RRS START CONSULTING

2025 SMMP TASK FORCE

Regional Sustainable Materials Management Plan

TASK FORCE RECOMMENDATIONS

BENTON COUNTY, OREGON, SUSTAINABLE MATERIALS MANAGEMENT PLAN

MAY 2025

Table of Contents

Introduction and Overview

Task Force Focus Area

Benton County initiated the SMMP Task Force to generate a collaborative approach to the region's materials management challenges. The are of focus includes(but is not strictly limited to):

- Benton County
- Clatsop County
- Columbia County
- Lane County
- Lincoln County
- Linn County
- Marion County
- Metro
  - Clackamas County
  - Multnomah County
  - Washington County
- Polk County
- Tillamook County
- Yamhill County

AREA OF FOCUS

SMMP Process:

Current State (Facilities status)

- Background and context
- Existing infrastructure and policies
- Glossary and definitions

Future State

- Desired outcomes
- Definition of success

Identify and Refine Strategies

- Policy approaches
- Investments
- Partnerships
- Case studies and research

Analysis of Benefits and Consequences

- Waste diversion
- Environmental impact
- Human health impact
- Economic impact

Governance and Timeline Considerations

- Who needs to act
- How it can be paid for
- Barriers
- Timeline

Recommendations

- Strategies in four high impact areas
- Proposed next steps and timelines to action
- Barriers that will need to be addressed

Task Force Timeline:

October 2024

- Task Force Kick off
- Goals and purpose
- Background and context

December 2024

- Initial “current state” research
- Selection of subcommittee focus areas
- Discussion of benefits and consequences matrix

January 2025

- Final “current state” research
- Adopt benefits and consequences matrix
- Begin subcommittee work

March 2025

- Subcommittees present draft findings
- Initial discussion of synergies
- Sustaining support for SMMP recommendations

Subcommittee Meetings 1 and 2

Subcommittee Meetings 3 and 4

May 2025

- Adopt final recommendations
- Discussion: Working toward implementation

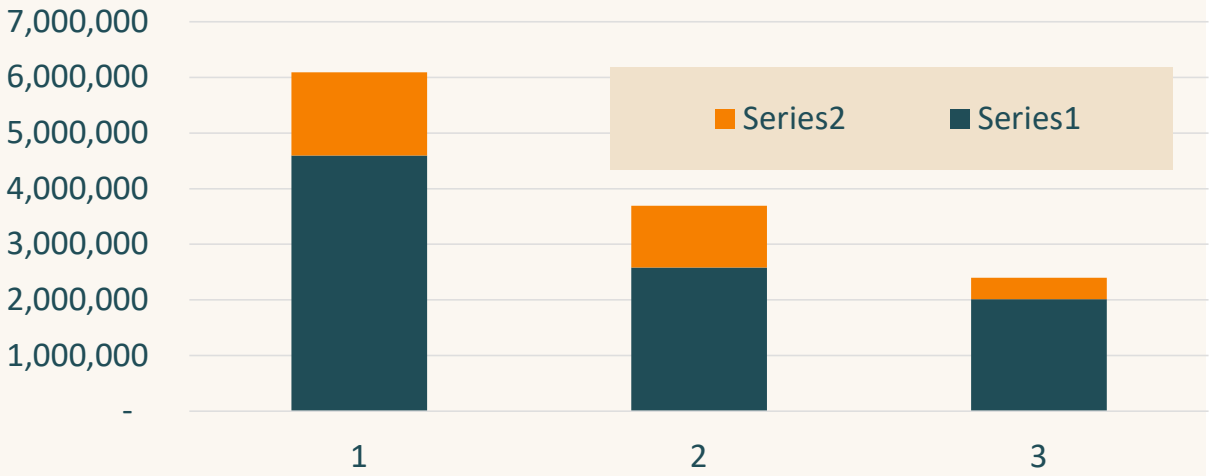
Regional Inventory

Regional Waste Disposition Snapshot

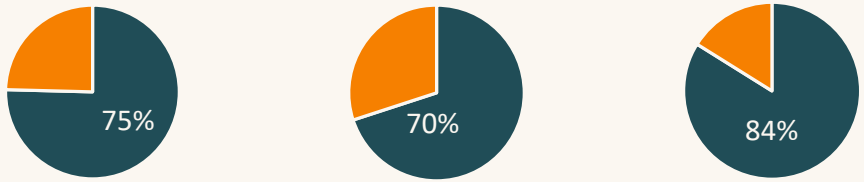
- 6 million tons generated statewide
- 75% of Oregon's generation in the SMMP region
- 2.4 million tons recovered
- 84% of all Oregon recovery in the SMMP region

Region: Includes Metro Area

Statewide Waste and Recovery

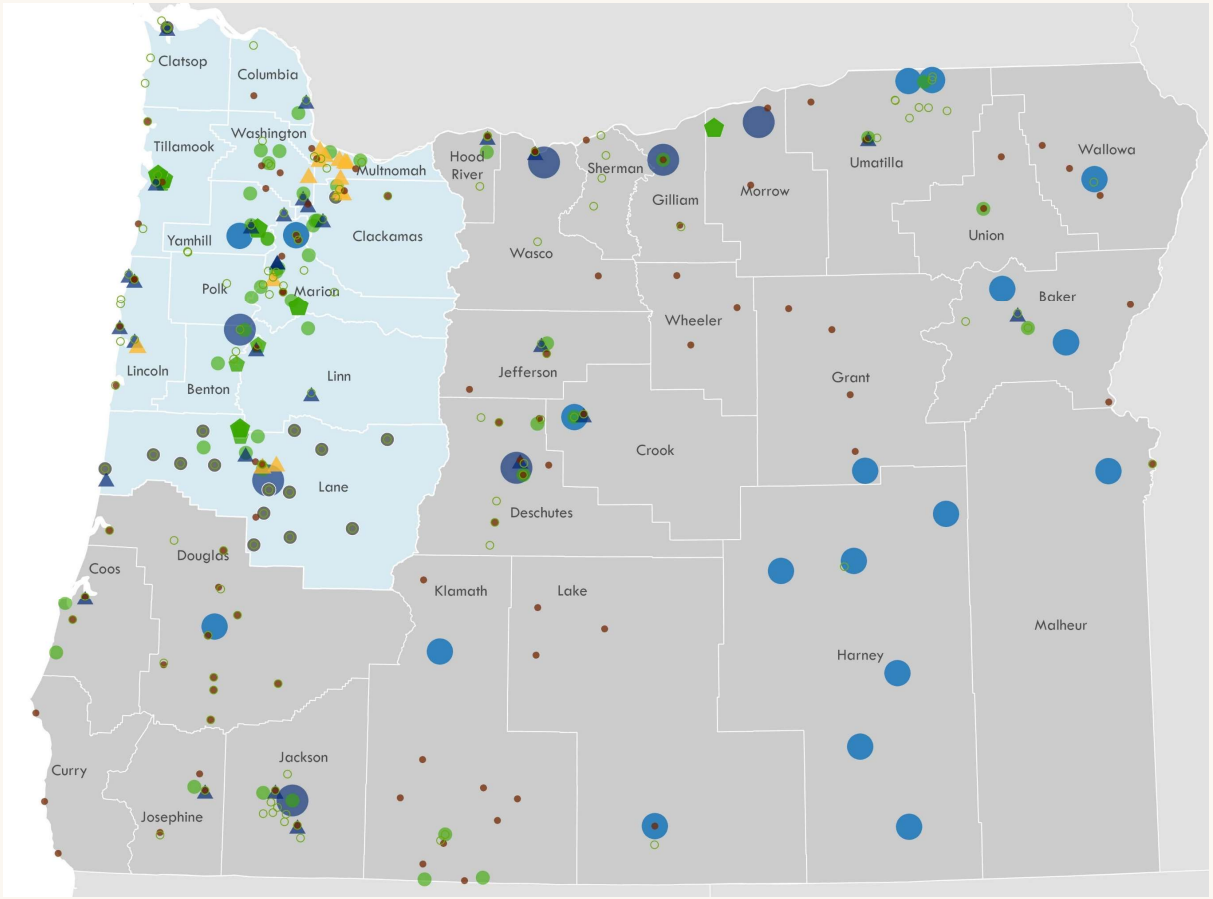


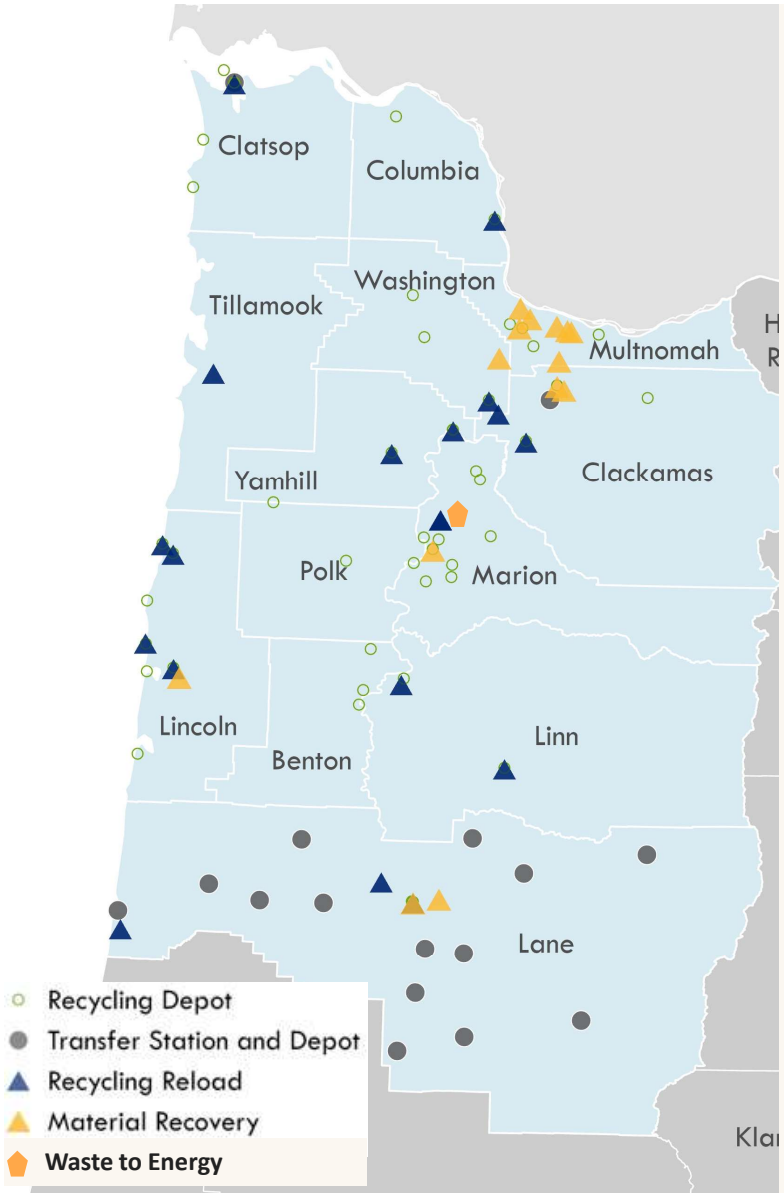
Regional Share



Oregon Solid Waste Infrastructure

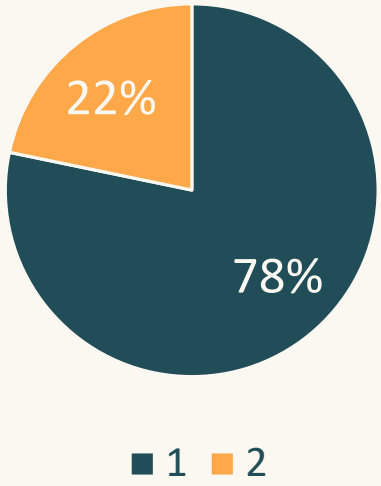
- Recycling Depot
- Transfer Station
- Transfer Station and Depot
- Material Recovery
- Recycling Reload
- Compost
- Anaerobic Digester
- Local Municipal Landfill
- Regional Municipal Landfill





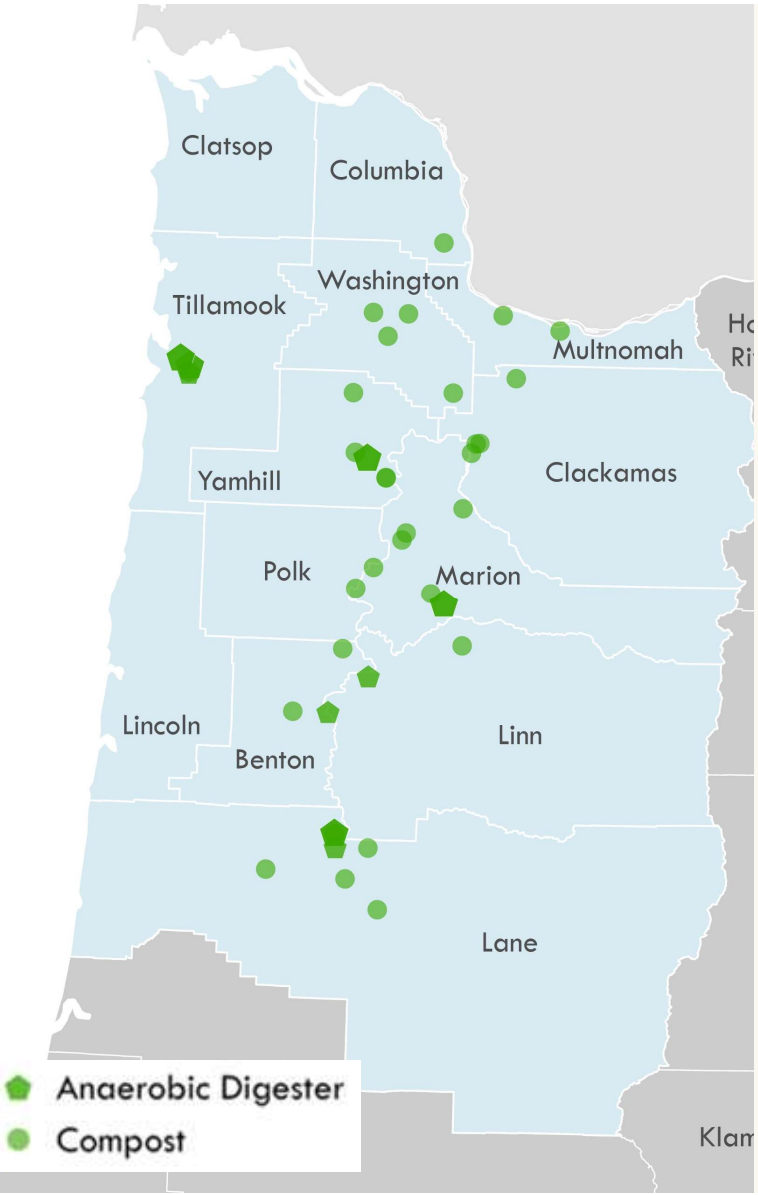
Recovery Infrastructure: Recycling Processing

