3 hardest-to-manage** materials.
3. **Discuss:**
 - *Why is it difficult?*
 - *Is it a policy, infrastructure, market, or awareness **gap**?*
 - *What would help solve it?*



Gallery Walk (3 minutes)

Vote for the topics that need the most attention.



PRODUCT
STEWARDSHIP
INSTITUTE



RECYCLE COLORADO



Material Stewardship

Darla Arians, Director of Policy & Programs,
Product Stewardship Institute

Intro Activity Takeaways

Policy Gaps	Infrastructure Gaps	Other Identified Materials	Other Identified Materials
<ul style="list-style-type: none"> → E-waste → Vapes → Ski → Single Use Food Serviceware 	<ul style="list-style-type: none"> → E-waste → Vapes → Furniture + mattresses → Skis & boots → Single Use Food Serviceware 	<ul style="list-style-type: none"> → Empty tanks/CO2 → CDs and vinyls → Makeup and cosmetics → Tarps/ag waste/plastics → Pill bottles → Shoes → Hand & toe warmers 	<ul style="list-style-type: none"> → Shingles → Tires → Gopher gassers → Classroom materials → Paint related materials (PRM) → Snack wrappers → Broken drinking glasses → Helmets → Dog/kid chew toys → Used/scented wax

What *policy, infrastructure, market, or awareness* **gaps** exist for the other materials?

WHO IS THE PRODUCT STEWARDSHIP INSTITUTE?



Summit for Recycling - Westminster, Colorado - June 1st-3rd, 2026

ABOUT PSI

- **National nonprofit:** Over 25 years
- **Focus:** Consumer products and packaging
- **Members:** State & local governments (Board)
- **Partners:** Businesses, nonprofits, international governments, academic institutions
- **Collaborative problem solving through multi-stakeholder engagement**



PRODUCT CATEGORIES



Batteries



Carpet



Electronics



Gas Cylinders



HHW



Junk Mail



Mercury Thermostats



Lighting



Mattresses



Medical Sharps



Mercury Auto Switches



Motor Oil



Packaging & Plastics



Paint



Pesticides



Pharmaceuticals



Phone Books



Radioactive Devices



Refrigerant-Containing Appliances



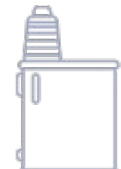
Solar Panels



Textiles



Tires



Vapes

What makes a material “hard to handle”?

Challenge

1. Policy Gap
2. Infrastructure Gap
3. Market Gap
4. Awareness Gap

Example

No clear responsibility, funding or regulatory framework

Collection, transportation or processing systems don't exist

No viable end market or economic drive

People don't know what to do, where to go, or why it matters

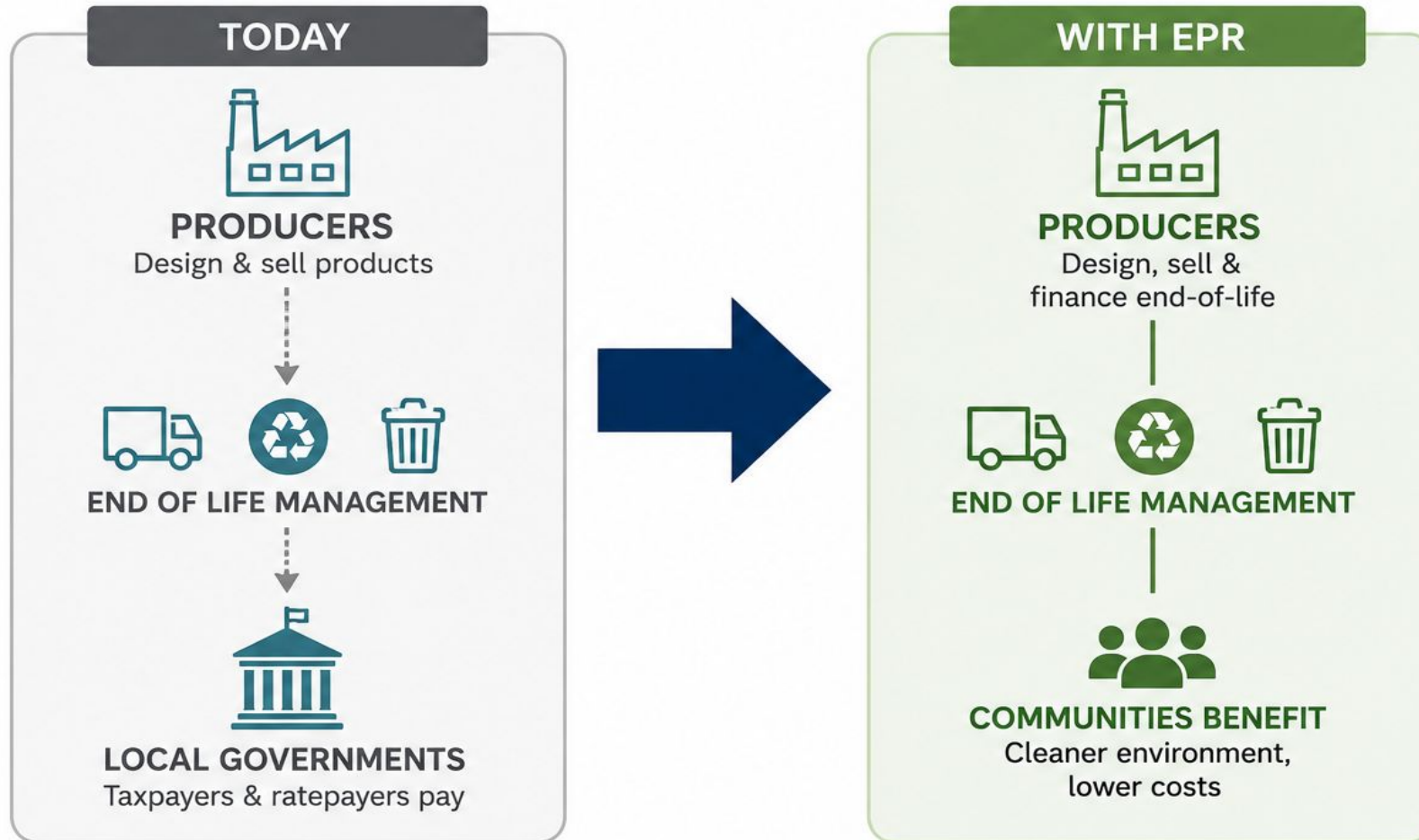
WHAT IS EPR?



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EPR: Shifting Responsibility

Who Pays for End-of-Life Management?



EPR aligns responsibility with product design, profit and end-of-life.

Why Care about EPR?

Local Governments

- Reduced financial burden
- Expanded collection opportunities

Recycling Systems

- Investment in infrastructure
- Improved material recovery

Residents

- More convenient & equitable access
- Clearer disposal options

Environment

- Increased reuse, recycling, and safe management

EPR is intended to help close policy, infrastructure, market, and awareness gaps.

EPR is one tool in the product stewardship toolbox – not the entire toolbox.



The Stewardship Spectrum

≡ *Many Paths. One Goal.* ≡

A continuum of approaches to ensure products and materials are **responsibly managed throughout their lifecycle.**



VOLUNTARY STEWARDSHIP

Industry-led and community-driven solutions



SHARED RESPONSIBILITY

Collaborative efforts between sectors



EXTENDED PRODUCER RESPONSIBILITY (EPR)

Producer accountability through policy and performance



Industry Commitments



Retail & Take-Back Programs



Community Initiatives



Reuse & Repair Solutions

Innovation • Flexibility • Partnership



Public-Private Partnerships



Cost-Sharing Arrangements



Pilot Programs & Innovation

Collaboration • Investment • Learning



Producer Funding



Performance Standards



Accountability & Transparency



Systems for Reuse, Recycling & Safe Disposal

Accountability • Outcomes • Continuous Improvement



ONE COMMON GOAL:

A more circular, healthy, and equitable future.



PRODUCERS



RETAILERS



COLLECTORS



RECYCLERS



GOVERNMENTS



COMMUNITIES



CONSUMERS

We all have a role to play.

Together, we make it work. ≡

Different approaches. Shared responsibility. Stronger outcomes.

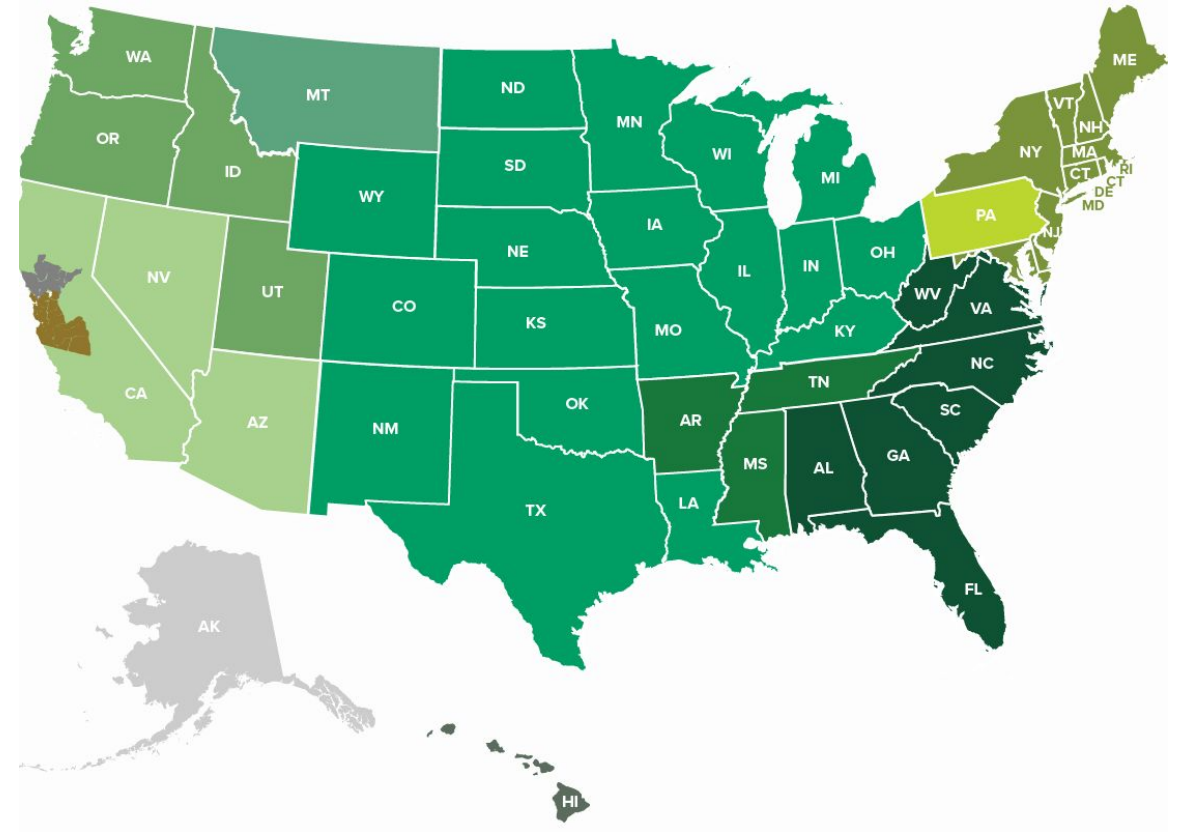
Voluntary Stewardship

- ★ Industry-led collection programs
- ★ Retail take-backs
- ★ Community partnerships
- ★ Reuse and repair initiatives

Examples:

- Ag Container Recycling Council pesticide container program
- Call2Recycle / The Battery Network (*also EPR*)
- early electronics take-back programs run by manufacturers

Voluntary Stewardship: Pesticide Containers



also Shared Responsibility in some states

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Shared Responsibility

- ★ Public-private partnerships
- ★ Cost-sharing arrangements
- ★ Grant-funded pilots

Examples:

- Tire fee programs
- Pharmaceuticals
- Vapes

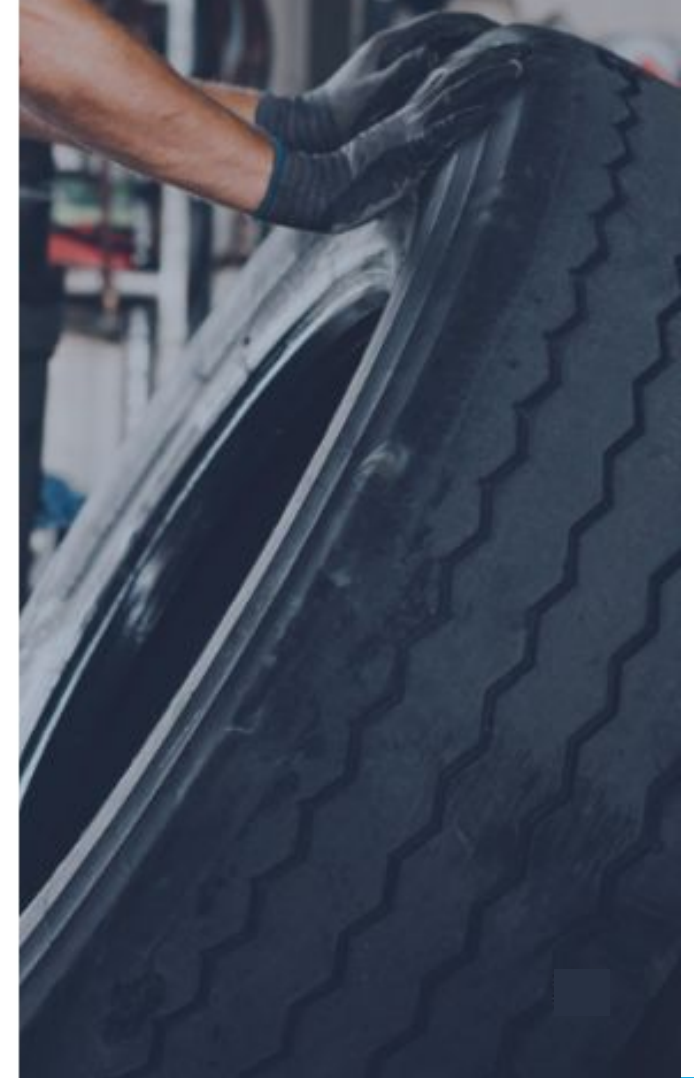
Shared Responsibility: Tires

35 states have mandated consumer fees that help clean up illegal tire dumps **BUT, unlike EPR**, these programs do not:

- Make recycling convenient and accessible statewide
- Encourage retread or recycling through performance goals
- Raise awareness about recycling/reuse/retreading
- Sustainably fund management of unwanted tires

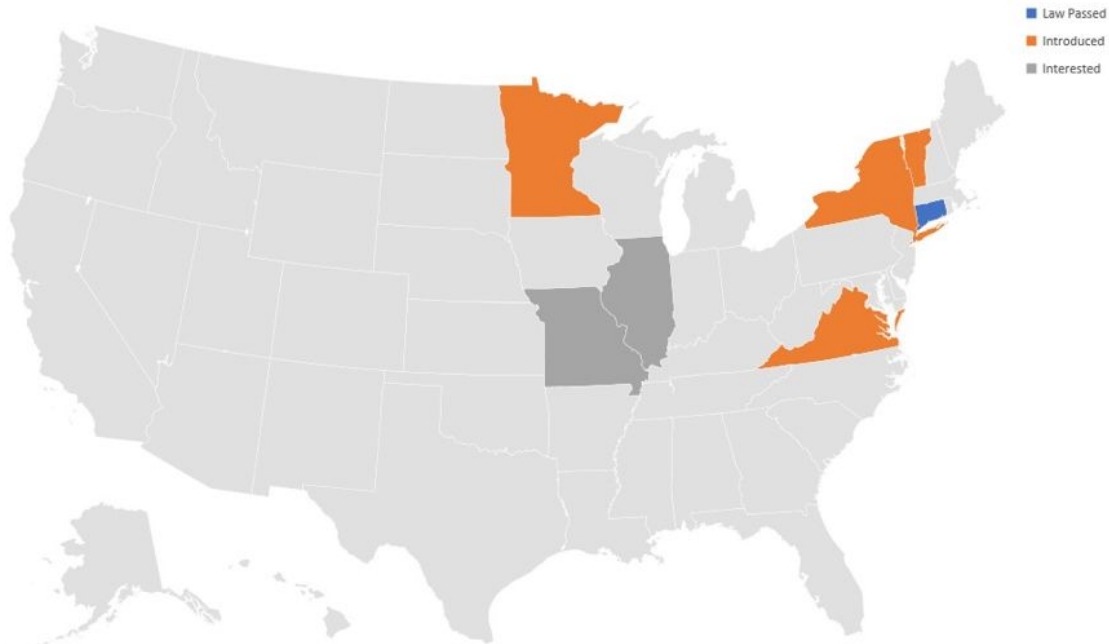
Across Europe and Canada, tire EPR has proven successful in

- Reusing, retreading, and recycling tires
- Creating jobs
- Reducing illegal dumping
- Creating sustainable funding for markets



Shared Responsibility: Tires

2026 Tire EPR Landscape

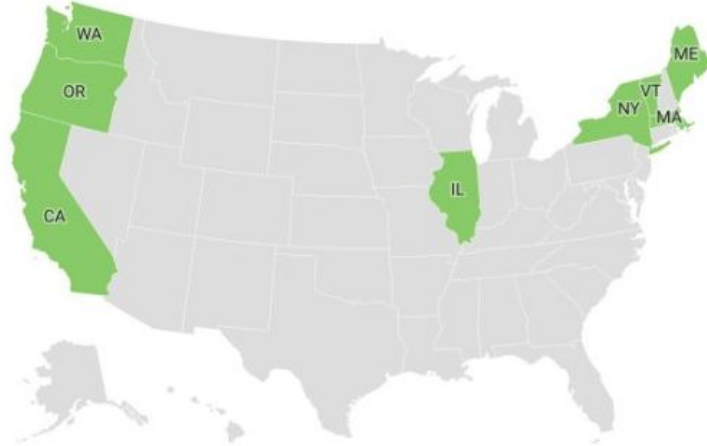


Shared Responsibility: Pharmaceuticals



Pharmaceutical EPR in the U.S.

8 State EPR Laws
23 Local Ordinances



State Pharmaceutical EPR Laws

■ 1

©Product Stewardship Institute



Extended Producer Responsibility

- ★ Typically producer-funded systems
- ★ State oversight
- ★ Performance standards
- ★ Accountability mechanisms

Examples in CO:

- PaintCare
- Packaging EPR
- Battery EPR

EPR: Batteries

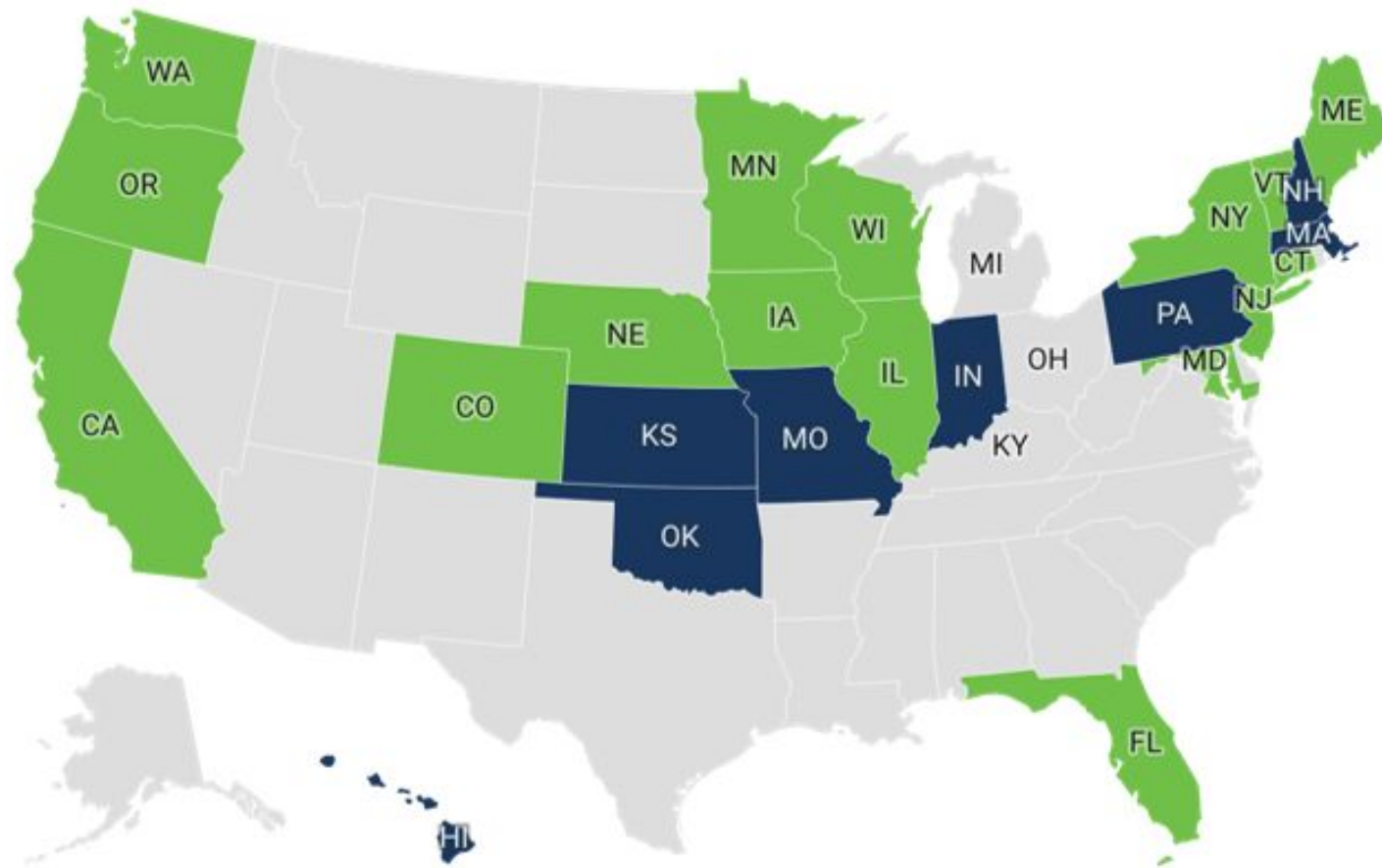
- 175 million pounds of batteries recycled
- 20,000 battery drop-off locations
- 87,500 tons of materials diverted



Batteries are an example of both voluntary stewardship and EPR.



BATTERY EPR LAWS & 2026 BILLS



■ Bill Introduced ■ Existing Law(s)

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This map shows EPR laws and bills that create a new program. Bills amending existing EPR programs are not represented.



EPR: Paint

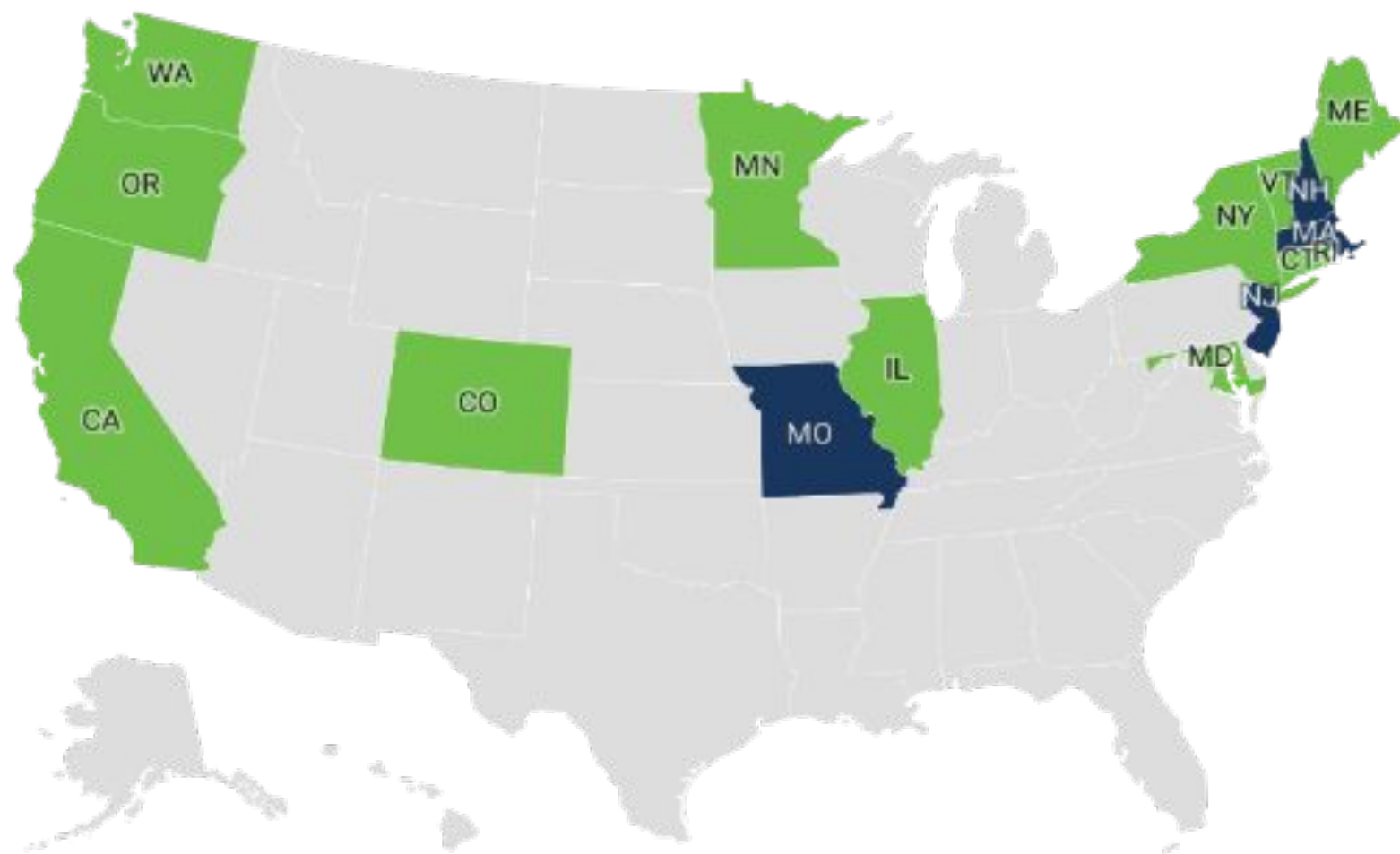
2003 – American Coatings Association (ACA) & Product Stewardship Institute (PSI) initiate three-year national stakeholder dialogue aimed at finding a solution to postconsumer paint management

2007 – Dialogue leads ACA Board Resolution, MOU and support for industry stewardship model solution

2009 - Oregon passes first paint stewardship law as a pilot

RESULT = consistent PaintCare framework for future states

EPR: Paint



Paint EPR Bills and Laws
■ Existing Law(s) ■ Active Bill

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This map shows EPR laws and bills that create a new program. Bills amending existing EPR programs are not represented.