Regional Share of Recycling



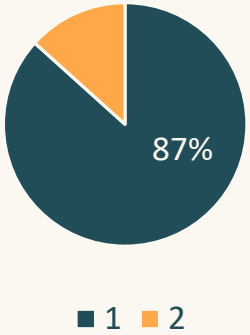
All Recycling processing (sorting) located in the Region

- Source: OR DEQ SWIFTA Database Accessed September 2024 and , RRS Database, interpreted and Mapped by RRS

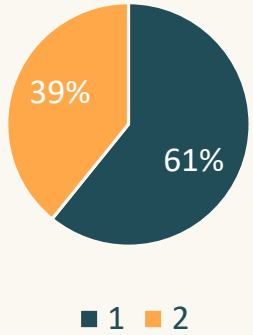


Recovery Infrastructure: Food and Organics

Composting Facilities

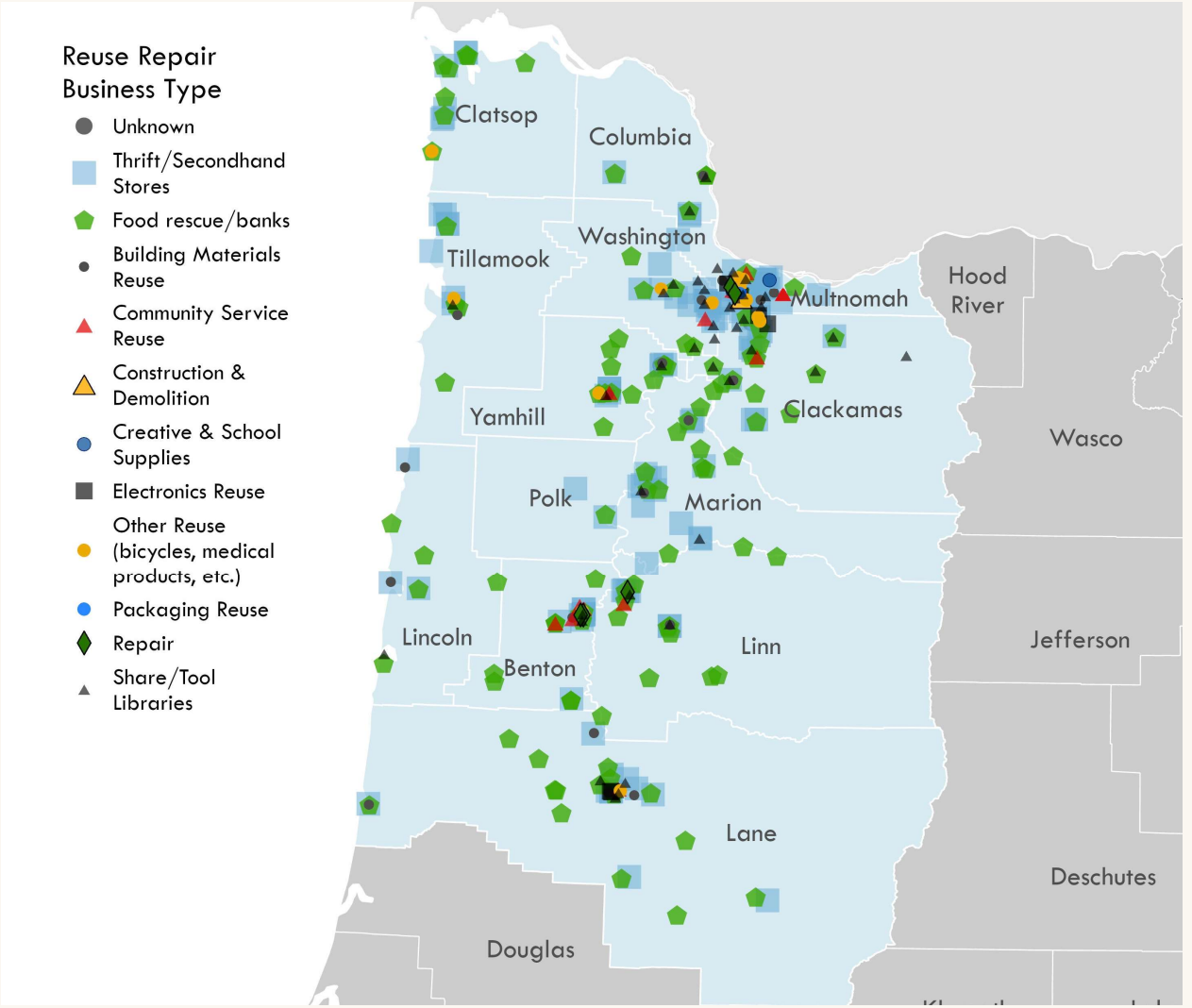


Compost & Anaerobic Digesters



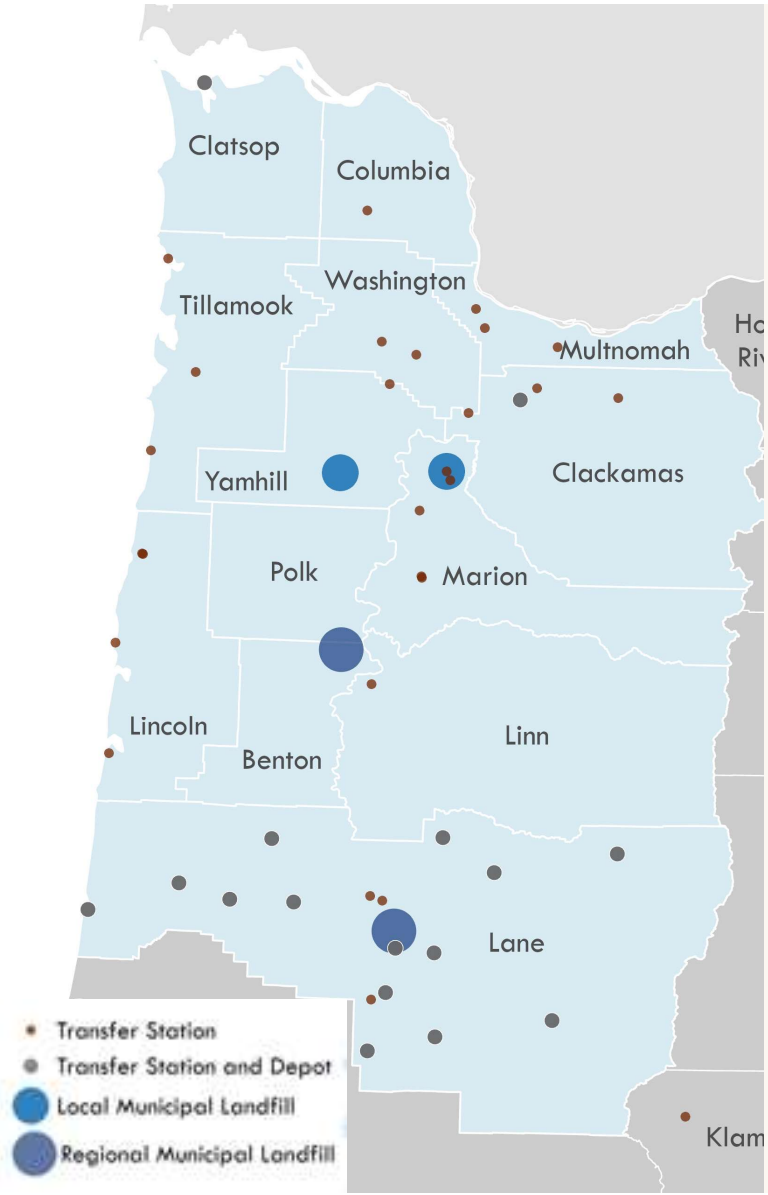
- Source: OR DEQ SWIFTA Database, and RRS Facilities Database

Recovery Infrastructure: Reuse and Repair

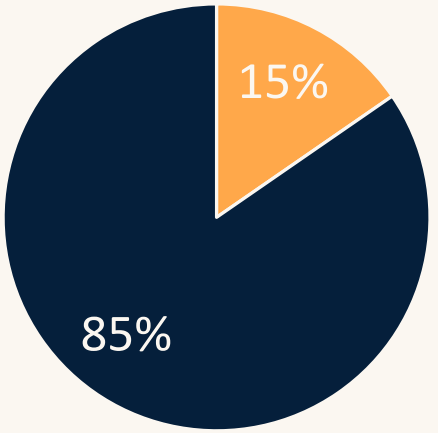


Source: Start Consulting, Mapped by RRS

Regional Disposal Infrastructure

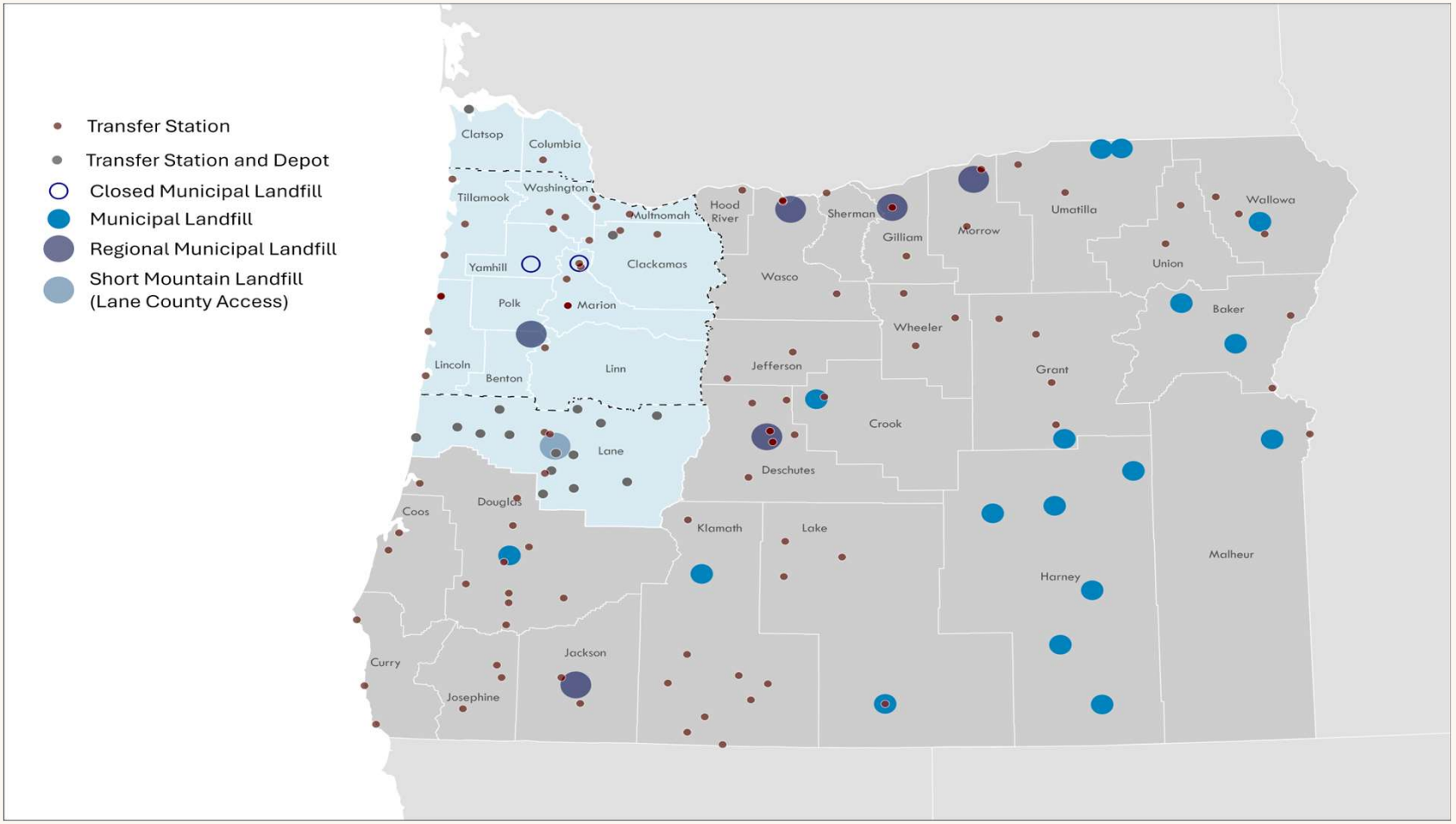


Number of Municipal Landfills



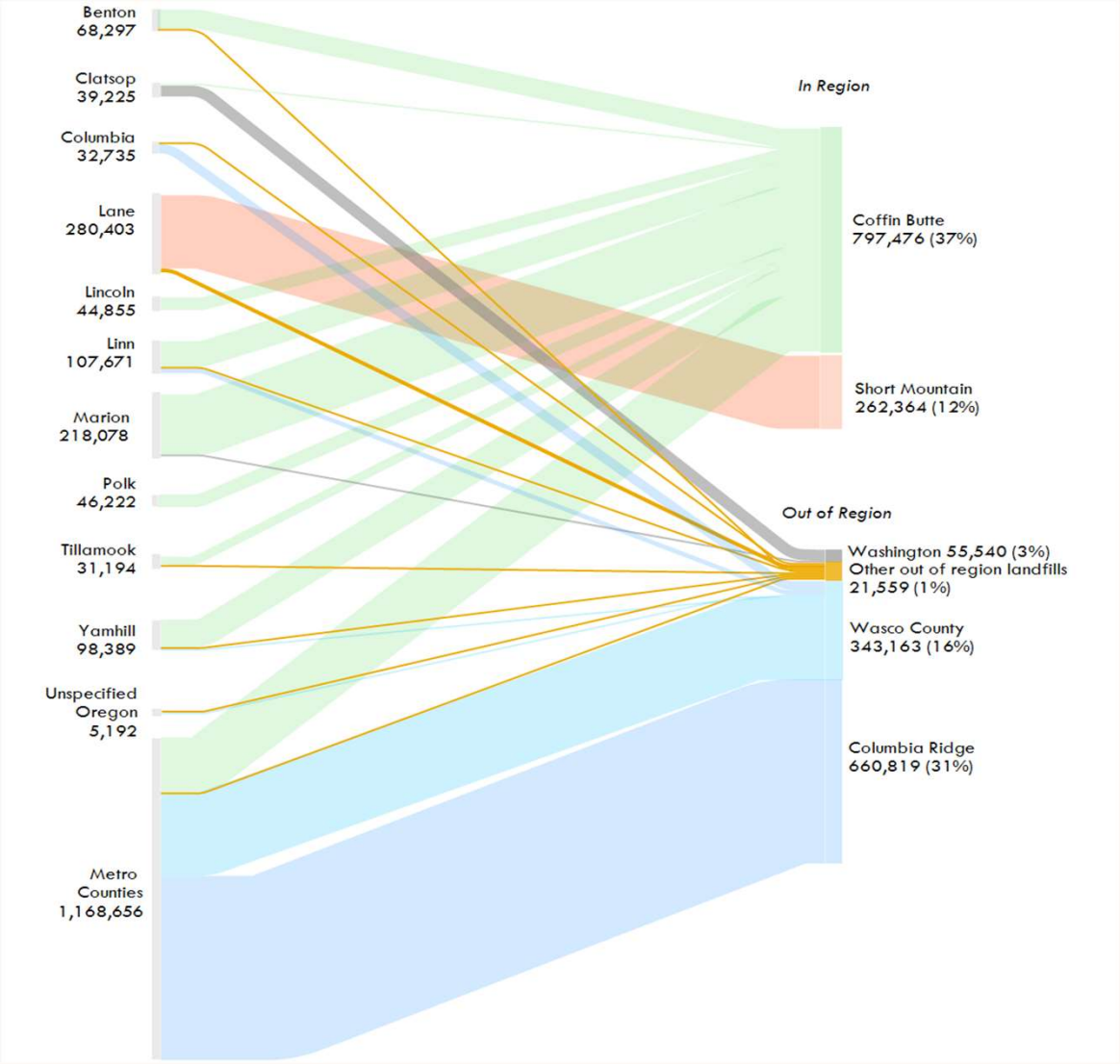
Source: OR DEQ SWIFTA Database

Statewide Disposal Infrastructure



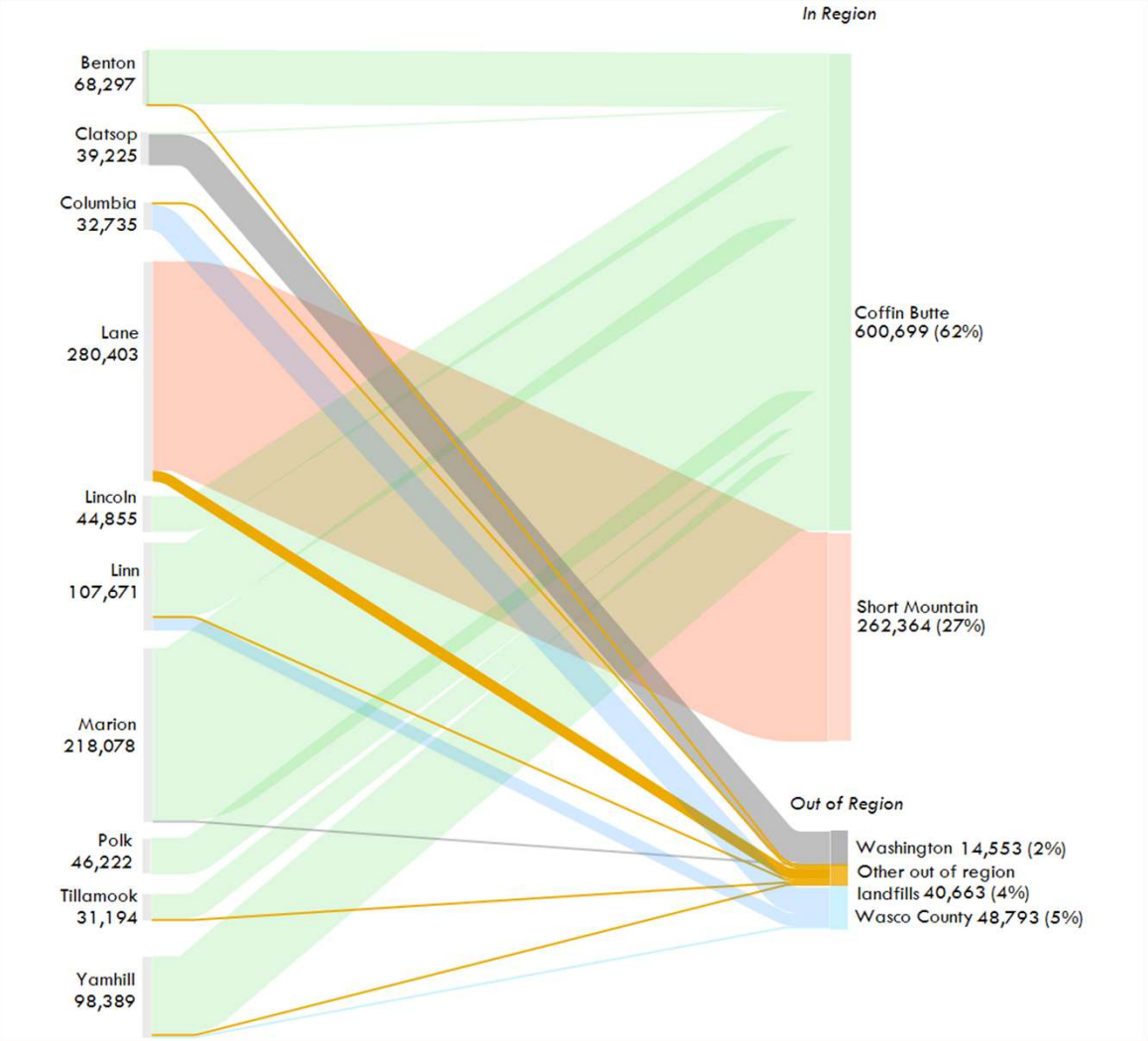
Waste Destination by County: Metro *Included*

- **48%** of regional waste transported out of region.
- **37%** of regional waste including Metro, delivered to Coffin Butte.



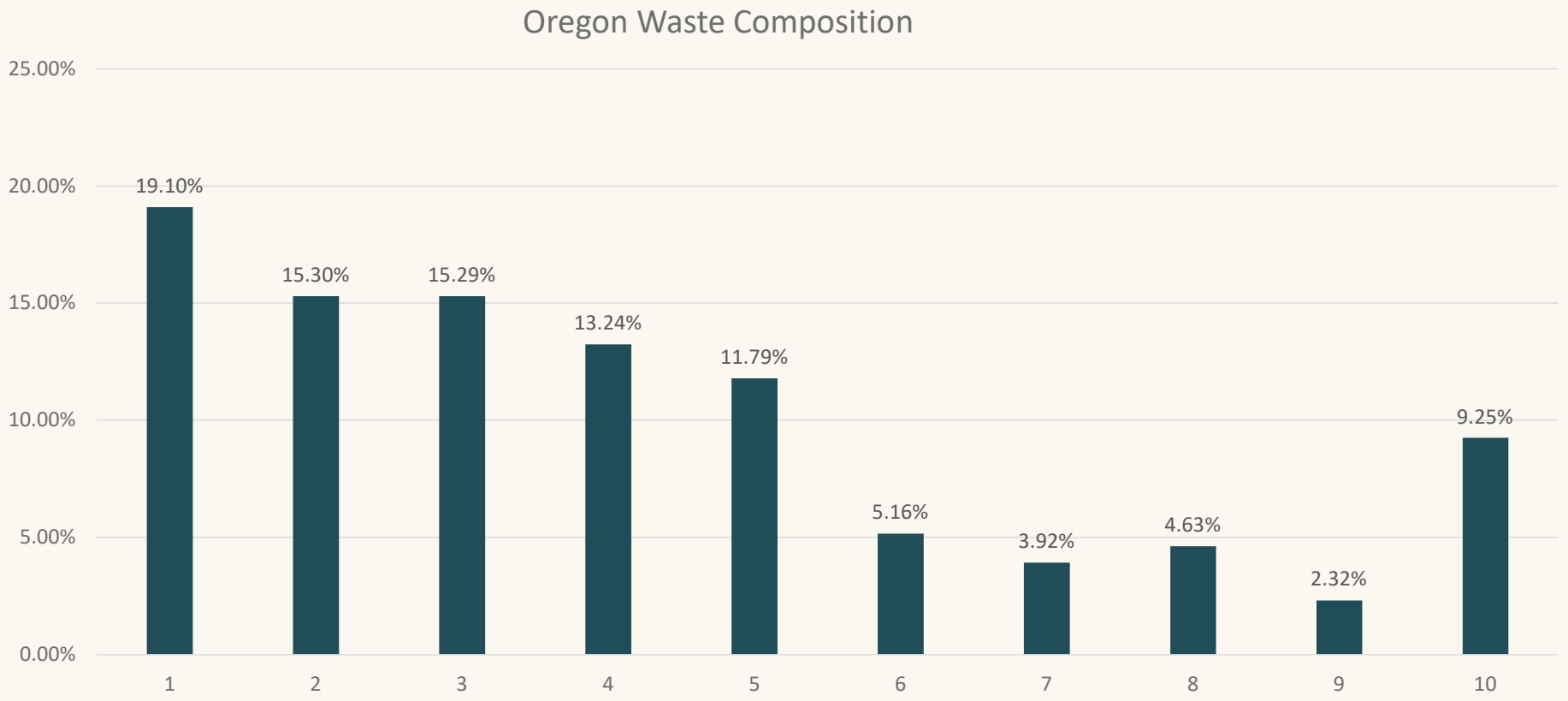
Waste Destination by County: Metro *Excluded*

- **62%** of regional waste transported to Coffin Butte
- **11%** of regional waste transported out of the region
- **97%** of waste from 7 counties transported to Coffin Butte



Composition of Municipal Disposal (3.7 million tons)

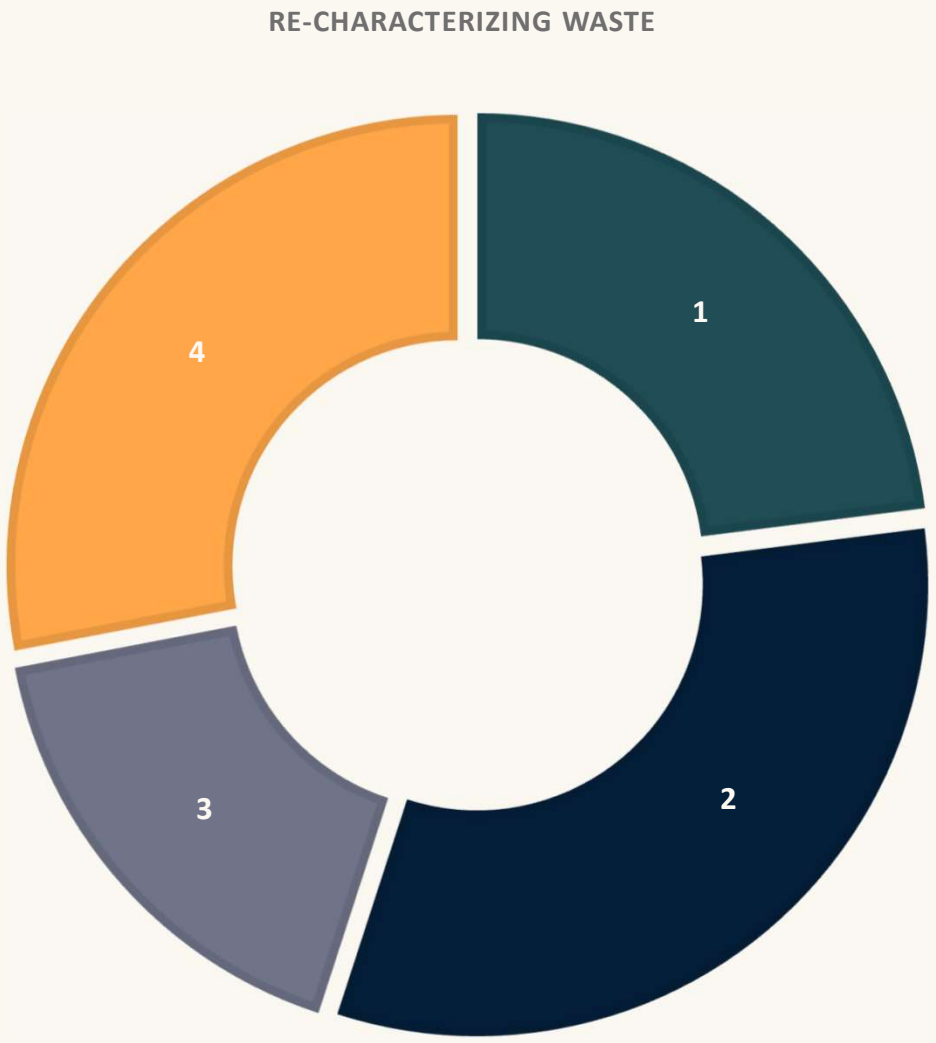
The largest three fractions of MSW are organics, plastics, and paper



Municipal solid waste composition analysis performed with results from the 2020-2021 Washington Statewide Waste Characterization Study

Reconsidering the "Waste" Stream

- Up to **72%** of material in the waste stream could be diverted or recovered to a higher and better "end of life" use.
- Two pathways:
  - Decrease disposal
  - Identify most sustainable options for remaining waste



Based on analysis of 2016 OR DEQ Statewide Waste Characterization Study, Interpreted and Charted by RRS

Regional Facilities Summary of Findings:

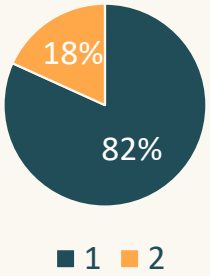
72% of disposed municipal solid waste could be recovered

- 37% Recycling
- 21% Rescue & Reuse
- 14% Compost & Digestion

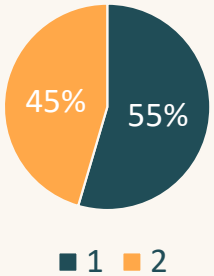
- The NW Oregon region **generates 75% of the state's waste**
  - > The three Metro area counties send most of their waste to landfills outside the region
  - > **62% of the waste from 10 NW counties is sent to Coffin Butte**
  - > There is **extensive landfill life/capacity outside the region**, but very **limited capacity inside the region**
- The NW Oregon region is home to **all of the state's recycling processing capacity** and generates **80% of the state's curbside recycling material**
- The region has a **strong infrastructure for organics**
- The region has an **active reuse and repair economy and culture**

Policy Status by County

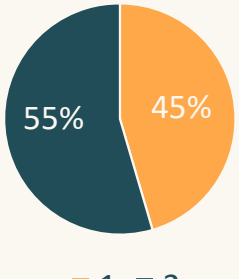
Current Solid Waste Plans



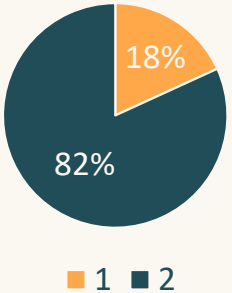
Specific Waste Reduction Goals



Reuse Goals or Priorities



Additional Recovery Mandate(s)



State Policy Context

State policy leadership

- Sustainable Materials Management Vision
- Life-cycle approach, inclusive of environmental and human health
- Leadership on organics and built environment

Opportunity to Recycle

- Access to curbside recycling mandated for communities > 4,000

Tradition of product stewardship policy

- Bottle bill – beverage containers diversion
- E-Cycles – E-waste recovery
- Paint Care – paint recovery
- RMA – curbside recycling expansion for packaging and paper
- ~~Mattress EPR – Mattress recovery~~

Emerging Plans and Facilities

LANE COUNTY: CLEAN LANE

Lane County approved a contract with BHS for a mixed waste processing facility.