Created with Datawrapper

THE PATH TO PAINT EPR IN COLORADO

A Timeline



Colorado's Stewardship Journey

- Retailer take-back partnerships
- HHW program expansion
- Local ordinances as policy incubators
- GIS mapping, data collection
- Supporting cottage recyclers
- Regional collaboration
- C3/STEPS funding
- CEDC partnership
- Complementary policies

Colorado's Stewardship Journey

COMPLEMENTARY POLICIES

- ✓ Bans (plastic bags, cups, etc.)
 - ✓ Bottle bills/Deposit return systems
 - ✓ Toxics in packaging
 - ✓ Labeling Laws
 - ✓ Post-consumer recycled content
- (and more)



DATA DRIVES STEWARDSHIP



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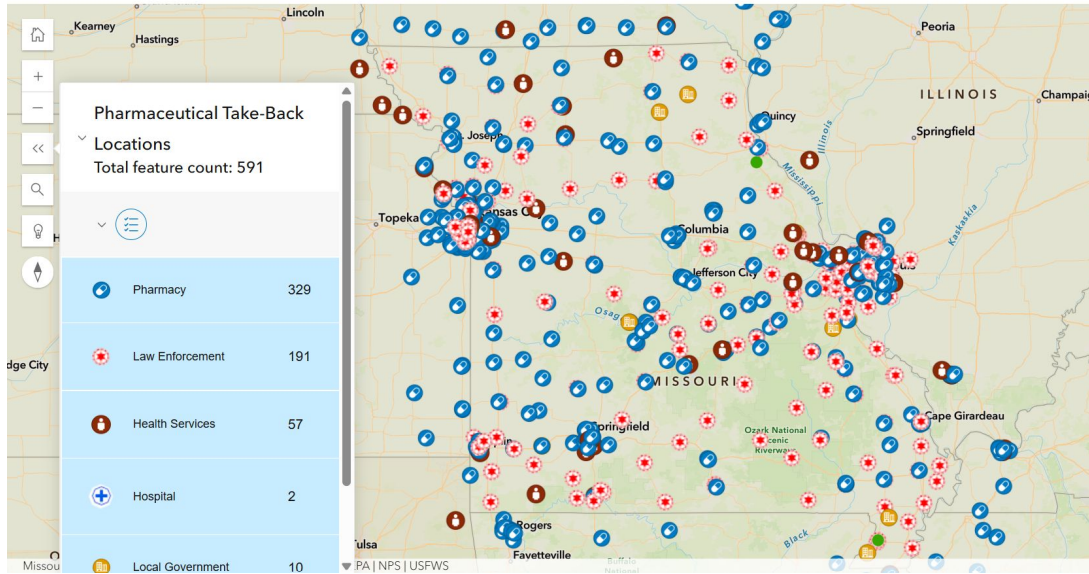
Data Creates Policy Opportunities

Questions:

- Where are collection gaps?
- Who lacks access?
- What are communities paying?
- Where are problem materials generated?

GIS Mapping & Data

Pharmaceutical Take-Back and Safe Disposal Locations in Missouri



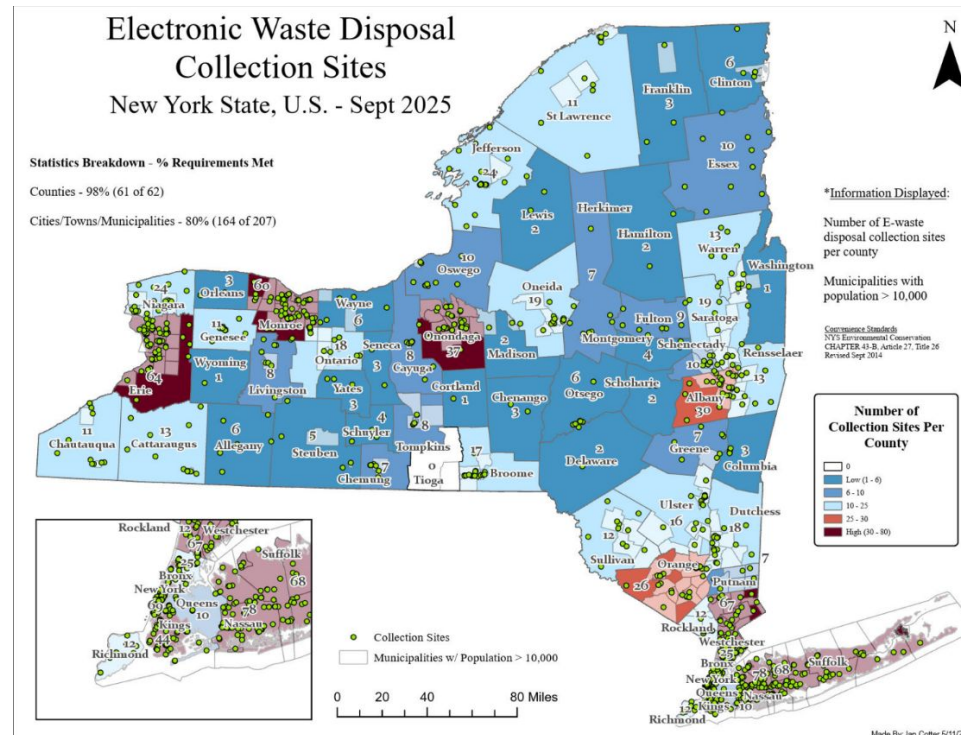
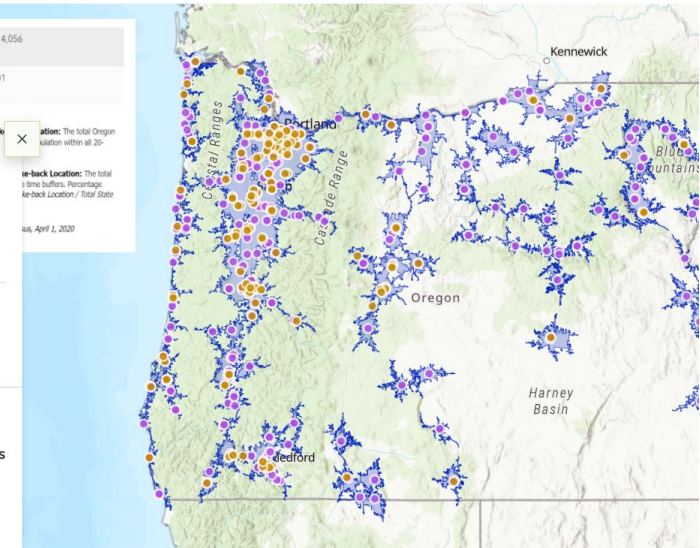
Pharmaceutical Take-back Locations

Drop-off Locations

Mail-back Locations

Census Block Group 20min buffer analysis

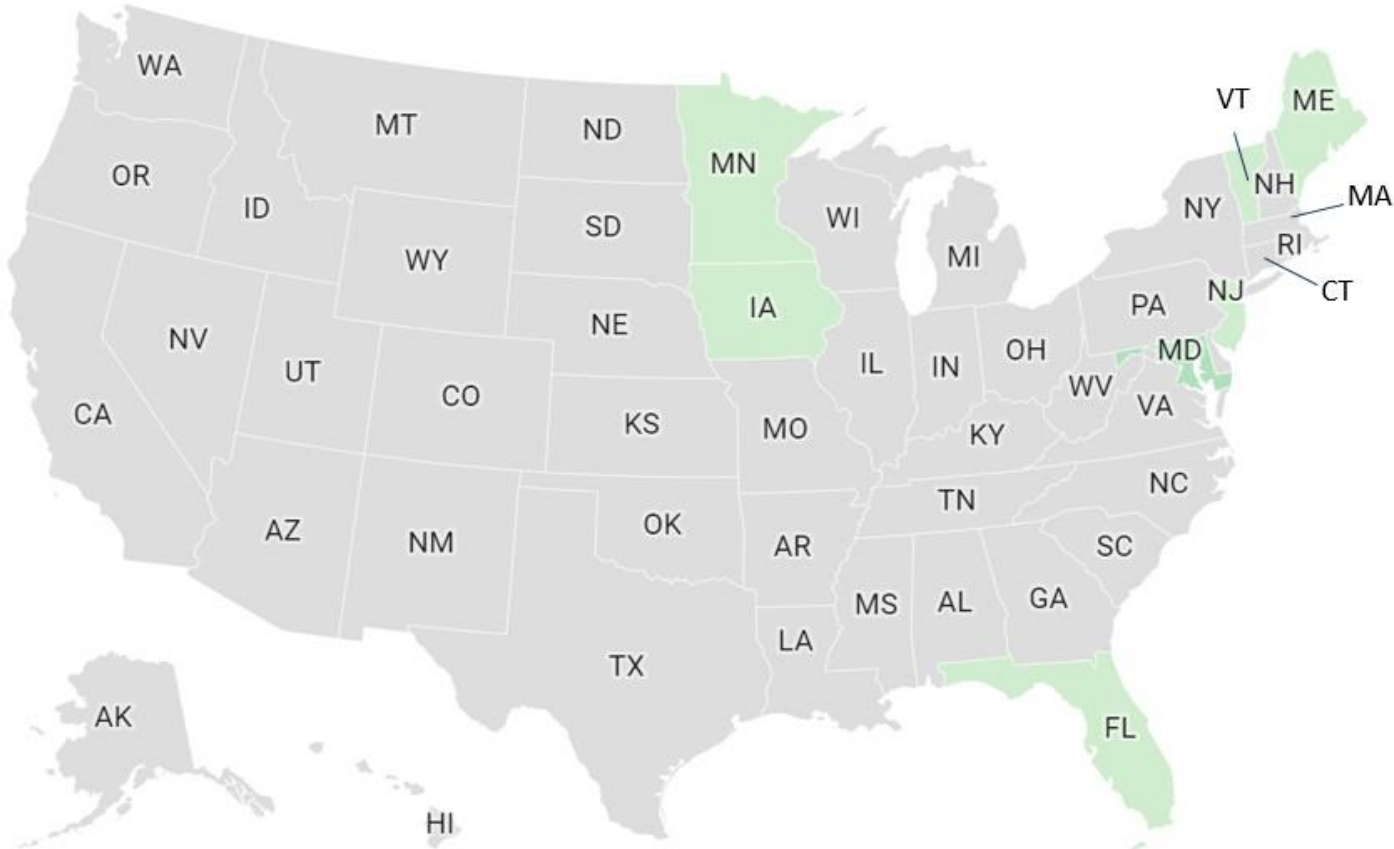
20-minute drive time: All Take-back Locations



EPR IN THE U.S.