Anticipated impacts:

- Reduced waste to Short Mountain Landfill
- Increased recycling recovery
- Reduce emissions from landfill

OPPORTUNITY/POTENTIAL

- Accept waste/material from other counties
- Proof of concept for replication

METRO FACILITIES PLAN

The Garbage and Recycling System Facilities Plan will create a vision for future waste and recycling infrastructure investments in the Metro area.

Anticipated impacts:

- Increase access to reuse and recycling infrastructure
- Reduce waste sent to landfill
- New or updated facilities, and more distribution of facilities in the region

OPPORTUNITY/POTENTIAL

- Provide a model for planning regional facility
- Potential for increased access and waste diversion in the metro area.

RMA DEPOTS AND GRANTS

The RMA requires increased access and convenience for recycling depots and creates a program to fund reuse and source reduction.

Anticipated impacts:

- New locations and partnerships for collection and recovery
- Funding for reuse and reduction of covered materials (packaging products)

OPPORTUNITY/POTENTIAL

- Partner with CAA to maximize use of recycling depot locations and events
- See funding for reuse and source reduction efforts

Emerging Plans and Facilities (cont'd)

DEQ FOOD WASTE GRANTS

Oregon DEQ received a large federal grant for climate pollution reduction. DEQ has earmarked **$28.9 million for improving and expanding food waste recovery** infrastructure such as anaerobic digestion and composting.

OPPORTUNITY/POTENTIAL

- Source of funding for investment in food waste recovery.
- DEQ anticipates supporting 18-20 equipment purchases and 1 or 2 new facilities.
- Funds will be allocated through a competitive grant process

MVITS: LINN COUNTY TRANSFER STATION

The Mid-Willamette Valley Intermodal Transfer Station is a concept for locating transfer station operations at a former International Paper Mill site in Linn County.

OPPORTUNITY/POTENTIAL

- Could serve as a regional hub with efficient transfer of both waste and recycling materials to appropriate mode: Truck or train.
- Reduced transportation emissions associated with centralized operations.

REHUB: POIK COUNTY TRANSFER STATION

Transfer station proposed to open in 2027 in Rickreall, OR. The Rehub project would provide a transfer station to manage waste currently going to Coffin Butte landfill and direct it other destinations for disposition.

OPPORTUNITY/POTENTIAL

- Reduced transportation emissions associated with centralized operations.
- Potential sorting operations for recovery.
- Potential co location for recycling drop off.

Regional Policy and Planning Summary of Findings:

- **Not all counties have adopted current waste management plans**.
- About **half the counties have waste reduction and reuse *goals***, but **few have enacted *requirements,*** mandates, or other supportive policies
- State leadership provides a **strong foundation for increased recovery**
  - > Existing product stewardship programs may **increase opportunities to recover materials**
  - > **State leadership on food waste and built environment**
- **Rapidly evolving context:**
  - > Implementation of RMA
  - > Closure of waste incinerator
  - > New facilities in progress such as
    - Clean Lane
    - Metro Regional System Facilities Plan
  - > Funding opportunities for food waste recovery
  - > Likely to be active 2025 legislative session for waste and recycling

Regional Inventory: Benefits and Consequences Framework

1

FACILITIES STATUS AND EMERGING OPPORTUNITIES

Provide a map of relevant materials management facilities and where sufficient data exists, document material flows and the lifespans of those facilities.

Summarize relevant county and state policy shaping the current materials management system in the region.

.

2

BENEFITS AND CONSEQUENCES

Develop a framework to categorize and describe the potential environmental, health, social, and economic benefits and costs of the materials management system to provide directional insights into which strategies or system elements have the greatest impacts.

3

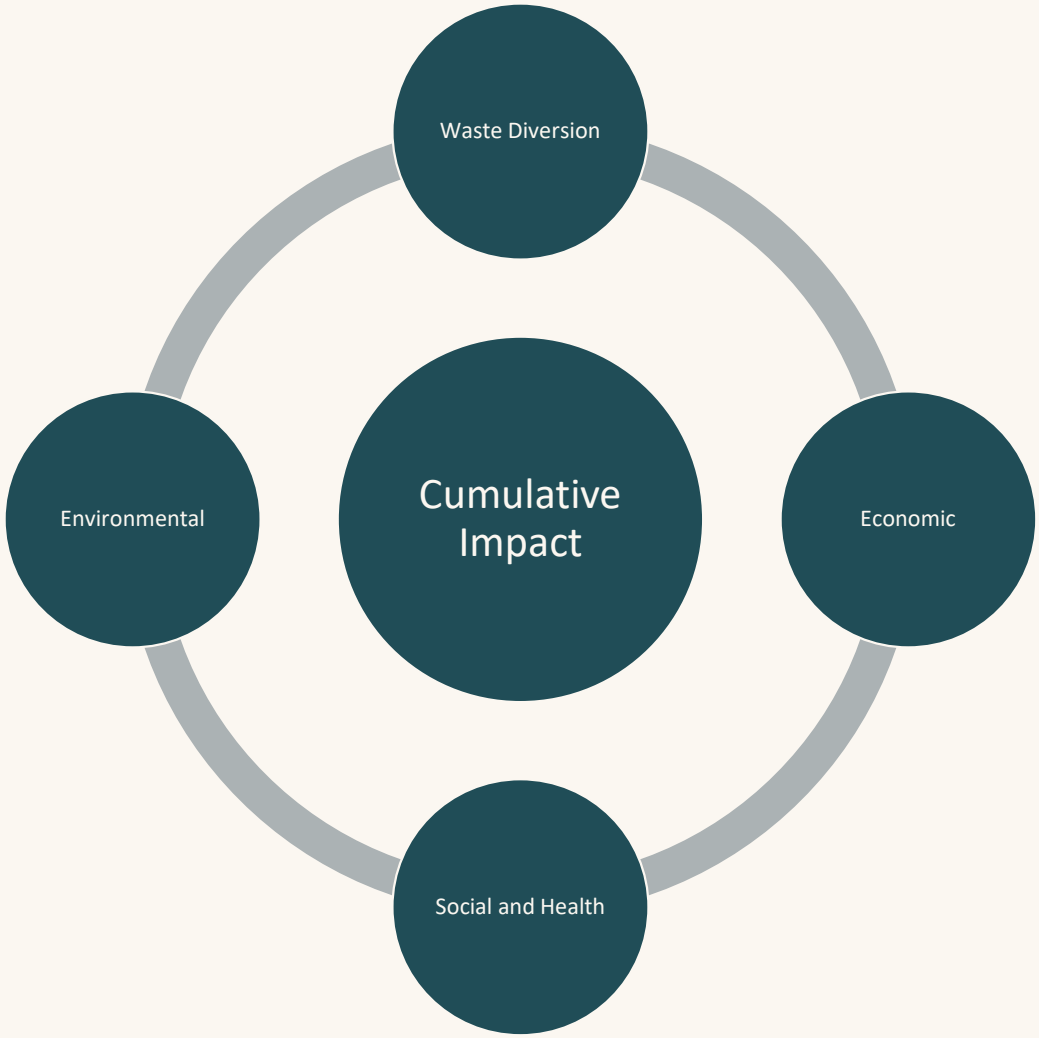
INNOVATIONS FROM RESEARCH AND PRACTICE

Provide examples of emerging policies, best practices, and innovations in sustainable materials management, especially those that include or are suitable for regional collaboration.

Benefits and Costs Framework

The cumulative impact of a materials management system can be evaluated from four perspectives:

- Waste diversion
- Economic
- Social/Human health
- Environmental



Benefit and Cost Metrics by Category

Waste Diversion	Economic	Social and Human Health	Environmental

• Amount of material diverted by weight and by volume
• Type of material diverted:
  • Proportion of the waste stream
  • Associated landfill risk factors, such as toxicity, methane or leachate?
	• Capital costs
	• Operational costs
	• Expected revenue
	• Net job creation
	  • Job type and pay
	• Increased costs to residents and business
	• Economic development potential
	  • New markets
	  • New business opportunity
	  • New expertise that can be marketed/sold
		• Direct risks or benefits at the location of facilities and operations
		• Distributed benefits or risks (such as air or water quality)
		• Distribution of financial benefits and risks
		• Worker safety
		• Potential shifts in access or exposure to benefits and risks
			• Reduced litter, or loss of material into environment
			• Reduced emissions
			• Potential to replace use of virgin material (or replace a more harmful product)
			• Water quality, air quality, soil health
			• Risk to sensitive habitat or species

Example Benefit and Costs Evaluation

Intervention	Waste Diversion Impact	Economic Impact	Social and Human Health Impact	Environmental Impact
Policy Concept	High diversion of important material	Low capital cost, potentially high cost to businesses or the public	Increased equity and potential protection of at- risk communities	Reduced loss of materials to environment (litter)
Business Model	Moderate diversion	Low public investment, high potential job creation	Moderate protections for community	Increased recycling of hard to recycle material
Community Initiative	Low diversion	Low job creation	Strong community impacts	Strong environmental impact

Task Force Recommendations

Regional Waste Subcommittee

Recommendation Package

Regional Waste Recommendation Summary

DESIRED FUTURE STATE: THE MID-NORTHWEST REGION HAS A PUBLICLY OWNED TRANSFER INFRASTRUCTURE NETWORK DESIGNED FOR RECOVERY AND WITH ACCESS TO INTERMODAL TRANSPORT.

Strategy components	Establish mechanism for lasting regional collaboration and decision making.
	Develop hub and spoke transfer network and infrastructure plan.
	Focus on areas with limited transfer infrastructure - Benton, Linn, Marion, Tillamook, Lincoln, Yamhill.
	Design transfer facilities for recovery including comprehensive recycling drop off and a reuse center (cross over with other subcommittees).
	Update logistics to be compatible with intermodal transport.
	Use facility upgrades and new publicly-owned infrastructure. Phase upgrades first while planning for new infrastructure is executed.
	Establish mechanism to guarantee inbound material to new infrastructure – necessary to secure funding.
	Target infrastructure to be operational by 2035.

Regional Waste Recommendation Package

Phase 1: Create Regional Waste Authority

Phase 2: Study and Adopt a Regional Intermodal Hub and Spoke Network Plan

Phase 3: Finance and Develop Publicly Owned Transfer Infrastructure

Recommendation #1

Establish Mechanism for Regional Collaboration and Decision making

PHASE 1 INCLUDES DEVELOPMENT OF A REGIONAL BODY WITH DECISION MAKING AUTHORITY TIED TO AN ENTERPRISE FUND.

- Description
  - > Establish a collaborative waste “authority” to adopt and implement a regional sustainable materials management infrastructure network plan.
  - > Recommend common service standards, contracting tools, and directives on the movement of materials, provide best practice guidance and resources, and develop regional education and communication campaigns.
  - > The regional body could be established through legislation or through direct intergovernmental agreements (IGAs).
- Who Acts
  - > Core of the regional body would be counties with limited transfer or disposal infrastructure - Benton, Linn, Marion, Polk, Tillamook, Lincoln, Yamhill.
  - > It could include all 13 counties in the region, with a distinction between “owners” and “members”.
  - > Authority is led by county solid waste directors in the region and maintains a practical and operational focus.
  - > Each county contributes to the collective plan and executes county-specific components.
  - > Cities within the counties continue to execute their own service agreements
  - > Legislators enable authority.
- How is it Funded
  - > Initial funding to establish provided by each county and potentially the state.
  - > Tip fees provide source of ongoing funding through an enterprise fund.
- Barriers
  - > Requires significant coordination and political undertaking locally.
  - > Cities and service providers may have concerns about loss of local control.
  - > Private service providers will be concerned with how this may impact their service contracts and facilities and could put up opposition.
- Timeline
  - > Q4 2025 – Q2 2026: Regional governance structure and funding mechanisms explored further.
  - > Q1 2026: Begin tangible partnership conversations / negotiations
  - > End of 2026: Regional “Authority” Established.

Recommendation #2

Develop an Intermodal Hub and Spoke Transfer Network Plan

PHASE 2 IS THE STUDY AND ADOPTION OF AN INFRASTRUCTURE SYSTEM PLAN THAT WOULD GUIDE DEVELOPMENT OF TRANSFER / RECOVERY IN THE REGION.

- Description
  - > Comprehensive transfer network plan (feasibility, cost, and network design) with Regional Intermodal Center as a central hub and county transfer sites as spokes.
- Who Acts
  - > The Regional Waste “Authority” (RWA) would lead the development and adoption of a plan.
  - > If a RWA is not established this could be led by a less formal regional collaboration.
  - > County staff participate and contribute data and input on their respective needs.
  - > Local jurisdictions, haulers and other stakeholders provide input through an engagement process.
- How is it Funded
  - > All involved counties contribute.
  - > State and federal grant programs would be explored (e.g. SWIFR related) to study feasibility and network design.
- Barriers
  - > Regional planning is inherently complex and requires timely input from many parties.
  - > Timeline is limited.
  - > Potential opposition from haulers, neighboring communities and those sensitive to rate impacts.
- Timeline
  - > Q1 2027: Issue RFP to study and design a hub and spoke network.
  - > Q1 2028: Plan is “adopted” and moves on to the development phase.