U.S. EPR LAWS IN 2000

8 laws
1 product
7 states

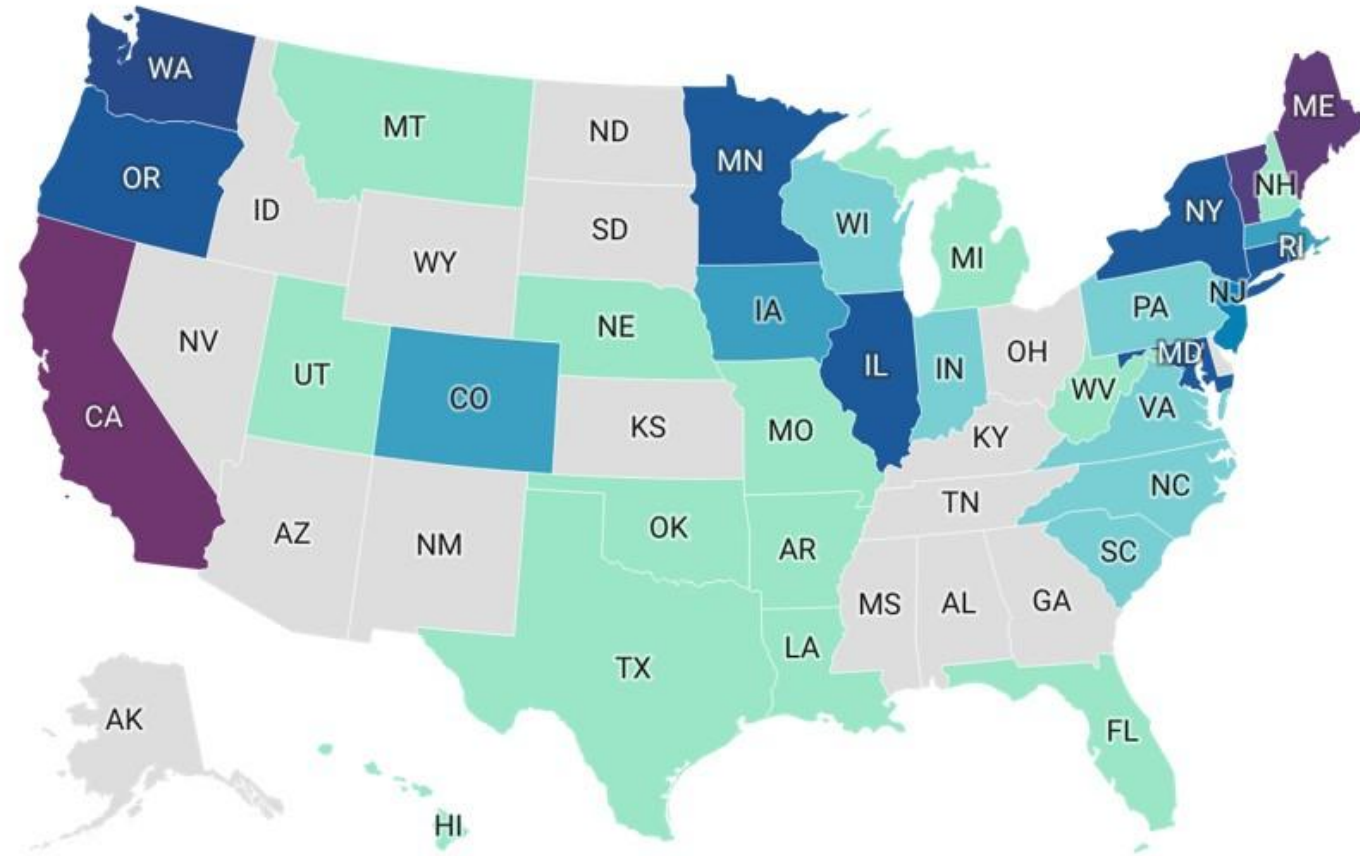


Number of State EPR Laws in 2000



U.S. EPR LAWS 2026

150 laws
22 products
33 states + D.C.

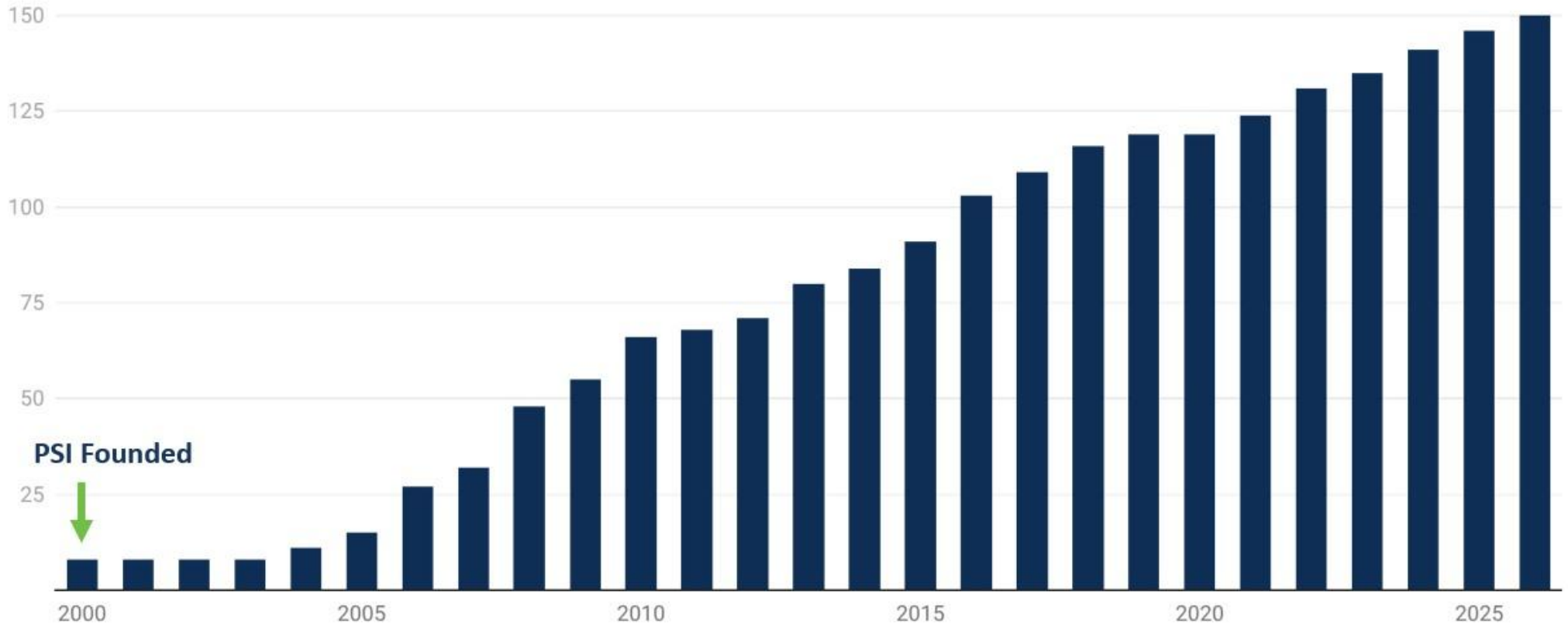


Number of State EPR Laws



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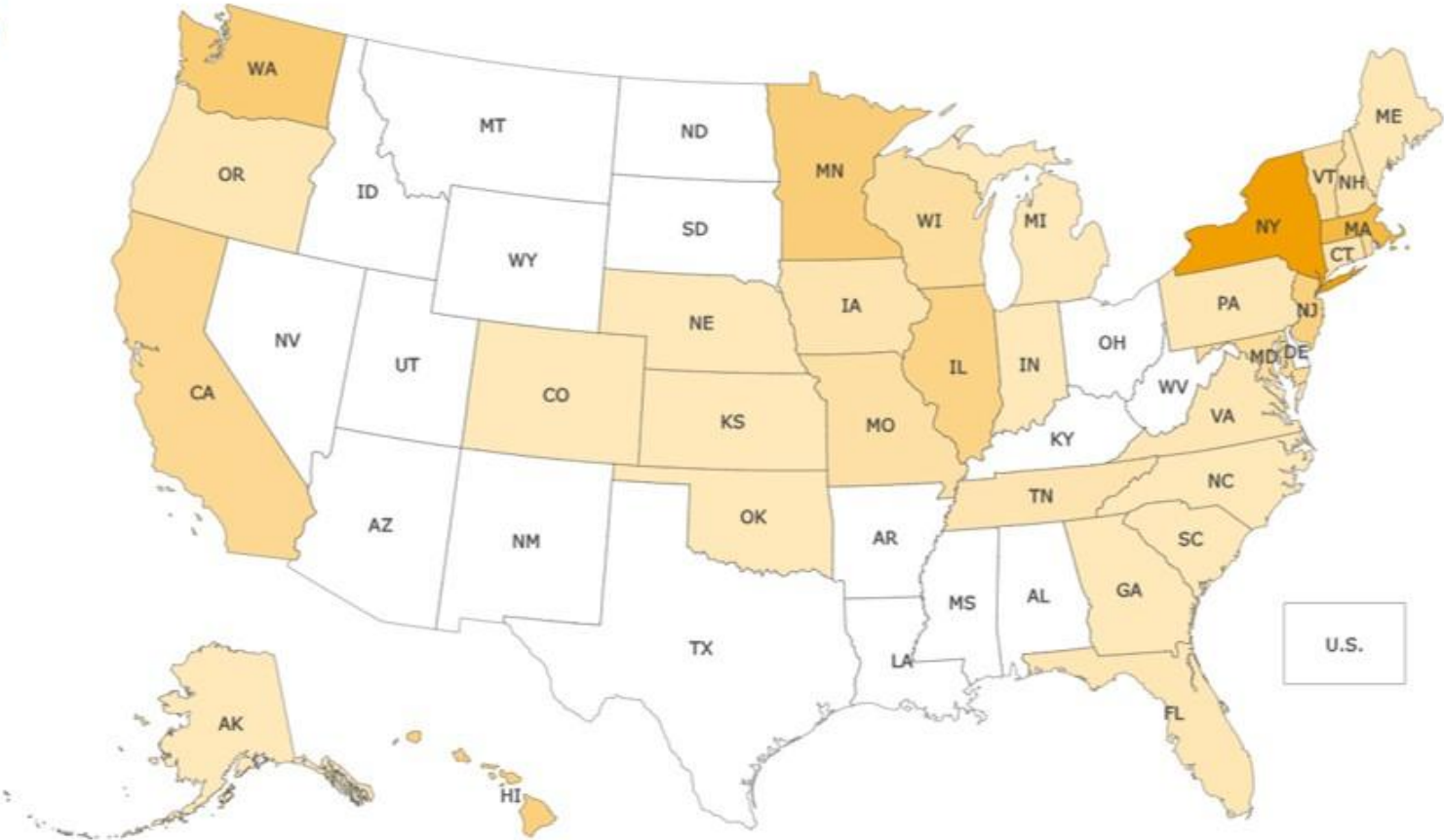
U.S. EPR Laws Since 2000



Created with Datawrapper

2026 EPR Bills

203 total bills
32 states + D.C.
22 product types



COLORADO CASE STUDIES



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Colorado Stewardship Examples

Material

Solution

Vapes

Community action before policy

Reuse

Goodwill: reuse as stewardship

Furniture

Market development & circular economy

Education

Education fills gaps

STEWARDSHIP TAKEAWAYS



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Takeaway #1

Hard-to-handle materials require:

- ✓ Partnerships
- ✓ Data
- ✓ Infrastructure
- ✓ Education
- ✓ Policy

Takeaway #2

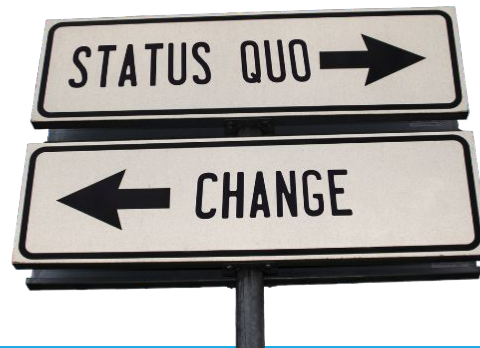
Communities don't have to wait.

Several Colorado organizations are already:

- Collecting
- Reusing
- Repairing
- Educating
- Innovating

Takeaway #3

Every successful stewardship program starts with someone deciding the status quo is not acceptable.



PSI Roadmap to EPR, Crash Course & Perspectives on Product Stewardship Book!



Packaging Roadmap October 2024

This document aims to equip PSI members with a consolidated roadmap of essential resources for packaging EPR. The primary objectives are to:

- **Highlight EPR resources available to you:** Provide easy access to key documents and reports all in one place that address various aspects of the packaging EPR process, offering insights into best practices, lessons learned, and model legislation.
- **Guide states through the legislative process:** Serve as a practical roadmap for states considering or actively working on passing packaging EPR legislation. The document offers resources that can be used as guidance while navigating the different legislative phases, from drafting initial proposals to implementation.

HOW TO USE THIS DOCUMENT:

This document summarizes all PSI resources available to our members. Each section builds upon the previous following the legislative process.

- Phase 1: Bill Development
- Phase 2: Bill Advocacy
- Phase 3: Implementation



PSI EPR Crash Course

<https://productstewardship.us/>

Want to learn more?

darla@productstewardship.us



PSI MEMBERSHIP - an EPR COMMUNITY



Peer Learning and Problem Solving

Through gov't only calls, Basecamp collaboration spaces, conferences, and workgroups



Track and understand EPR legislation

Through real-time legislative tracking and analysis across products and states



Educate your team

Through online and in-person EPR training, webinars, toolkits, research reports, and workgroups



Shape EPR Legislation

Through gov't-only calls and national policy workgroups



"PSI has been a super valuable resource There have been many times where we've gone to them about specific issues within a bill that legislators were concerned about and asked for insights on how that played out in other systems."