Recommendation #3

Develop / Upgrade Publicly owned Transfer Stations Designed for Recovery

PHASE 3 IS THE DEVELOPMENT OF INSFRASTRUCTURE AND POTENTIAL CONTRACTING OF OPERATIONS

- Description
  - > Designated space for other recovery and reuse activities
  - > Ability to transload into intermodal containers.
- Who Acts
  - > RWA or host county would develop the regional Hub and own the facility, while collecting tip fees.
  - > Local jurisdictions would develop and own the county transfer spokes, and upgrade service agreements to guarantee tons.
  - > Operations could be public or private depending on circumstance.
- How is it Funded
  - > Public revenue bonds and/or other low interest infrastructure finance options.
  - > RMA funding could contribute to portions related to capture of USCL and PRO list materials.
- Barriers
  - > Infrastructure could cost $100 million or more (~$2-$5 million for small rural, $10-$20 million for medium, and could be $25 million or more for the large Hub).
  - > Impacts to rates will be a key issue.
  - > Inbound tonnage guarantees are essential for securing financing and covering operational costs and are politically tenuous.
  - > Development timeline is tight.
  - > General opposition to new infrastructure investment is possible from incumbent industry and neighboring communities.
- Timeline
  - > Q1 2028: Procurement issued for preliminary feasibility and design of facilities
  - > Q1 2029: Procurement issued for design, build and potentially operate the facilities
  - > New infrastructure should begin development by 2030 and be operational by 2035 at the latest.

Products and Packaging Subcommittee

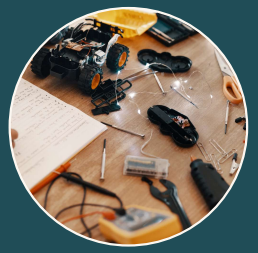
Recommendation Package

Products and Packaging Recommendation Summary

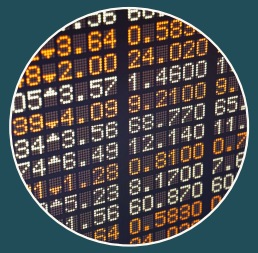
DESIRED FUTURE STATE: THE MID-WILLAMETTE VALLEY EMPLOYS SUSTAINABLE MATERIALS MANAGEMENT STRATEGIES FOR ECONOMIC DEVELOPMENT AND COMMUNITY BENEFIT

Strategy Components	Establish hubs that offer educational programs for reuse and repair, and support sustainable materials management entrepreneurs.
	Establish spaces to house reuse and repair infrastructure, such as storage for reusable products and washing and sanitizing facilities.
	Implement statewide policies that incentivize producers and manufacturers to design for reuse, recyclability, or environmentally benign end-of-life management of products.
	Implement statewide policies that shift the cost burden of managing products and packaging from consumers and public agencies to producers.
	Establish consistent communications and outreach efforts regionally that motivate community members to buy and use more durable, reusable, repairable products and to manage them appropriately.

Products and Packaging Recommendation Package



Establish hubs for reuse infrastructure, programming, and economic development.



Pursue policies that shift costs of materials management to producers.

Increase collaboration and public education for recovery and reuse of bulky products.

Recommendation #1

Establish Regional Hub(s) for Reuse Infrastructure, Programming, and Economic Development

- Description
  - > The region should collaborate to establish hubs to house reuse infrastructure, such as washing facilities, storage space, or repair shops and provide programming such as repair cafes, job training, and small business support for sustainable materials management entrepreneurs.
- Who Acts
  - > Local jurisdictions could assess underutilized land or buildings and provide grants or funding for programs.
  - > The state could provide grants for capital costs and programming.
  - > Non-profit organizations can support programming.
  - > A regional authority, if established, could fund capital and operational costs.
- How is it Funded
  - > Regional waste authority
  - > County general funds
  - > Economic development funds
  - > Philanthropy
- Barriers
  - > Need for a centralized programming.
- Potential timeline
  - > Q4 2025 – Counties collaborate to identify potential locations, partners, and funding sources.
  - > 2026 – Acquire and/or prepare spaces and prepare program offerings.
  - > 2027 – Launch initial programs and services.

Recommendation #2

Shift costs of Materials Management from Consumers and Public Sector to Producers

- Description
  - > The region would collaborate with DEQ, and other interested groups to advocate for product stewardship policies to address product and material categories such as textiles, furniture, and appliances. These policies have high potential to shift cost burdens, reduce waste, influence product and packaging design for circularity, and generate quality data on the materials being sold into the state.
- Who Acts
  - > Counties, in collaboration with DEQ, and other interested groups that could include: AOR, Environmental non-profits, and Metro.
- How is it Funded
  - > Participating organizations would need to allocation a portion of staff time.
  - > Policies, if passed, use models that shift end of life management costs from consumers and public agencies to brands and manufacturers.
- Barriers
  - > Best achieved through statewide legislation.
  - > A central convener/advocate would need to be found to lead a coalition to advance statewide policy.
- Timeline
  - > Q4 2025: Identify EPR additional EPR programs that have highest potential waste impacts.
  - > 2026: Establish supportive coalition and identify model policies, and bill sponsors.
  - > 2027: Introduce legislation

Recommendation #3

Increase Collaboration and Public Education to Recovery and Reuse of Bulky Products

- Description
  - > The region should increase collaboration on education and outreach efforts to support behaviors and programs that focus on “upstream” management (such as reuse and repair) of bulky items like furniture and appliances.
- Who Acts
  - > Local jurisdictions and service providers increase coordination of communications and outreach efforts related to bulky products and materials.
  - > Local jurisdictions require communication and education about reuse and repair opportunities for bulky products from franchised/contracted service providers.
- How is it Funded
  - > Local jurisdictions allocate a small portion of staff time for coordination.
  - > Require service providers to cover costs of outreach and education.
- Barriers
  - > Some jurisdictions may not have dedicated materials management staff or they may already be overcommitted.
- Timeline
  - > Q4 2025: Local jurisdictions begin allocating staff time to regional outreach and education efforts on bulky waste.

Food and Organics Subcommittee

Recommendation Package

Food and Organics Recommendation Summary

DESIRED FUTURE STATE: THE WILLAMETTE VALLEY HAS A COORDINATED APPROACH TO SHARING BEST PRACTICES, COLLABORATING ON ENGAGEMENT CAMPAIGNS, AND IMPROVING INFRASTRUCTURE FOR FOOD WASTE PREVENTION, DONATION AND RECOVERY.

Strategy components	Establish regional coordination group of food waste experts and actors.
	Focus on commercial / institutional waste has the greatest potential for impact through prevention, as there is a strong ROI case.
	Awareness plays an important role to help recognize the value of prevention and reuse.
	Solutions must be adaptable to get buy-in from different actors in different contexts and geographies.
	Single family / residential still plays an important role and can’t be ignored.
	Infrastructure plays an important role in reuse and recovery and is often a constraint.
	Great data and collaboration exists, but is not consolidated across the region.
	When focusing on recovery, collection, processing and marketing of end product need to happen concurrently .

Organics Recommendation Package

Create regional collaboration for food and organic waste prevention, donation and recovery

Make the case and provide tools and programs for commercial and institutional prevention

Increase coordination regionally and grow infrastructure to support reuse

Expand collection, processing and end-use in mid valley (SF), Lane County, and Metro (MF)

Recommendation #1

Convene a Regional Collaborative Body Focused on Food Waste

INFORMAL NETWORK THAT BRINGS TOGETHER LEADERS IN THE SPACE (LARGELY IN METRO AND LANE COUNTY) TO DISEMINATE BEST PRACTICES AND COORDINATION ACROSS THE REGION.

- Description
  - > Focus on prevention, donation and recovery.
  - > Share data and program updates.
  - > Create best practice guidance and toolkit for prevention, donation and recovery.
  - > Explore grants or incentives to drive the right behavior .
- Who Acts
  - > Current leaders in food waste (Lane County, Metro and experienced local jurisdictions) provide leadership and share best practices.
  - > DEQ provides guidance, resources, data, and funding.
  - > Local governments refine messaging and support staff training.
  - > Associations partner and amplify messaging, Oregon restaurant and lodging,– focus on campaign.
  - > Non-profits contribute best practices, programming, volunteers.
- How is it Funded
  - > Counties / local governments contribute
  - > Potential RWA funding
  - > Grants
- Barriers
  - > Already a lot of collaborative bodies - don't want to be duplicative.
  - > Funding and capacity for convening group, developing guidance and implementing plan.
- Timeline
  - > 2025/26: Bring together the collaborative body, identify funding, inventory activity in one place, develop roadmap.
  - > 2026: Develop best practice and guidance.
  - > 2027: Implement plan.

Recommendation #2

Food Waste Prevention Focus on Commercial and Institutional Waste

A FOCUS ON AWARENESS, OUTREACH AND PUBLIC SUPPORT TO LARGE FOOD WASTE GENERATORS TO PREVENT WASTE

- Description
  - > Develop Regional awareness campaigns.
  - > Create best practice guidance and toolkit for Institutional prevention programming .
  - > Seek and promote partnerships between food recovery and farmers to support gleaning.
  - > Explore grants or incentives to drive the right behavior.
- Who Acts
  - > Current leaders in food waste - Lane County, Metro and experienced Local Jurisdictions provide leadership and share best practices.
  - > DEQ provides guidance, resources, data, and funding.
  - > Local governments refine messaging, support staff training and implement recommendations.
  - > Associations and non profits partner and amplify messaging, contribute best practices, programming, and volunteers.
  - > Commercial and institutions engage and execute recommendations within their organizations.
- How is it Funded
  - > Local jurisdictions contribute to the best practices and recommended approaches and fund implementation of campaigns and outreach.
  - > Potential corporate sponsorship.
- Barriers
  - > Attitudes and engagement of a broad number of businesses and institutions .
  - > Stimulating actions without incentives can limit broad impact.
  - > Drilling down to operational staff at businesses and institutions can be challenging.
- Timeline
  - > 2025/26: Inventory existing activity and roadmap
  - > 2026: Develop best practice and guidance toolkit
  - > 2027: Implement plan

Recommendation #3

Increase Regional Coordination and Research Around Food Donation in Partnership with Non-profits

CREATE REGIONAL FOOD DONATION DATABASE, CONDUCT GAP ANALYSIS AND SEEK OPPORTUNITIES TO FUND DONATION INFRASTRUCTURE SUCH AS STORAGE AND REFRIGERATION.

- Description
  - > Develop Regional awareness campaigns.
  - > Create best practice guidance and toolkit for Institutional prevention programming.
  - > Seek and promote partnerships between food recovery and farmers to support gleaning.
  - > Explore grants or incentives to drive the right behavior.
- Who Acts
  - > Regional collaboration / public sector leaders help to convene.
  - > Food banks and food rescue orgs can share data, coordinate activities.
  - > Retailers and businesses participate in donation.
  - > Pacific coast food waste commitment (broad guidance to help direct regional approach)
  - > DEQ could fund studies and provide mapping.
- How is it Funded
  - > Grants such as DEQ – materials management grant, private and community foundations, ReFED (catalytic grant).
  - > Local government matching funds.
  - > Corporate sponsorships (waste haulers, food manufacturers, lean manufacturing industry group, food producers).
- Barriers
  - > Funding.
  - > Proper grading and sorting among retail and businesses.
  - > Disaggregated information may be hard to aggregate.
  - > Ensuring that data be useful and accessible for everyone.
  - > So much work already being done – don't want to be duplicative.
- Timeline
  - > 2025/26:Consolidate research, create data visualizations, conduct gap analysis
  - > 2026: Develop plan to increase coordination and improve infrastructure.
  - > 2027: Implement plan

Recommendation #4

Expand Commercial & Single- Family Residential Collection

PROVIDE TOOLS AND TEMPLATES TO EXPAND COLLECTION, SUPPORT DEVELOPMENT OF INFRASTRUCTURE NEEDED TO PROCESS RECOVERED FOOD AND GUARANTEE MARKETS FOR COMPOST

- Description
  - > Conduct gap analysis on recovery infrastructure and create playbook and templates such as contract language, buy-back requirements, rfps, etc.
  - > Where quantity is sufficient County or LG issue RFP for processing. Include depackaging capability.
  - > Explore public owned – privately operated compost facility to serve the region.
- Who Acts
  - > Regional waste “authority” could provide overall guidance and roadmap.
  - > Counties develop infrastructure, research, contracting, technical resources.
  - > Local Governments provide contracting, oversight.
  - > Private haulers and processors provide services and investment.
  - > DEQ provides funding and research.
- How is it Funded
  - > Grants - Certa funding, USDA cooperative agreement, ReFED, Closed Loop Partners
  - > If publicly owned, tip fees
  - > Franchise fees
  - > Ratepayers (collection)
- Barriers
  - > Funding
  - > Need tonnage guarantee to access capital funding
  - > State and local Permitting and land use
  - > Communities near facilities may oppose siting
  - > Cost of transport
- Timeline
  - > 2025/26: Conduct gap analysis
  - > 2026: Develop playbook and shared templates
  - > 2027: Expand collection and processing

Task Force Recommendations

Built Environment

Built Environment Subcommittee

Recommendation Package

Built Environment Recommendation Summary

DESIRED FUTURE STATE: THE STATE AND THE MID-WILLAMETTE VALLEY REGION ARE ALIGNING STRATEGIES TO ADDRESS OREGON'S HOUSING NEEDS BY MAXIMIZING THE USE OF EXISTING STRUCTURES, BUILDING WITH LOW IMPACT MATERIALS, AND DIVERTING REUSABLE MATERIAL FROM LANDFILLS.

Strategy Components	
	Improve the region's potential for recovery of construction, renovation, and demolition debris.
	Create partnerships and systems to aggregate recovered building materials and supply them to builders, especially for housing.
	Establish statewide resources and support to assist local governments in applying adaptive building reuse approaches.
	Integrate principles of adaptive reuse into state strategies, across multiple agencies, to meet statewide housing needs.
	Update state building codes to incentivize the use of more sustainable materials in new construction.

Built Environment Recommendation Package

Improve infrastructure for recovery and management of construction, renovation, and demolition debris.

Integrate adaptive building reuse into state housing strategy.

Adopt policies to requiring healthier, more circular building materials.

Recommendation #1

Improve Infrastructure for Managing Construction, Renovation, and Demolition Debris

- Description
  - > Identify opportunities at existing and future materials management facilities to recover construction, renovation, and demolition debris and partner with reuse organizations to prioritize reuse of recovered materials, especially for use in construction projects.
- Who Acts
  - > Local jurisdictions and their service providers inventory current properties and facilities to identify spaces or needs for recovery operations.
  - > Local jurisdictions incorporate requirement to includes space for managing construction, renovation, and demolition debris into plans for future transfer facilities.
  - > State/DEQ: Reviews and approves permits for facility changes and new facilities.
- How is it Funded
  - > Tip fees at current or future facilities.
  - > Grant support could also be used to support recovery efforts.
- Barriers
  - > Cost and space
  - > Coordination across jurisdictions and with service providers
  - > Opposition from some segments of building industry
  - > Distance to/distribution of facilities
- Timeline/Next Steps
  - > Q4 2025: Evaluate existing infrastructure to identify potential to use existing spaces.
  - > 2026: Study and plan for feasibility of adding recovery operations to existing facilities.
  - > 2026: Jurisdictions coordinate planning for future system.
  - > 2030: New operations start at existing facilities, construction begins on new facilities.

Recommendation #2

Integrate Adaptive Building Reuse into State Housing Strategy and Provide Supportive Resources

- Description
  - > Integrate adaptive reuse policies into Oregon's state housing strategy and provide supportive resources for local governments. Conversion of existing buildings can reduce the need for demolitions and new construction and can take many forms, such as conversion of residential garages, attics, and basements to ADUs, or conversion of Main Street upper floor commercial and office spaces into housing.
- Who Acts
  - > State/DEQ: Provides educational resources to local governments.
  - > State/DEQ: Continues the Low-Embodied Carbon Housing Program, which incentivizes adaptive reuse reports on program effectiveness.
  - > Local jurisdictions advocate for state support.
  - > State integrates adaptive building reuse into housing strategy (across multiple agencies) and provides support to local jurisdictions.
  - > State Task Force (pending) could study and recommend state action.
- How it is Funded
  - > Leverage funds allocated to support housing production in the state.
  - > Contributions of staff time from regional collaborators.
- Barriers
  - > May require statewide legislation.
  - > Potential opposition if this were perceived to slow down or increase costs or create any barrier to addressing the state's housing shortage.
  - > Involves coordination of multiple state agencies and programs.
- Timeline
  - > Q4 2025: DEQ continues programs
  - > 2025: DEQ begins providing more education resources to local governments.
  - > 2025: Local governments/SMMP partners advocate for state support.

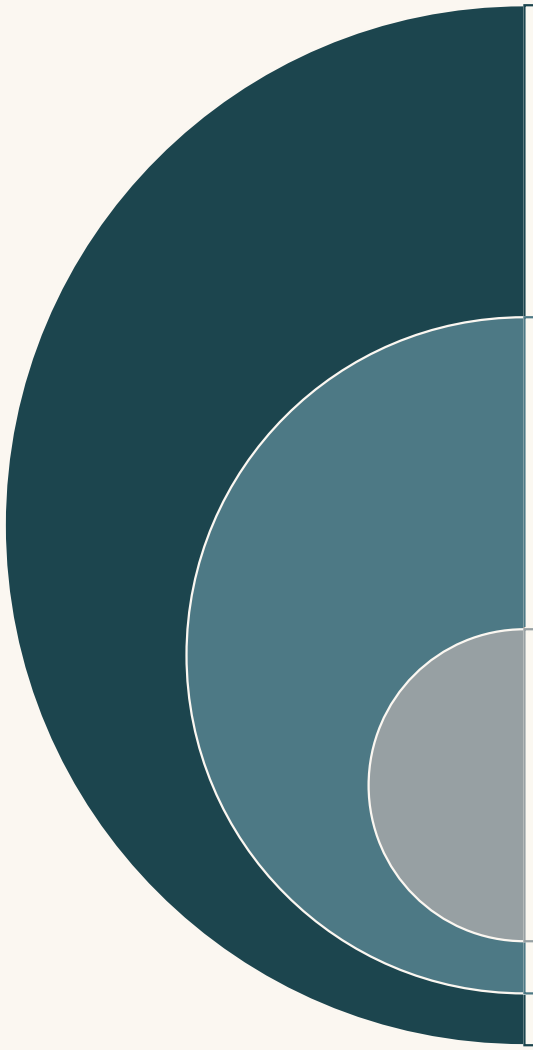
Recommendation #3

Adopt Policies Requiring Healthier, More Circular Building Materials

- Description
  - > Establish state and/or local building codes that favor the use of materials that are designed for reuse and recycling, and which have lower environmental and health impacts across their lifecycle.
- Who Acts
  - > State creates program at DEQ or in building codes division.
  - > State Task Force (pending) to explore the potential of updating statewide reach codes or allowing local jurisdictions to adopt reach codes.
- How is it Funded
  - > Building permit applications, development fees, and/or tip fees associated with disposition of construction, renovation, and demolition debris.
- Barriers
  - > Perceived costs/barriers to building and development
  - > Requires state action
- Timeline
  - > 2026: Recommendations from State Task Force
  - > 2027: Policy introduced to legislature
  - > 2029-2030: More favorable code environment to sustainable materials enacted and supportive program at DEQ in place.

Summary of Recommendations

Synergies and Core Areas of Focus



Policies

- Regional IGA or Waste Authority
- Advocacy for state EPR Programs
- Align local policy and service contracts with regional policy goals
- Integration of sustainable materials principles into state housing strategy

Investments

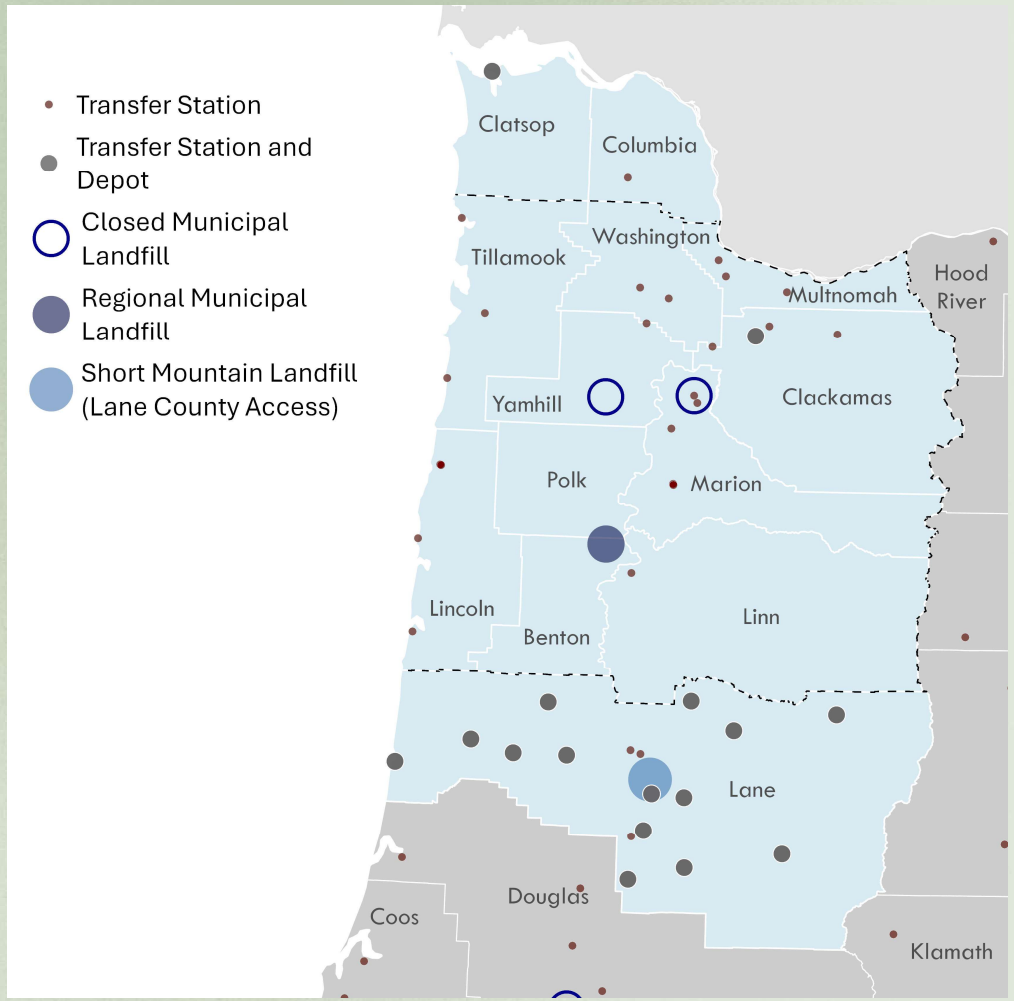
- Hub and spoke collection and transfer systems
- Transfer facilities designed for recovery (all focus materials)
- Dedicated spaces for reuse/repair
- Compost processing and donated food storage

Programs

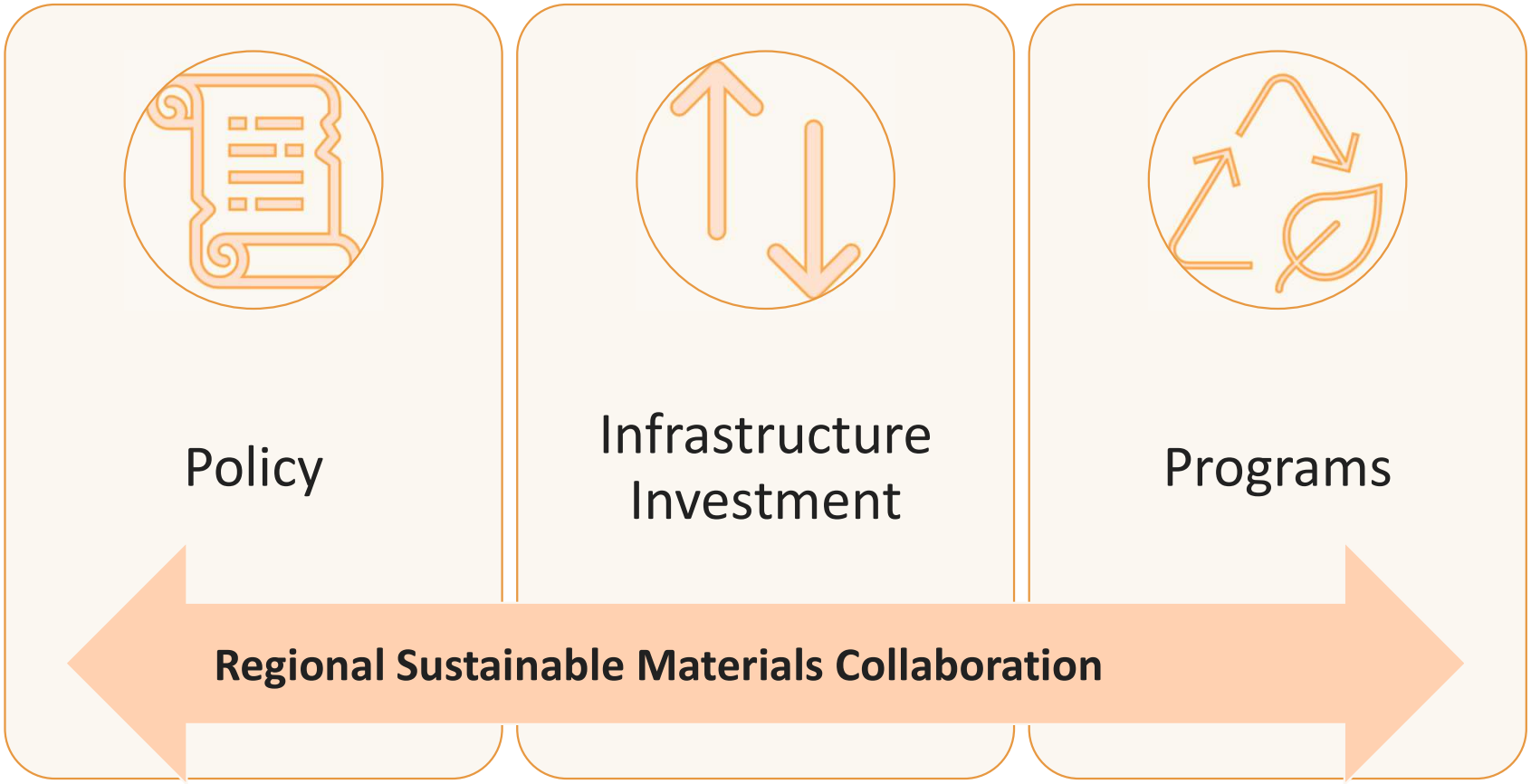
- Regional reuse and repair hubs
- Increased outreach, education and industry-specific engagement (all materials)
- Sustainable materials economic development program
- Coordinated organics

Sharpening the Focus

- Ten NW Oregon counties rely on one regional municipal landfill.
- Regional collaboration for the purposes of:
  - > Long range planning
  - > Shared funding of regional infrastructure
  - > Policy leadership
  - > Programmatic support
- Regional resilience
  - > Potential benefits for 13 counties, and the state



Scenario: Formalized Regional Collaboration



Regional Waste Subcommittee

Research and Case Studies

FOCUS AREA #1: TRANSFER STATION DESIGN

- **Goal:** Plan for and invest in facilities that meets the region's future needs for materials recovery and transfer.
- **Strategies:**
  - Deploy technologies such as AI, optical sorting, and robotics to improve efficiencies at existing facilities.
  - Build new facilities that meet the region's need to manage waste material and have capacity for material recovery operations.

START CONSULTING RRS

TRANSFER STATION DESIGN BENEFITS AND CONSEQUENCES

Strategy	Partners	Cost	Waste Impact	Timeline	Economic Impact	Human Health Impact	Environmental Impacts
Mini-MRF Installation(s)	The Recycling Partnership, local municipalities.	Low cost (estimated $100,000–$300,000)	• High Diversion • Low Prevention • High efficiency for waste reduction relative to low cost.	1 year (Pilot phase, could expand further).	High economic return due to increased revenue from recyclables and lower operational costs.	Positive impact due to reduced worker exposure to hazardous waste and improved sorting conditions.	Positive environmental impact from recycling large volumes of materials. High GHG reductions from diverting materials from landfills and reducing transport emissions.
AI & Optical Sorting Technology	The Recycling Partnership, AI technology providers.	High cost (estimated $1M–$5M)	• High Diversion • Moderate Prevention • Moderate efficiency, high-cost relative to waste reduction.	2 years (from planning to operational).	Moderate economic impact, high return due to improved sorting efficiency and higher quality material sales.	Positive health outcomes with safer workplace conditions and less exposure to harmful materials.	Positive impact from enhanced sorting capabilities, leading to better material recovery and environmental benefits. Moderate GHG reductions.
Automated Balers	Private equipment suppliers, public sector waste management agencies.	Moderate cost (estimated $500,000–$1.5M)	• Moderate Diversion • Low Prevention • Moderate efficiency, returns good results but not as efficient as higher-cost solutions.	1.5 years (fast implementation due to existing infrastructure).	Moderate economic impact due to labor savings and improved material density for higher resale value.	Positive worker safety impact by reducing physical strain and handling risks.	Positive impact from reduced material sent to landfills and enhanced sorting for better recovery. Moderate GHG reductions through greater efficiency and less transport.
On-Site Integration of Reuse	Monroe County, local non-profits focused on reuse, state environmental agencies.	Low cost (estimated $200,000–$500,000)	• High Prevention • Moderate Diversion • High efficiency with reuse reducing waste at a low cost.	1 year (modest due to existing infrastructure and reuse focus).	Very positive economic impact: community cost savings, increased local reuse market, and job creation.	Very positive health impact: preventing hazardous waste and reducing illegal dumping risks.	Very positive environmental impact from the diversion of reusable items from landfills. Very high GHG reductions from reuse and preventing the need for new production.