Waneta Trabert

City of Newton, Massachusetts, Member



Join online at

bit.ly/PSI-membership



bitly

PSI PARTNERSHIP



Market Intelligence

- Newsletter and news alerts
- Legislative tracking and online legislation library
- Webinars on trending topics
- Digital resource library
- Expert briefing calls



Business Development

- Promotion to PSI network
- Sponsorship opportunities
- Pilot programs and program evaluation
- Close communication with PSI staff



Strategic Alliances

- Centralized access to state and local governments
- Policy analysis and strategy
- Seat at the table for policy development
- National & global connections



Recognition

- Features in newsletter
- Social media campaigns
- Guest blog posts
- Logo recognition
- Events and networking



Join online at bit.ly/psi-partnership

VAPE STEWARDSHIP

Amanda Trinh, Associate for Policy & Programs,
Product Stewardship Institute



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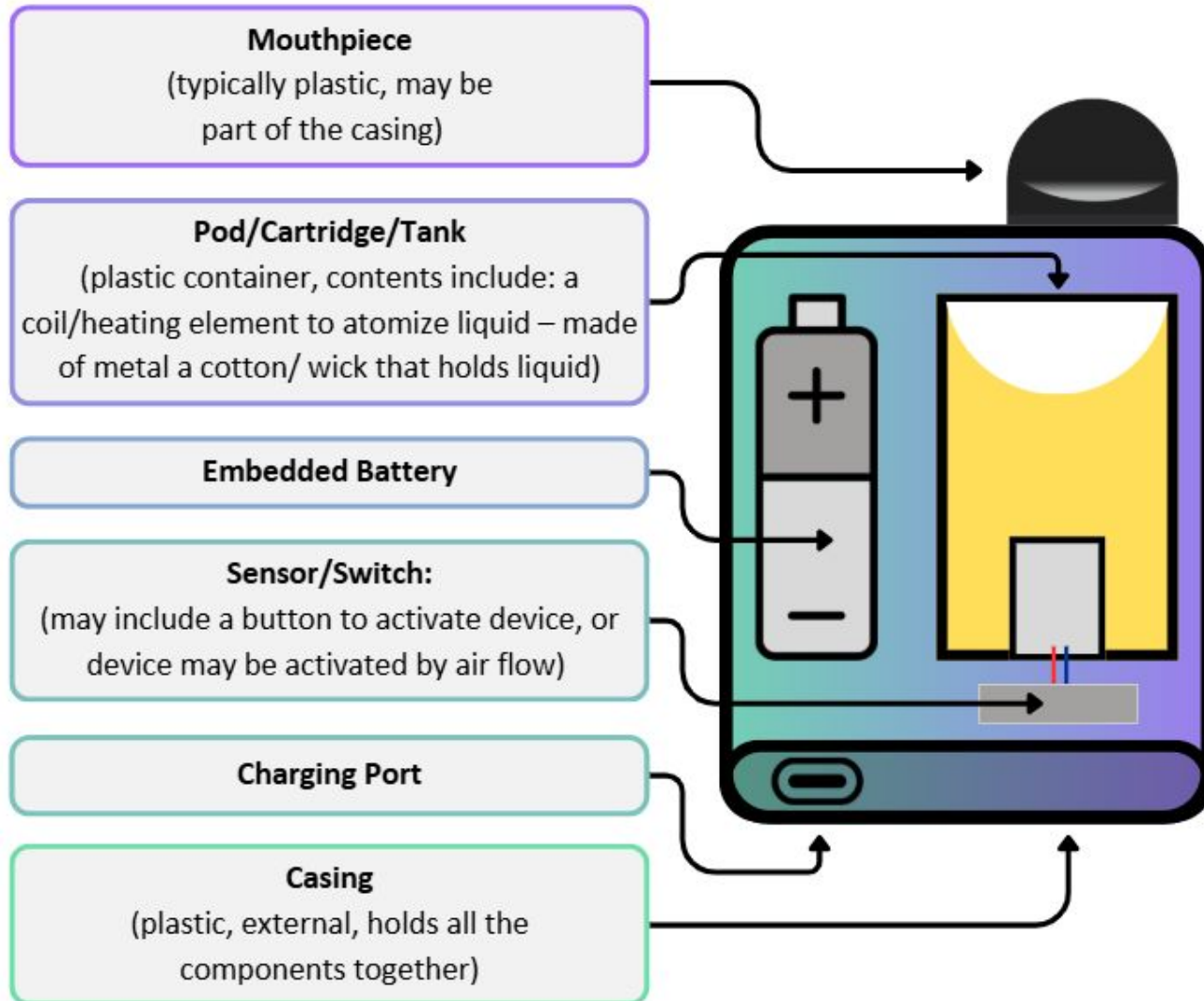


Vapes: Boulder County, CO - VapeAware program - vape waste collection

Local example of hard to manage material and what a local community is doing about it through community and retailer engagement, data collection & storytelling, and policy pursuits.

Vape Waste

The Problem



Vape Components:

- Lithium-ion batteries
 - Difficult to separate
 - Fire Hazard
- Nicotine/e-liquid
 - Acute hazardous waste
- Plastic
- Electronics & metals
 - Wires, circuitry

Disposable vapes are dangerous to take apart, making them hard to recycle or reclaim these different mixed materials, especially batteries

Vape Waste Challenges



- High rates of vaping
 - Growing volume of discarded vapes and e-cigarettes
 - Disposable vapes - popular & make up the majority of vape waste
- Lack of convenient and consistent collection, management, or disposal solutions
- Most consumers toss vapes
- High waste management costs burden schools and municipalities

Vape Collection & Considerations

- Vape components impact collection implementation
 - Nicotine
 - Battery
- Disposal vs recycling
 - Disposal = incineration, typically
 - Recycling = dismantle and separate components
 - E-waste recycling
 - Nicotine reclamation
 - Who?
 - Cost
- In other states: regulatory considerations impact collection implementation (EPA, local environmental agencies & regulations)
- **THC!!!**



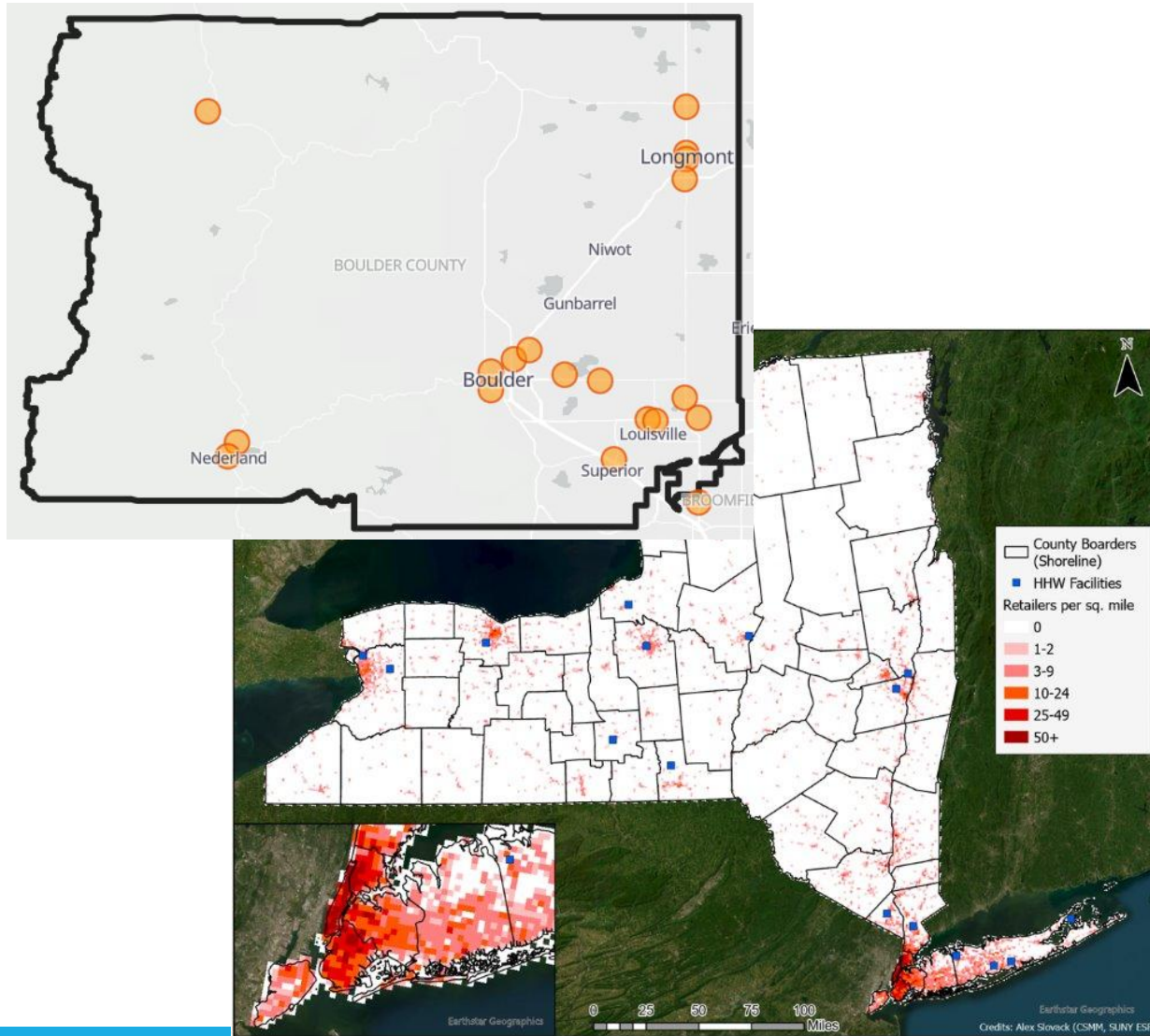
Vape Collection & Considerations

Schools - Collection Difficulties

- Collection vs confiscation
 - Tobacco Free Schools policy
 - THC
- Nicotine
 - 2.2lb collection limits for acute hazardous waste
- Expensive disposal costs
 - ~\$20/lb, maybe even more now
- Vapes being flushed
 - indirect cost to fix damages from vapes
- Safety concerns
- Education of staff



Vape Collection & Considerations



Consumers - Collection Difficulties

- Infrastructure - HHW, locations of collection
- Safety in community
- Regulatory considerations: oversight, transportation, containers
- Who incurs cost?
- Education

Vape Collection & Considerations



Other considerations:

- Program staff
- Supplies: containers, PPE, bags, labels, educational materials,
- Processing of vapes
 - Data, sorting, staff time & training
- Disposal vs recycling
 - Disposal: incineration (typically)
 - Recycling: separate components
- Vendors
 - Incinerator: Veolia (for example)
 - Recycling: electronic recycler, nicotine reclamation
- Expensive!
 - Funding and long-term or sustainable funding

VAPE COLLECTION IN BOULDER COUNTY

What they have accomplished over the years



Boulder County, CO - VapeAware

- Collection
 - Schools - confiscated vapes
 - Consumers - community based collection sites (shops, community organizations, HMMF)
- Processing
 - Boulder HMMF
 - Sort vapes, data collection, ships for end-of-life management
- End-of-life
 - Incineration - Veolia
- Funding
 - Local tax dollars made into grant → State Grants & General Fund

VapeAware

- Program Growth

- 224% increase in pounds of vape product waste collected from 2023 to 2025.

Year	# of Devices	Costs
2023	7,700+	\$5,000+
2024	13,100+	\$10,000+
2025	18,000+	\$17,500+

- Data is valuable

- Quantitative - shown through numbers
- Qualitative - shown through pictures, stories, process improvements, maps, etc.

VapeAware

- Community engagement & education
 - Vape shops = good guy!
 - Community events & education
 - Story telling
 - Fires
 - Social media campaigns and posts
- Collaboration
 - Partnerships
- Resources - **available to share!**
 - Toolkits for schools
 - Disposal guides for schools
 - Educational materials
 - One-pagers
 - Customizable fact sheets
 - “Build your own program” guide

POLICY

Sustaining a Vape Collection Program



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LOCAL POLICY OPTIONS EXPLORED

POLICY TYPES

Prohibits certain vape products, reducing use & waste.



Bans

CHALLENGES

- Creates enforcement costs for local agencies.
 - Does not fund cleanup or disposal of existing waste.
 - May lead to illicit or cross-border product sales.

COMMUNITY IMPACTS

- Reduces overall vape waste generation.
 - Lowers fire & litter risks in public areas.
 - Promotes prevention & behavior change.

Adds a sales tax on vape products to fund collection & disposal.



Consumer Fees (Tax)

- May require voter approval.
 - Must be updated for inflation & changing costs.
 - Could raise equity concerns if fees burden low-income consumers.

- Generates local revenue for disposal & education.
 - Expands access to drop-off & recycling programs.
 - Encourages responsible purchasing behavior.

Requires retailers to pay an annual license fee that supports waste management.



Retail License Fees

- Potential retailer opposition to new fees.
 - Administrative cost for setup & oversight.
 - Possible unintended equity or compliance impacts.

- Provides stable funding for collection & outreach.
 - Supports consistent education & fire-prevention efforts.
 - Builds accountability across retail networks.

Producers fund & manage vape waste collection & recycling systems.



Extended Producer Responsibility

- Limited U.S. precedent for vape-specific EPR programs.
 - Enforcement & coordination can be complex locally.
 - Requires strong producer participation & oversight.

- Shifts cost from local governments to producers.
 - Improves access to safe, convenient drop-off programs.
 - Reduces environmental & fire hazards long-term.

Policy Horizon

- **Tobacco Retail License (TRL)**
 - Best practice tobacco control policy for youth prevention - pathway to stop underage sales from the source
 - Accountability for retailers
 - Expanded youth protections
 - Community coalition in a local Boulder municipality - driving force behind policy
 - Youth led & youth-focused coalition
 - Youth concerned with vape use in schools

Policy Horizon

- **Vape Product Waste Fee Addition to TRL**
 - Creates dedicated funding to cover disposal costs, allowing the program to continue without straining the county budget and relying on grants to cover costs
 - Cover costs of VPW management and adjust for future cost increases
 - Ensures money paid into the program goes towards other materials
 - Creates sustainable funding for the program
 - Bonus: Encourages retailer accountability and aligns with Extended Producer Responsibility (EPR) principles.

Policy Horizon

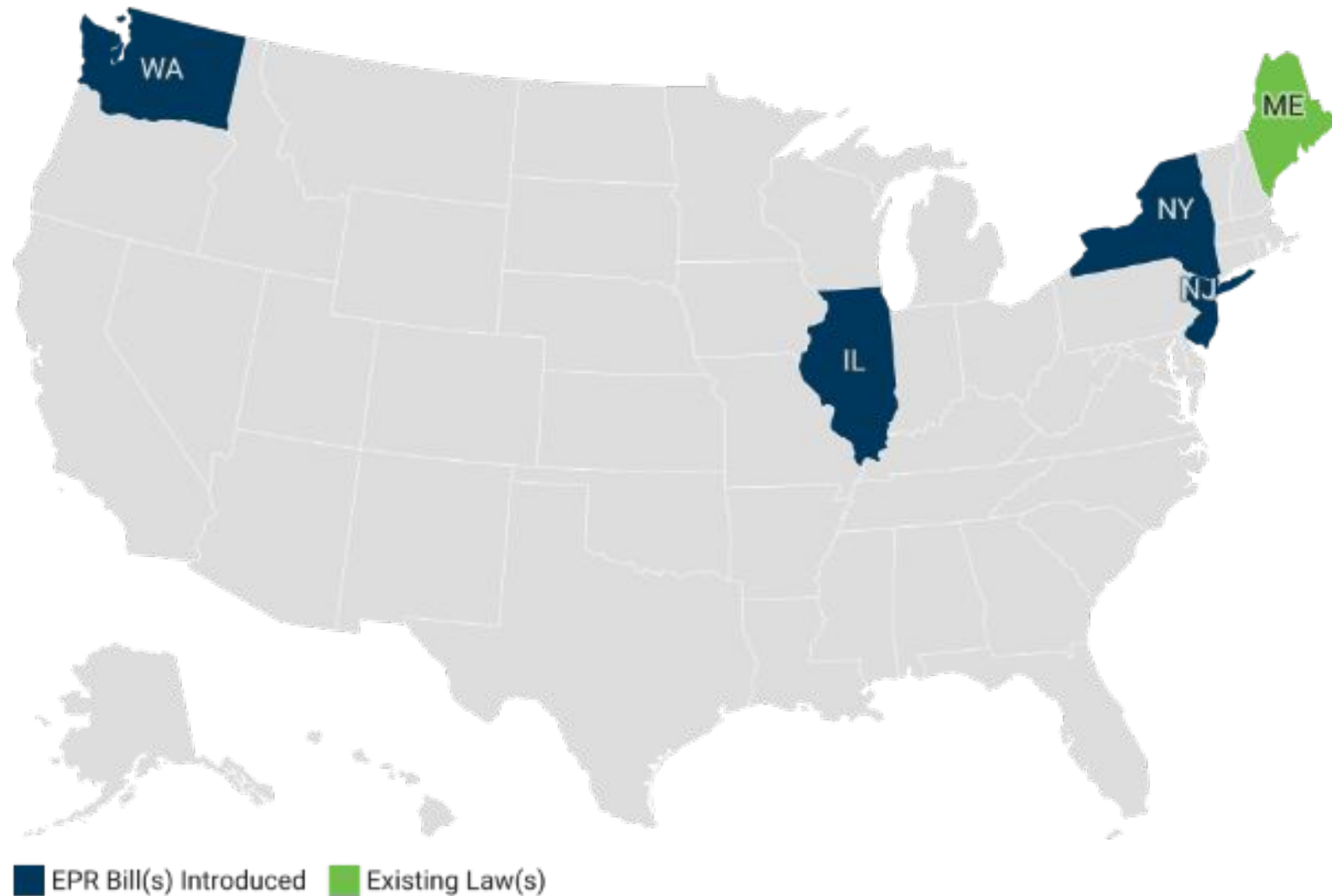
Alternative opportunities

- **Local Ban:**
 - Prohibit single-use or flavored vapes
- **Tax:**
 - Required disposal tax on all vape
- **Battery law alignment**
 - Some states have included and tried to include embedded batteries in their battery EPR laws
- **EPR Legislation:**
 - Shift responsibility to manufacturers.

VAPE EPR IN 2026

1 law enacted

6 bills introduced



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This map shows EPR bills that create a new program. Bills amending existing EPR programs are not represented.

Created with Datawrapper

What can communities do now?

- Interested in starting a program?
 - Find partners
 - ex: PSI, health department, local tobacco programs, coalitions, schools, community organizations, health care providers, waste/materials management, vape shops
- Understand infrastructure and opportunities
 - Needs/Community Assessment

- Collect data along the way through every phase
 - Quantitative: numbers, costs, trends (tables, graphs), infrastructure (GIS), etc.
 - Qualitative: interest, stories, pictures, concerns, champions, etc.
- Educate
 - Community
 - Organizations
 - Change makers

Advocate

What can communities do now?

- **Interested in a pilot program?**
 - Talk to us!
 - PSI is partnering with several state and local governments to secure grant funding and assist with vape pilot collection buildout, launch and execution

PSI is offering statewide tobacco product waste technical assistance through CDPHE's STEPP grant program beginning July 1, 2026.

Q&A

Thank you!

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Amanda Trinh, Policy and Programs Associate - Vapes

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Product Stewardship Institute

- www.productstewardship.us



A vertical graphic on the left side of the slide featuring a bright, jagged lightning bolt striking downwards against a dark, stormy background.

Lightning Rounds!

1. **Goodwill**, Brian Robinson
2. **Azure**, Ryan McDonough
3. **Upcycled Skis**, Bridger Neimeyer
4. **Mile High Workshop**, Adrienne Tafilowski

Goodwill of Colorado

*Recycle Colorado Summit
June 2026*

Brian Robinson
Sustainability, Salvage & Recycling Manager



Goodwill
of
COLORADO



Getting to work with a team like that...



Class of 2025 Excel Center Graduate

About Goodwill of Colorado

- **Presence in Colorado since 1918**
- **3,410 team members statewide**
- **More than 20 community impact, education and job training programs**
- **Served 143,000 individuals in local Colorado communities last year**
- **In 2025, diverted 145M pounds of donated items from local landfills.**

The Excel Center

The Excel Center is Colorado's first, tuition-free high school for adults age 22+

We offer free drop-in childcare, transportation vouchers, career coaching, and access to micro-credential certification programs

Since The Excel Center's inception in August 2024, we have enrolled more than 250 students



Karla Grazier (right), President and CEO, Goodwill of Colorado, with Excel Center graduate

Goodwill of Colorado's Reuse Model



Our reuse model is a circular system that takes donated goods, maximizes their value through reuse and resale, and uses the revenue to fund our mission programs.

E-commerce & Retail Stores

Outlets/Salvage

Housewares and Toys, anything reusable

Shoes, Bags & Accessories

Textiles & Linens

Books and Media

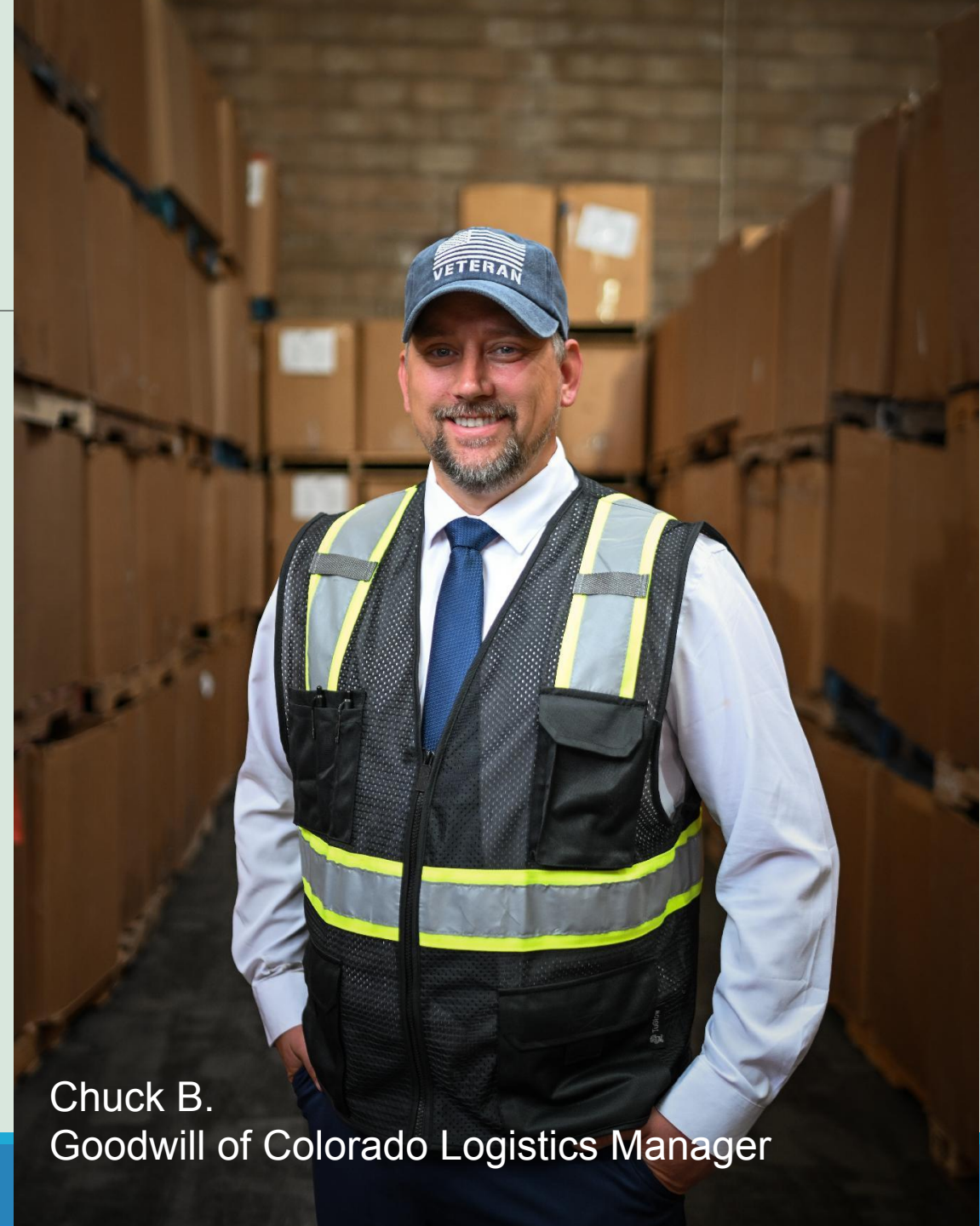
Goodwill of Colorado's Recycling At-a-Glance

Nearly 2B pounds of donated items received,
recycled or repurposed in the last decade

490 tons of e-waste diverted from landfills in 2025
through our Dell Reconnect partnership

Goose/duck down recycling via Tersus Solutions

Rigid plastics recycling with Direct Polymers and
Dell Reconnect



Chuck B.
Goodwill of Colorado Logistics Manager

Upcycling Partnership with Colorado Ski Furniture

Goodwill of Colorado partners with Colorado Ski Furniture

We divert unsold ski gear which they upcycle into decorative signs, chairs, and other furniture

2024 - 31k lbs.

2025 - 24k lbs.



PROBLEM MATERIAL: FURNITURE

- **Why is furniture a problem?**
- **Estimated 40% of our waste stream.**
- **Furniture can be composed of multiple materials**



PROBLEM MATERIAL: FURNITURE

- **Successes**
- **Low cost bulk loads sold**
- **Local Couch Farm**
- **Fulfillment for re-entry/low income housing**
- **Collaboration with some local used furniture stores**



PROBLEM MATERIAL: FURNITURE

- **Gaps/Needs**
- **More potential outlets for used furniture**
- **EPR?**
- **Any ideas?**





Goodwill of Colorado Outlet
Team Member

**Thank You!
Questions?**



Lightning Rounds!