TRANSFER STATION DESIGN CONSIDERATIONS

Essential Details	Who Needs to Act	How it is Funded	Known Barriers
• Design for recovery in the future, even if you can't do it in the moment. Plan for end in mind. Create footprint for sorting, larger tip area for triage. Scaled large enough, flexible. (~50 acres) • Prioritize problematic materials for transfer or landfilling (larger furniture, mattresses, C&D, any regulated (e-waste, USCL / PRO list, HHW). What's next from the regulated stream? • Set up for both public and commercial – focus on traffic flow – separate section for recycling / trash. Maybe a third for reuse? • Multi-modal (see following strategies) • Publicly owned (individual or collection of counties) • Even while landfill is open could still make it more efficient to transfer smaller route trucks into larger trailers • Retrofits can happen sooner – e.g. Tillamook (evaluate who can retrofit – future project focus) (first phase)	• Due to economies of scale – focus on mid valley "cooperative" effort / joint power authority (Benton, linn, Marion, Tillamook, Lincoln, possibly Yamhill). These counties don't have infrastructure • Polk is already putting in transfer station. Metro, Lane already has made investment. • Counties operate independently but with common goal and potentially common facility • All the cities within the county - Franchise arrangements with cities – affects flow?? • Legislative authority to guarantee tons to the facility – able to raise capital (how WtE was funded)	• Tip fees • Grants / state funding • Consider lodging tax funding, something that supports other utilities / critical services • Revenue bond (depends on material in-flow)	• Public opposition • Industry opposition (haulers, vertically integrated waste companies, new groups formed) • Landfills are distant, Markets for recyclables are closer (relates to hub and spoke) • Cost • Time – need solutions prior to 12 years. Solution operational in 10 years. Organize partners, procure design build, build, begin operations

START CONSULTING RRS

FOCUS AREA #1: BIBLIOGRAPHY/CASE STUDIES

- Penn Waste + The Recycling Partnership Mini-MRF pilot (York, PA) installed at a transfer station (Recycling Partnership, 2020).
- Rumpke Recycling (Cincinnati, OH) installed AI and optical sorters at transfer-connected MRF (Rumpke Recycling, 2021).
- Recology (San Francisco, CA) uses automated balers at its transfer station to handle cardboard, plastics, and metals efficiently (Recology, 2022).
- EcoPark (Monroe County, NY) co-locates reuse, HHW drop-off, and swap stations at a public transfer station (Monroe County, 2021).

START CONSULTING RRS

FOCUS AREA #2: TRANSFER NETWORK

- **Goal:** Develop transfer infrastructure network designed for recovery and efficient material transfer.
- **Strategies:**
  - Ensure Shortest Hauling Distance
  - Partner with Non-Profits
  - Develop a Hub & Spoke model network

START CONSULTING RRS

TRANSFER NETWORK BENEFITS AND CONSEQUENCES

Strategy	Timeline	Costs to Implement	Economic Impacts	Human Health Impacts	Equity/Community Impacts	Environmental Impacts
Zoning (Geographic Service Areas)	1–2 years	$500K–$1M (planning & admin costs, borne by local governments and haulers)	Stabilizes collection markets	Reduces exposure to unmanaged waste	Neighborhood disparities possible	Lower landfill rates Reduces transport emissions
Franchise Agreements	2–3 years	$100K–$300K (legal/admin and contract compliance, shared by gov't and haulers)	Predictable costs & service	Safer waste processing	More uniform services	High diversion rates Lower methane from organics
Permit Conditions Requiring Nearest Facility Use	1–2 years	$50K–$200K (policy development & oversight, paid by governments)	May raise hauler costs	Prevents illegal dumping	Can support equitable oversight	Boosts processing rates Cuts hauling emissions
Financial Incentives/Penalties	6 mo–1 yr	$50K–$150K (admin, enforcement, funding reserves; gov't and ratepayers)	Encourages compliance	Reduces landfill exposure	Smaller haulers may be burdened	Less landfilled material Fewer landfill emissions
Real-Time GPS & Route Verification	6 mo–1 yr	$100K–$500K (tech setup, data infra; haulers and city IT departments)	Long-term efficiency gains	Improves oversight	Transparent operations	Efficient routing lowers impact Less fuel use
Government Contract Requirements	1–2 years	$200K–$500K (contract dev & enforcement; paid by city, partially recoverable)	Cost-effective control	Safer, verified processing	Ensures service access	Reduces waste leakage Directs organics to compost
Central Coordination by Waste Management District	1–3 years	$500K–$1.5M (inter-agency admin, staff, IT systems; regional agencies)	Regional efficiencies	Public health planning	More uniform access regionally	Region-wide benefits Lower per-ton emissions
State/Local Waste Diversion Regulations	2–5 years	$500K–$2M (policy writing, compliance programs; states & localities)	Compliance can be costly	Less waste exposure	Broad mandate helps coverage	High diversion Organics & recycling emissions cut
Material-Specific Disposal Bans	1–2 years	$100K–$500K (rulemaking, outreach, monitoring; state/local gov't)	Hauler/business adaptation costs	Reduces exposure to harmful waste	May need better outreach to all groups	Keeps toxics & organics out of landfill Lowers methane & GHGs

TRANSFER STATION NETWORK CONSIDERATIONS

Essential Details	Who Needs to Act	How is it Funded	What are the Barriers
• Something guaranteeing inbound tonnage to newly capitalized destination facilities. If its publicly owned it has more legal precedent. • Some type of coordinated decision-making body (authority) – either through legislation or through direct IGA agreements. In Marion county "flow control" is set in state statute (legislative approach) • LG still have their own franchise agreements for collection and can use the fees to fund services • Allow (require?) non-profits on-site at the TS to "intercept" waste that can be reused – could be articulated in – infrastructure has to be there first to allow them there to be safely (part of ts design). X%? – could be trailers to divert and store. Rotating ngos on different days. • Sizing even smaller facilities to store enough to access markets.	• Due to economies of scale – focus on mid valley "cooperative" effort / joint power authority (Benton, linn, Marion, Tillamook, Lincoln, possibly Yamhill). These counties don't have infrastructure • Polk is already putting in transfer station. Metro, Lane already has made investment. • Counties operate independently but with common goal and potentially common facility • All the cities within the county - Franchise arrangements with cities – affects flow?? • Legislative authority to guarantee tons to the facility – able to raise capital (how WtE was funded) • Non-profits	• Is there a way to monetize avoided costs to provide service fee for non-profits to operate reuse – (contract with them)? Could be overlap with products and packaging.	• potential opposition to "flow control" • Local governments reluctant to give up control of services (garbage), which funds other services. • Safety – if reuse is happening. Keeping that activity separate from other traffic flows, etc. • So much "stuff" hard for non-profits to manage the scale

START CONSULTING RRS

FOCUS AREA #2: BIBLIOGRAPHY/CASE STUDIES

Ensuring Shortest Hauling

- **Zoning (Geographic Service Areas)** Los Angeles, CA – RecycLA
- **Franchise Agreements** San Jose, CA
- **Permit Conditions Requiring Nearest Facility Use** King County, WA
- **Financial Incentives/Penalties** San Jose, CA
- **Real-Time GPS & Route Verification** Toronto, ON
- **Government Contract Requirements** Austin, TX
- **Central Coordination by Waste Management District** Metro (Portland, OR)
- **State/Local Waste Diversion Regulations** Oregon SB 2639, CA AB 939
- **Material-Specific Disposal Bans** MA Waste Bans, OR Depave

Non-Profit Partnerships

- **Collection and Redistribution of Donated Items** Diverts gently used items from landfills to nonprofits for resale or donation, Seattle, WA; Portland, OR
- **Specialized Waste Programs** Refurbishes bulky items (e.g., furniture, electronics) for resale, San Francisco, CA; Los Angeles, CA
- **Job Training & Community Engagement** Offers repair/reuse job skills tied to diversion. NYC; Bronx, NY; Chicago, IL
- **Zero-Waste Initiatives** Systemic, citywide reuse partnerships embedded in policy. Austin, TX; Boulder, CO
- **Education & Donation Drives** Campaigns + collection events to promote reuse, Minneapolis, MN; San Diego, CA

START CONSULTING RRS

FOCUS AREA #2: BIBLIOGRAPHY/CASE STUDIES

Hub & Spoke Model

Massachusetts Recycling, Food Waste (Organics) Springfield MRF; Composting & AD facilities, Dozens of municipalities. Dual hub system for both recycling & organics

Vermont Recycling, Composting, CSWD MRF (Williston), Regional facilities
Small towns & rural areas, Statewide coordination under Universal Recycling Law

Texas (Austin) Recycling, Hazardous Waste, E-waste, Centralized MRF; Specialized processors. Multiple drop-off points, Multi-stream waste collection & processing

Oregon (Portland Metro) Solid Waste, Recycling, Organics, Hazardous Waste, Metro Central & South Transfer Stations
Residential/commercial sources; drop-off locations
Comprehensive multi-waste system incl. hazardous

Colorado (Front Range) Recycling, Composting, Regional MRFs; Cherry Creek Drop-off Center. Multiple collection points, Regional coordination across Front Range

START CONSULTING RRS

FOCUS AREA #3: TRANSPORTATION MODALITIES

- **Goal:** Assess benefits of utilizing intermodal logistics (trucks, train, barge) to efficiently move materials. Consider role of Mid Willamette Valley Intermodal Center (MVIC) and benefits relative to uncoordinated direct trucking.
- **Strategies:**
  - Trucking
  - Rail
  - Barge
  - Intermodal Combo

START CONSULTING RRS

TRANSPORTATION MODALITY BENEFITS AND CONSEQUENCES

Mode	Strengths	Weaknesses	Best Use Case	Cost	Waste Impact	Waste Impact by Cost	Economic Impacts	Human Health Impacts	Environmental Impacts
Truck	Best for local diversion programs. Highly flexible.	Inefficient and environmentally costly for long-distance transport.	Local waste diversion programs, collection in urban areas.	High – Trucks can be costly due to fuel, labor, and maintenance costs.	High -Effective for local waste diversion, especially with frequent pick-ups.	Moderate - High cost but moderate efficiency in reducing waste per dollar spent.	Moderate - Trucks provide jobs but can have local congestion and inefficiencies.	Low - Diesel trucks contribute to local air pollution and associated health risks.	Low - High GHG emissions, especially from diesel fuel; poor fuel efficiency per ton-mile.
Rail	Cost-effective for long-haul waste transport. Environmentally friendly for long distances.	Limited reach. May require better sorting at transfer points.	Long-distance waste transport, especially for bulk waste across regions.	Moderate - Less costly than trucks for long-distance transport but needs significant infrastructure investment.	High - More efficient for long-haul waste diversion, reducing transport-related waste.	High - Lower costs per unit of waste diverted than trucks, making it highly cost-effective.	High - Job creation in rail operations but less direct community impact.	Moderate - Rail can be safer and cleaner than trucks for human health, reducing air pollution.	High - Very low GHG emissions per ton-mile, especially when electric-powered; good climate option.
Barge	Ideal for large volumes of waste. Environmentally sustainable for long-distance transport.	Requires access to waterways. Slower transport times.	Large volume, long-distance transport where access to waterways exists.	High - Barges are typically less expensive for bulk, long-distance waste transport but rely on specific infrastructure.	High - Effective for long-haul waste diversion, especially for large volumes.	Good - Barges are efficient for reducing waste over long distances, though slower than other modes.	Moderate - Limited impact on local economies unless associated industries (e.g., ports) are involved.	Moderate - Slower transport times and limited reach, which might delay waste reduction efforts in communities.	High - Extremely efficient per ton-mile; lowest CO_2 emissions among freight options when fully loaded.
Multi-Modal Systems	Offers flexibility by combining modes. Balances strengths and weaknesses of individual modes.	Complex coordination needed. Higher infrastructure costs.	Large-scale, integrated systems for complex waste management solutions.	Very High - Multi-modal systems require extensive infrastructure and planning, making them expensive.	Moderate - The effectiveness of waste reduction depends on integration but can be less efficient due to complexity.	Moderate - Coordination and infrastructure can decrease the overall cost-effectiveness of the system.	Moderate - Can create jobs, but the complexity could increase costs and reduce local economic benefits.	Moderate - The health impact is mixed depending on the modes used, but more complex systems might increase pollution.	Moderate - Complex systems can lead to inefficiencies and environmental harm if not optimized. Emissions depend heavily on the modes used; greener options can lower impact.

TRANSPORTATION MODALITY CONSIDERATIONS

Essential Details	Who Needs to Act	How is it Funded	What are the Barriers
• Potential to move waste longer distances • Could help with recycling markets, access further markets that pencil out by rail (back haul dynamic with MRFs?) • Have to retrofit transfer / reload equipment to containerize. Move away from walking floor / tipping container. Compactors work interchangeably. Containers could be provided by end user – could be as limited as just the chassis upgrade. • Need scale (multi-county effort) – if all diverted = 180 - 185 train cars (x2 30 ton containers) per week. Based on 570k tons. • Under 400 miles. It pencils out better for trucking?	• Same as above – need coordinated authority to get appropriate scale / compete for better tip fees / market opportunities • Haulers would need to retrofit reload equipment • Landfill operators (WM / Waste connections)	• Tip fees account for disposal fees	• Have to retrofit transfer / reload equipment to containerize. • Some TS too small, no room to reload to containers • Trucking could be cheaper for shorter distances. Other benefits to rail – less affected by weather, road safety, ghg, traffic congestion, wear and tear on road, etc.