**Mile High Workshop,
Adrienne Tafilowski**



Mile High Workshop

From Waste Stream to Workforce Pipeline

Adrienne Tafilowski

A woman with long grey hair and a man are working at a wooden table in a workshop. The table is covered with various colored fabric scraps and tools. The woman is on the left, and the man is on the right, looking down at the work. The background is a bright, open workshop space with other people visible in the distance.

WHAT IF

**waste streams
could also
become**

**PATHWAYS TO MEANINGFUL
OPPORTUNITY? 🌱**



“

Our **mission** is to create **employment** opportunities and provide **job -training** for members of our community seeking to **rebuild their lives** from addictions, homelessness, and after incarceration.



(RE)NEW SEW SHOP



CANVELLE





POLYESTER | VINYL | POLY-CANVAS





2015-10-10

All-Plastic

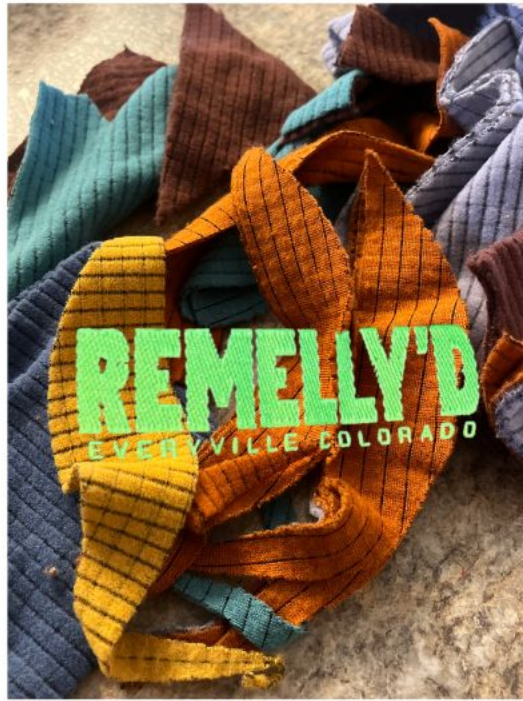
Large Pocket

medium Pocket

Front

OUTDOOR WATER

NEW AMERICA



HUMAN INVOLVEMENT IN TEXTILE RECYCLING

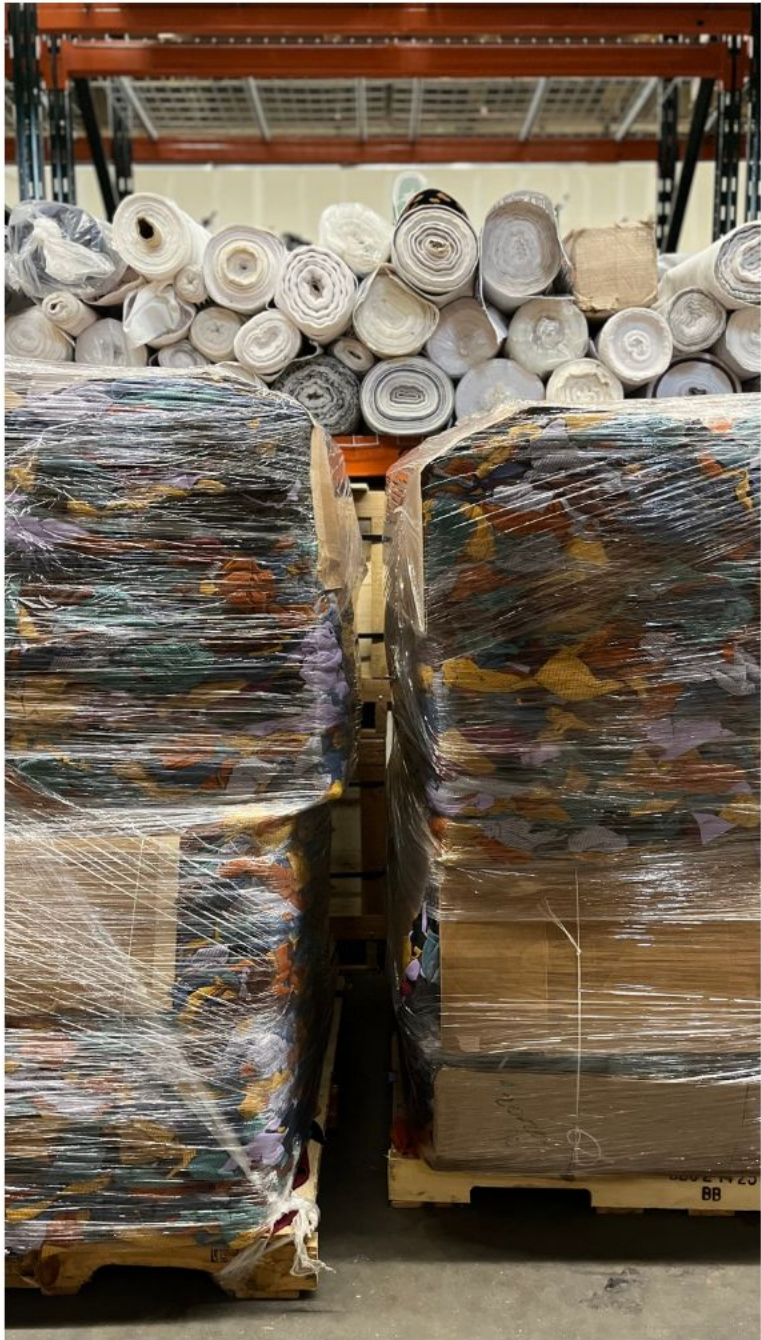


Rachel Ceruti, 2025
[FabScrap](#), Brooklyn NYC

STEP	MECHANICAL RECYCLING	CHEMICAL RECYCLING	AUTO-MATION	HUMAN INVOLVEMENT
Collection & Sorting	Collect post-consumer or industrial textile waste		Low	Humans sort for various streams. Most automated sorting still needs manual verification
Pre-Processing (Deconstruct)	Remove all non-fabric materials (buttons, zippers, elastics, plastic, paper, metal, adhesive, etc.)		Low	Humans cut, peel, and handle fabric to maximize yield, while machines struggle with precision
Shredding / Cutting	Shred fabric into fiber	Shred fabric into fiber for feed	Medium	Humans feed machines, monitor fiber quality
Fiber Separation	Fibers pulled apart mechanically	Fiber dissolved in a chemical solvent	Medium	M: Humans inspect samples and tweak machines C: Humans monitor for quality
De-contamination	Physical cleaning at surface-level (washing, beating, or air-cleaning)	Remove impurities at molecular level, leaving nearly pure polymers	M: Medium C: High	Humans supervise machines, chemical handling, safety, and filtration









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Lightning Rounds!

Azure,
Ryan McDonough



Ryan McDonough
ryan@azurefurniture.com
(303) 399-3750



Giving Colorado's Urban Trees A Second Life

Sustainable utilization of threatened urban trees



The EAB Crisis

Emerald Ash Borer

An invasive beetle destroying ash trees across North America — now spreading through Colorado's urban canopy.

What happens to removed trees today?

- Landfill
- Wood chipper
- Burn pile

Thousands of mature trees lost each year — most of it wasted.



The Scale of the Loss

Colorado's Urban Trees

Decades of investment in city canopy — shade, air quality, beauty — now under threat.

Current Trends

- Rapid EAB spread along the Front Range
- Municipal removal programs scaling up
- No coordinated utilization strategy

There is a better path.

What We're Building



Tree-to-Product Traceability

Zip-code level sourcing so every piece of furniture tells a story. Tons of challenges to urban milling requiring strong partnerships with local arborists, sawmills, kiln operators, craftsmen, local foresters, and home-owners.



Marketable Local Products

Furniture and goods crafted for Colorado communities using local resources and craftsmen. Azure has a line of residential furniture as well as a vast portfolio of commercial and hospitality clients.



Workforce & Small Business Development

Training programs that build local skills in carpentry, fine woodworking, safety & equipment trainings and job placement. Attempting to recover some value back into our communities through the skilled trades.

Recent Work & Completed Projects



Odell Brewing

Fort Collins, CO

Emerald ash wood is now incorporated across 30+ new dining and taproom tables. Client saw significant savings compared with the White Oak originally specified



One River North

Denver, CO

High-end residential development features a custom Emerald-Ash reception desk. At 10' long and sourced with regional trees, agents have a stunning way to connect residents to Denver's urban forest



LoHi Gold

Denver, CO

The main lobby and common areas now sport Emerald Ash, stained to match their existing finishes. Community areas now have a story about true commitment to local resources and craftsmen

HAPPENING NOW



Aurora Urban Wood Project

*Tree removal
underway now*

Live on the Ground in Aurora

What's Happening

Municipal ash tree removal — Trees coming down now in Aurora (*Summer Lake*)

Our Role

Azure is partnering with a local tree removal company and sawmill to recover, mill, and process this urban timber that would otherwise be chipped or landfilled

What Comes Next

Milled lumber will be dried, graded, and turned into finished furniture products for the Aurora community.

Why It Matters

A model for how Colorado cities can handle the EAB crisis — and keep value local.



Lightning Rounds!

**Upcycled Skis,
Bridger Neimeyer**



Upcycled Skis

Bridger Neimeyer

THE CHALLENGE

Why Skis are Difficult to Recycle



Skis are built to never come apart

Materials are permanently bonded



No scalable reuse pathways

There are no efficient systems to reuse or separate the components



Landfill or garage

Without viable alternatives, most skis end up as waste

6 MILLION

estimated pairs of skis are manufactured annually

Skis are engineered against delamination and contain multiple layers of construction:



UHMW-PE (P-tex)
Base



Wood



Fiberglass
Reinforcement



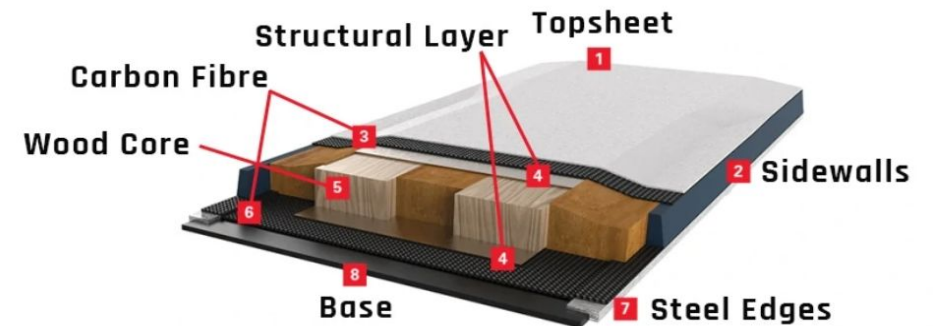
Carbon Fiber
Strength layer



Hardened Steel
Edges



Dye-Sublimated Nylon Topsheets



THE OPPORTUNITY

Why Skis are the Perfect Materials for Reuse



Engineered for Safety

Skis are engineered composites built to safely transport people over very difficult terrain



Failure Modes

Fatigue

- Cyclic loading breaks down internal bonds and fibers; creates “dead” ski

Fracture

- Ski bases and edges damaged by rocks, trees, etc
- Allows moisture ingress



Structurally Solid

Skis rarely critically fail due to fatigue; the structural integrity remains mostly intact

This makes skis excellent feedstock for upcycling programs



THE GAPS

Current Methods to Mitigate Ski Waste



Current methods are ski-forward and only appeal to limited markets

- Ski chairs
- Shot skis
- Coat racks
- Ski lamps



Ski manufacturers are taking initiative to help reduce waste

- Take-back programs
- Bio-resins
- Recycled plastics



However, there's still no scalable, upcycled product that exists to appeal to the **general consumer**, not just the skier demographic



THE SOLUTION

A Light for Everyone

The DOE estimates that the average number of light bulbs in an American household is

67.4

8.1B total

Turning retired skis into sustainable light:



Waste Reduction

Diverts a significant amount of waste



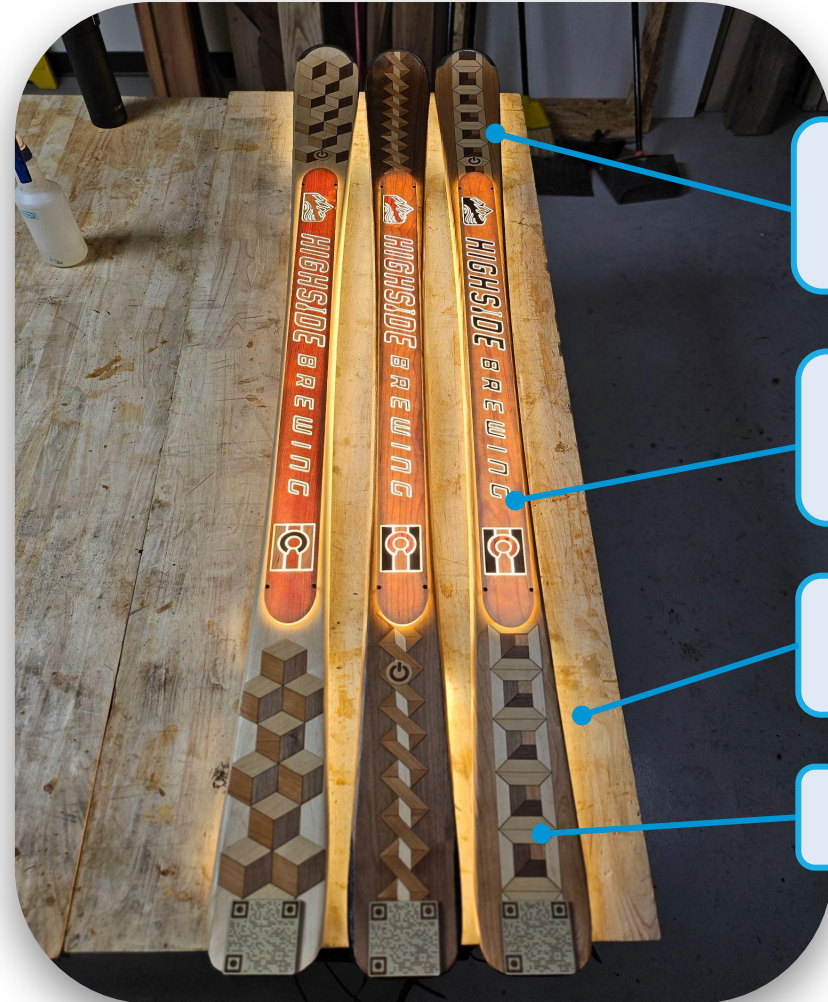
Functional Lighting

Creates high-quality, warm alternative lighting fixture



Local Manufacturing

Handmade in Colorado with locally sourced materials



Reclaimed skis used as the structure of the lighting fixture

Salvaged TV's used for backplates, diffusers, and lenses

Energy efficient, low voltage Class 2 LED lighting system

Renewable wood veneer parquetry

THE PROCESS

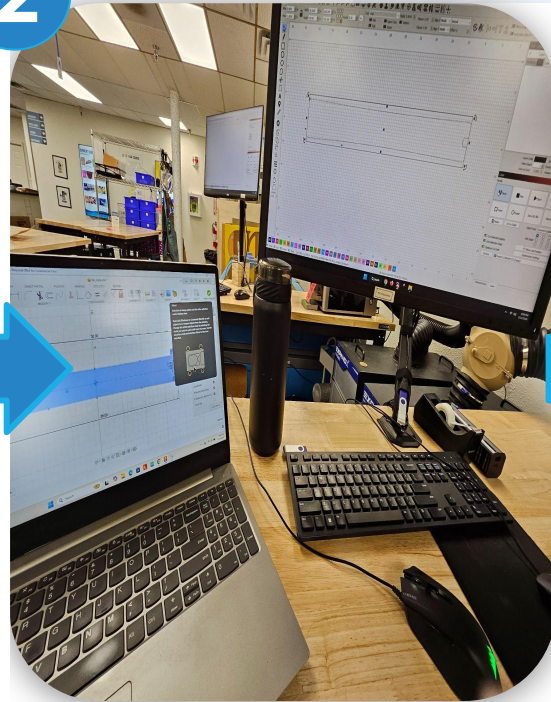
How It's Made

1



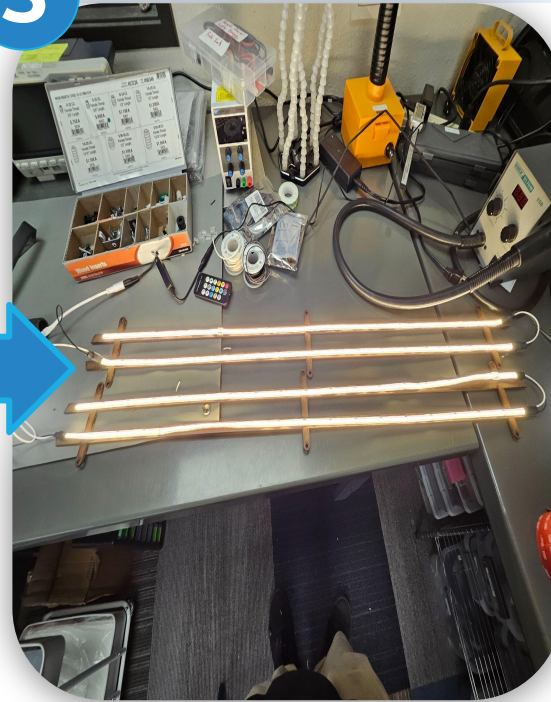
Skis and TV's are salvaged

2



CAD designs and laser programming

3



Installation of electronics

4



Veneer is cut and applied

Summit for Recycling – Westminster, Colorado – June 1st-3rd, 2026

THE MOMENTUM

What's Been Accomplished



Industry Engagement

Strong partnerships and community support



Product-Market Fit

Sold early prototypes and generated strong public interest, validating real demand



Multi-Waste-Stream Integration

Expanded beyond skis to include e-waste



Circular Economy Proof-of-Concept

Demonstrated a viable and scalable alternative reuse pathway for ski-waste and e-waste

THE FUTURE

Scaling the System



0

Collection Infrastructure

- Drop-off programs with resorts and ski shops
- Partnerships with municipal waste programs
- Partnerships with local donation centers (Goodwill)

02

Support for Small Circular Businesses

- Certification guidance
- Startup funding
- Small-scale manufacturing support

03

Consumer Awareness

- Visibility
- Public-facing reuse programs
- Data on consumer interest in design

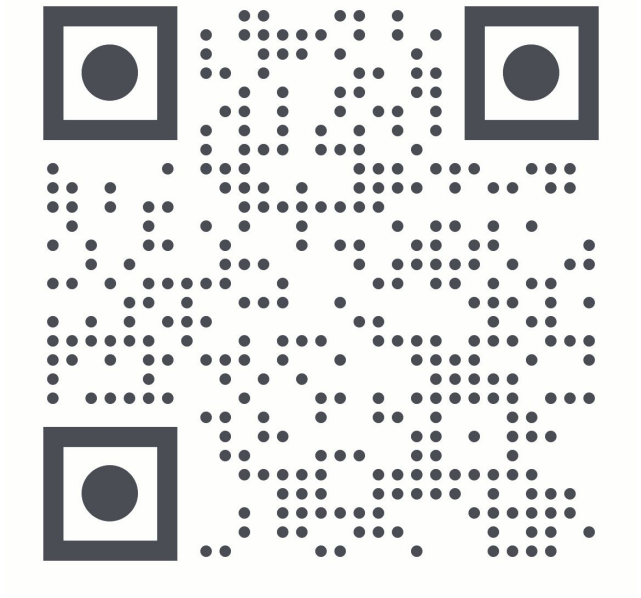
04

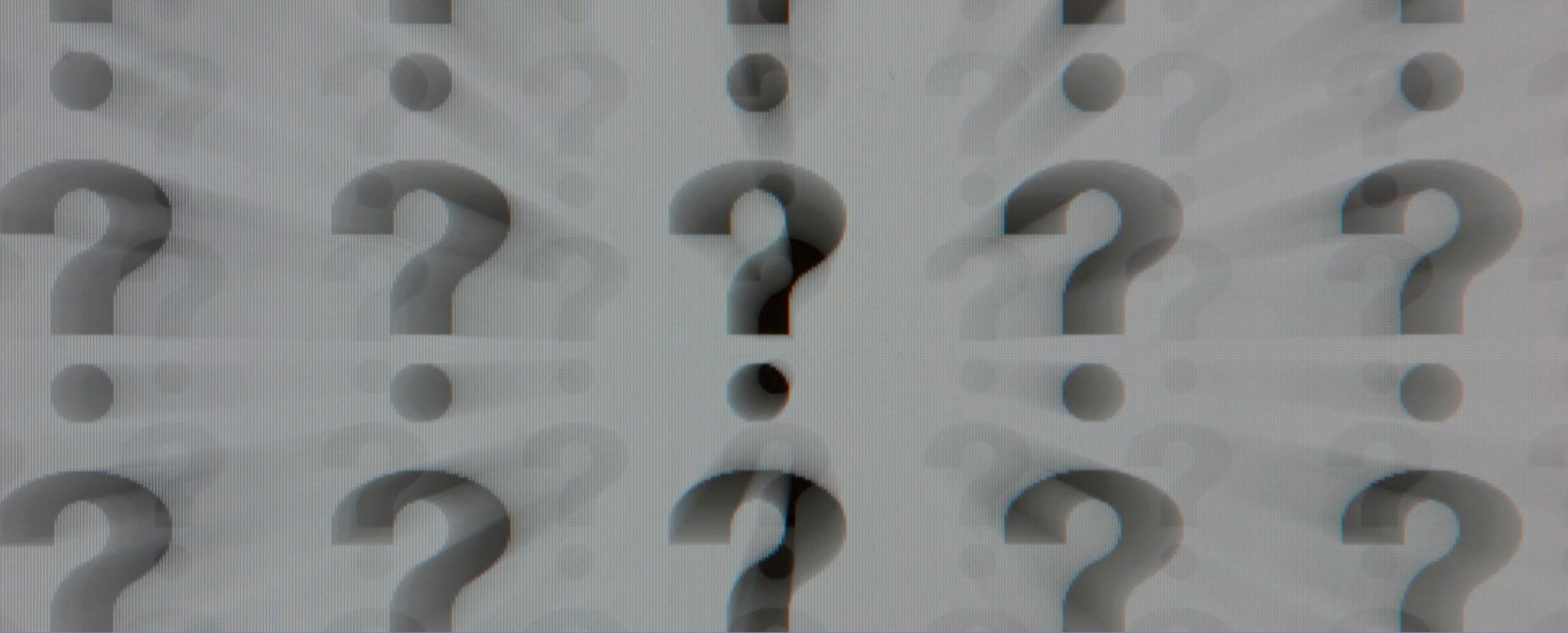
The Do-It-Yourself Initiative

- Creation of a DIY kit and accompanying tutorial video which can be more easily shipped
- Hosting DIY classes where people bring their own skis

The End

Bridger@UpcycledSkis.com





Material Stewardship & Lightning Round Q&A

DID SOMEBODY

SAY W-A-L-K

 instacart

BREAK

2:30 - 2:45 p.m.



Materials Education Council Launch



Adam Farmer

How did we get arrive here?

- 1) History - Plastics Circularity Council
- 2) What we were hearing
- 3) Our solution
 - a) Materials fundamentals
 - i) What makes something recyclable, how materials move through Colorado's system, and what affects market variability
 - b) Hard-to-recycle materials
 - i) What they are, why they are difficult, what options exist in Colorado and how are other states managing these materials
 - c) Colorado-specific context
 - i) State infrastructure, legislation, regional markets, and what is actually viable

Meeting Details

- 1) Cadence - Quarterly
- 2) Field Trips (Driven Plastics, for example)
- 3) Member Driven Topics
 - a) Topics Picked out for the next 4 meetings (rolling)
- 4) Lots of fun!

Materials Education Council



Charter

Slido



Topic Selection/Ideas

Current Thoughts:

Paper and fiber

Plastics

Metal and glass

Household hazardous waste

Textile and durable goods

Construction, remodeling, and yard materials

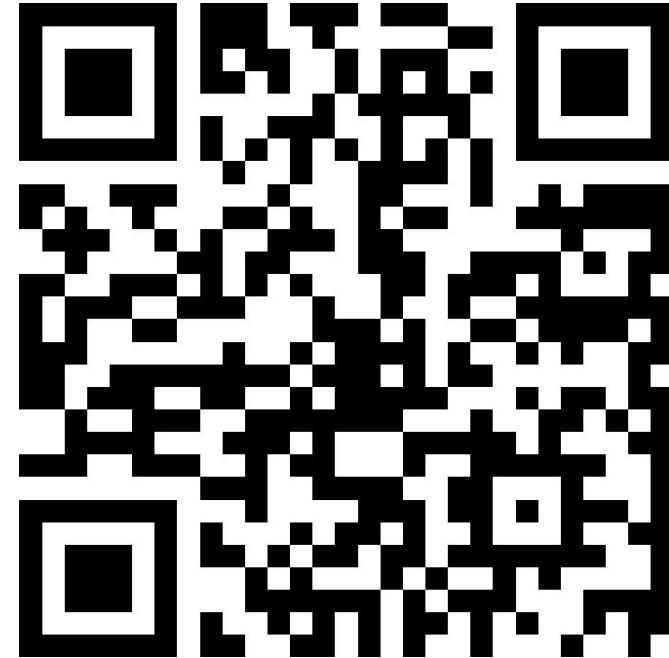
“Special items” that drive confusion

- Tanglers: hoses, wires, chains, straps, holiday lights
- Sharps and medical waste: safe disposal options, what not to do

Regional Considerations (works for any material lane)

- “Same item, different rules” comparisons for Denver vs Boulder vs Springs etc
- Local drop-off directory: HHW, e-waste, textiles, scrap metal, glass

Your ideas!



Speaker & Partner Volunteering

If you would like to offer your expertise, business tour or just would like to help please reach out to me:

Adam.Farmer@drivenplastics.com

Any other questions for PSI?