START CONSULTING RRS

FOCUS AREA #3: BIBLIOGRAPHY/CASE STUDIES

- **New York City**
  One of the largest barge/rail systems in U.S.; manages 12,000+ tons/day

- **Los Angeles County**
  Handles 30M+ tons/year; investing in rail for remote landfill transport

- **Seattle-King County**
  Barge-based long-distance waste hauling to Oregon landfills

- **Chicago**
  High rail reliance due to landfill scarcity; uses some barge

- **Washington, D.C. Metro**
  Contracts with intermodal facilities to reduce truck miles

START CONSULTING RRS

FOCUS AREA #4: OWNERSHIP MODELS

- **Goal:** Determine what ownership model is best for maximizing waste reduction efficiently
- **Strategies:**
  - Public ownership & operations
  - Public ownership & private operations
  - Private ownership & operations

START CONSULTING RRS

OWNERSHIP MODELS BENEFITS AND CONSEQUENCES

Ownership Model	Example & Location	Cost	Waste Diversion Impact	Waste Diversion Impact per Cost	Policy Support	Implementation Timeline	Economic Impacts	Human Health Impacts	Equity/Communities Impacts	Environmental Impacts	Climate Impacts
Publicly Owned & Operated	Metro – Oregon (Portland metro area)	High (public funding, large scale)	High (significant regional waste diversion)	High (due to direct public control)	Strong (regional planning and policies)	1-2 years	Positive (long-term sustainability, cost efficiency)	Positive (healthier waste management)	Positive (accessible to all communities)	Positive (meets regulatory goals)	Positive (lower emissions due to efficiency)
Publicly Owned, Privately Operated	Pierce County – Pierce County, WA	Medium (public funding + private sector efficiency)	Moderate (effective waste diversion, less control)	Moderate (private sector efficiency vs. public goals)	Moderate (some private company influence)	1-2 years	Moderate (private sector cost savings)	Moderate (depends on private company focus)	Moderate (impacts vary based on contract terms)	Moderate (regulated by public goals)	Positive (emissions controlled by public oversight)
Privately Owned & Operated	Columbia Resource Co. – Clark County, WA	Low (privately funded, limited oversight)	Moderate (commercial waste diversion focus)	High (cost-effective but less regional control)	Low (no direct public policy support)	1-3 years	High (private sector efficiency, cost reduction)	Low (depends on operations)	Low (may not target equity directly)	Moderate (dependent on private sector goals)	Moderate (depends on private sector policies)
Publicly Owned, Privately	Jefferson County – Jefferson	Medium (public funding + private	Moderate (focused waste diversion, less control)	Moderate (efficiency but mixed goals)	Moderate (policy may vary by	1-2 years	Moderate (private sector may reduce	Moderate (health outcomes depend on	Moderate (impacts may vary by private sector)	Moderate (aligned with public goals)	Moderate (depends on private sector

OWNERSHIP MODEL CONSIDERATIONS

Essential Details	Who Needs to Act	How is it Funded	What are the Barriers

• Ownership: Publicly owned – don't need to add margin, allows for more defensible flow control
• Operation: Could be case by case. Lean toward private operators.
	• How does regional "authority" / district interact?
	  • Letters of agreement
	  • Set service standards
	  • Outline system needs and requirements
	  • Directs materials
	  • Could own or not
		• Depends on model selected.
		• Jurisdictions provide staff time to evaluate and support creation of selected model.
			• Potential concerns from service providers.
			• Potential community concerns.

START CONSULTING RRS

FOCUS AREA #4: BIBLIOGRAPHY/CASE STUDIES

- **Publicly Owned & Operated:**
  Metro – Oregon (Portland metro area)

- **Publicly Owned, Privately Operated:**
  Pierce County – Pierce County, WA
  Jefferson County – Jefferson County, OR

- **Privately Owned & Operated:**
  Columbia Resource Co. – Clark County, WA

START CONSULTING RRS

ADDITIONAL BENEFITS AND CONSEQUENCES: NON-PROFIT PARTNERSHIPS

Strategy	Partners	Cost	Waste Impact	Implementation Timeline	Economic Impact	Human Health Impact	Environmental Impacts
Collection and Redistribution of Donated Items	Goodwill, Salvation Army	Low ($50k–$150k/year per city) – mostly logistical and outreach costs	High—promotes reuse over new purchases, avoiding waste generation Excellent efficiency; high waste prevented at low cost	6–12 months	Revenue from resale supports nonprofits and local economy	Low direct health impact; some indoor air quality gains	Prevents landfill use; reduces resource extraction and emissions via avoided manufacturing
Specialized Waste Programs	Habitat ReStores	Medium ($150k–$400k/year) – includes repair staff, space, and logistics	High—extends lifespan of large goods High value per cost unit; costly but deep impact	12–18 months	Creates green jobs, boosts reuse markets	Minimal but positive (indoor air, safer disposal)	Preserves materials, prevents landfill strain; avoids emissions from production
Job Training & Community Engagement	Goodwill, local orgs	Medium ($200k–$600k/year) – includes wages, trainers, facilities	Moderate—emphasizes repair and skill-building Medium efficiency; higher cost per waste ton reduced	9–18 months	Trains local workforce, reduces unemployment	Strong—healthier living conditions via stable jobs	Moderate—less waste, more reuse
Zero-Waste Initiatives	Goodwill, city reuse networks	High ($500k–$1.5M/year) – large-scale coordination, staff, infrastructure	Extensive—aims to prevent most types of waste Strong overall impact despite high cost	12–24 months	High market development and circular economy benefits	Strong public health gains from less dumping	Very strong—multiple waste streams prevented; Substantial long-term emissions reduction
Education & Donation Drives	Goodwill, Salvation Army	Low ($20k–$100k/year) – primarily outreach, signage, coordination	Moderate—helps prevent consumer waste Low cost, decent impact = very efficient	3–9 months	Low-cost strategy with local economic benefits	Moderate—educational health components	Good—reduces disposable goods usage; Modest reduction in transportation and landfill emissions

ADDITIONAL BENEFITS AND CONSEQUENCES: HUB AND SPOKE MODELS

Strategy	Partners	Cost	Waste Impact	Economic Impact	Human Health Impact	Environmental Impacts
State-led, Rural + Urban Mix	Strong **public-sector leadership** (state agencies, solid waste districts), regional planning bodies, nonprofits	Moderate to High – due to need for regional coordination & rural logistics	High – long-standing organics bans and diversion mandates drive strong performance	Steady economic benefit, especially for local reuse and compost industries	Indirect but positive – through food recovery and reduced landfill dependence in rural areas	High – Emphasis on landfill diversion, GHG reduction, soil health from composting
Metro-led, Urban Innovation Hubs	**City-led coalitions**, innovative partnerships with private haulers, tech firms, startups	Variable – often **pilot-heavy** with startup costs, but some cost savings through efficiency	High – city programs target waste prevention and organics with advanced metrics	High – often includes green job creation, circular economy pilots, and local business development	Moderate – improved air quality and exposure mitigation near transfer/processing facilities	High – aggressive climate goals, methane reduction, and closed-loop systems
Rapid-Growth, Regional Scaling	Emerging regional coordination among **counties, MPOs, utilities**, private haulers	Mixed – lower per capita investment but high scaling costs expected	Moderate – strong potential, but often lacks statewide mandates or consistent metrics	Growing – focus on market development for compost and recyclables	Localized – improved service access in underserved and fast-growing areas	Moderate – depends on success of scaling infrastructure and regional policies

Products and Packaging Subcommittee

Research and Case Studies

FOCUS AREA #1: ECONOMIC DEVELOPMENT STRATEGIES

- **Goal:** Invest in the growth of recycling businesses, especially in product and packaging reuse, processing, and manufacturing using recycled materials.
- **Strategies:**
  - Establish grant programs for small businesses and innovation, especially in reuse infrastructure.
  - Provide land, buildings, and/or supportive infrastructure for reuse and recovery businesses and non-profits to support tool libraries, repair cafes, etc.
  - Provide financial support and technical support programs for emerging businesses.

START CONSULTING RRS

ECONOMIC DEVELOPMENT BENEFITS AND CONSEQUENCES

Strategy	Organizational Sponsors	Cost	Waste Impact	Time horizon	Economic Impact	Human Health Impact	Environmental Impact
Grants	U.S. Economic Development Administration, State/Local Government	Varies Federal grants are frequently over $1 million State/local grants often less than $1 million Local grants as small at $10k can be impactful	Varies/Unknown High potential impact but actual impact on waste diversion depends is difficult to predict.	Medium to long Economic development grants often target early-stage industries and businesses that may take years to reach scale.	High - Attract private sector businesses that utilize recyclables as raw materials Enhancing job creation and economic growth	Varies/Unknown The health impact would depend on the kind of business/industry.	Varies/Unknown The health impact would depend on the kind of business/industry.
Provide Infrastructure for Reuse and Recovery	State and local government, Potential public-private partnership	Medim to high cost Land, buildings, equipment start in the tens or hundreds of thousands of dollars	Medium Could have significant diversion if adopted widely across the region.	Medium Would likely take at least a couple of years to see impact	High Reuse and repair have strong job creation and economic growth potential	Varies/Unknown	High - Reuse lowers demand for virgin materials which is often the most environmentally damaging point in production of products.
Technical support programs, Job Training	State and local government	Medium The Circular Economy Innovation Center applies $100,000 to local businesses, non-profits, schools etc. Annually NextCycle Michigan Pitch Competition Award grants - $10,000, $2,500, $1,000	High Strengthening businesses or non-profits who are in the sustainability industry Increasing Recycling/Reuse/Repair employee education in organizations	Medium Sustainability plan updated in 2018 include waste diversion goals and circular economy growth to 2023 Circular Economy Innovation Center is created	High - Funding programs is direct investment in the local economy. Successful program participants will continue to generate economic growth.	Varies/Unknown	Varies/Unknown Eligible organizations are required do pitch competitions and startup bootcamps where Environmental Impacts must be required

ECONOMIC DEVELOPMENT CONSIDERATIONS

Who needs to act?	How is it Funded (Examples)	What are the Barriers
• State and local government • Community based organizations and non-profits • Reuse/repair shops • Zero-waste businesses, etc.,	• Climate Pollution Reduction Grants (CPRG): In July 2024, DEQ was awarded approximately $197 million by the EPA to implement the Climate Equity and Resilience Through Action (CERTA) program. This program aims to reduce greenhouse gas emissions across various sectors, including waste management. (Source – Whole Community News) • The **Recycling Modernization Act**, mandates producers contribute to waste reduction and reuse fund. • **Hennepin County** allocates funds from their annual budget to their Environment and Energy Department to support environmental programs • **NextCycle program**: funded by state agencies (4 states) • **WA Recycling Development Center**, partnership between department of ecology and department of commerce	• Competing funding priorities and tight budgets

START CONSULTING RRS

FOCUS AREA #1: BIBLIOGRAPHY/ CASE STUDIES

- Austin, TX receives Grant Money - Austin, TX received a $1 million grant to develop infrastructure for the city's first eco-industrial park, the Austin [re]Manufacturing Hub, aimed at promoting recycling, reuse, and green job creation.
- Boulder Annual Circular Economy Funding Application - Boulder County operates a Circular Economy Innovation Center that fosters entrepreneurship and small business innovation around recycling, repair, remanufacturing, and material recovery.
- Hennepin County Programs and Initiatives - Grants support projects to engage our adult residents in helping the county reach it's zero waste and climate goals by preventing waste, composting organic waste, reducing, reusing, recycling, and repairing.
- Oregon Recycling Modernization Act - The Oregon Recycling Modernization Act modernizes the state's recycling system by expanding access, improving recycling facilities, and requiring producers to help fund the program.
- State of Washington Recycling Development Center - The Washington State Recycling Development Center (RDC) fosters domestic recycling markets by conducting research, providing business assistance, and facilitating innovation to promote a circular economy.
- Oregon awarded nearly $200M in federal funding to boost climate action programs Oregon DEQ Climate Change Efforts - Oregon has been awarded $200 million in federal funding through the EPA's Climate Pollution Reduction Grant program to implement 12 programs aimed at reducing greenhouse gas emissions from transportation, buildings, and waste management.
- NextCycle Programs - Colorado, Michigan, and Washington - The NextCycle program is a state-led accelerator that supports innovative recycling and circular economy projects by providing technical assistance, business development, and funding connections to help teams scale sustainable solutions.

START CONSULTING RRS

FOCUS AREA #2: PUBLIC POLICY APPROACHES

- **Goal:** Implement policies across multiple contiguous counties, or statewide to support tracking, recovery, and reuse especially for textiles, bulky goods, and common single use items like foodservice ware and packaging.
- **Strategies:**
  - Address single use plastics with reuse ordinances and prioritization of reuse in public agency procurement and operations
    - Mandate reporting and/or study materials sold into state/county
    - EPR for furniture, appliances, carpet, and other bulky products
  - Require additional collection services, such as Recycle+ and bulky waste management from franchised waste haulers (addressed below)

START CONSULTING RRS

PUBLIC POLICY BENEFITS AND CONSEQUENCES

Strategy	Organizational Sponsors	Cost	Waste Impact	Time horizon	Economic Impact	Human Health Impact	Environmental Impact
SUP plastic bans and prioritization of reuse procurement	Local or state government	Medium Low cost to enact policy. Upfront costs to purchase reusables Enforcement of bans could require public funding	High Potential to reduce litter. Moderate impact on waste stream	Short to medium: Bans and mandated could take effect in a year or less.	Medium: Potential increased costs to businesses and consumer	Medium: Reduced exposure to microplastics and plastic litter	Medium Reduced local generation of microplastics and plastic litter
Data Collection and Reporting Mandate	State/Local Governments	Varied/Unknown Costs depend on the scale of the program and enforcement method but at minimum would required staff to track and report.	High Mandatory reporting would provide policy makers with information to create better policy and infrastructure in the future.	Long range: Would likely take several years to implement, gather, and analyze data, which would then be used to inform policy.	High A county must invest in Staff to manage the platform and partnerships, outreach and education campaigns, data tracking and performance monitoring.	Varied/Unknown	Medium Additional statistics could be required to include the number of cars taken off the road and water saved, utilizing tools like the WARM calculator.
EPR	State government	Low EPR models typically mandate producers cover all administrative costs.	High Policy can mandate landfill diversion targets for a range of materials.	Medium Based on research of the active EPR laws, the typical implementation timeline appears to be 5 to 10 years.	High Mandates investments from producers in recovery, processing, and recycling of materials.	Varies Depends on product/packaging type targeted.	High Increased recycling rates reduces litter and ocean pollution. Products may be designed to be more recyclable.

PUBLIC POLICY CONSIDERATIONS

Who Needs to Act	How is it Funded	What are the Barriers
• State and Local Governments are the appropriate agencies to enact policies. • Requires a coordinates regional or statewide coalition to advocate for policy. • Coalitions with Manufacturers, Retailers and Non-profits, Trade Associations, and Brands would be	• Some policies, such as bans and EPR can be structured to have no public cost or event to generate revenue from fees or penalties that would cover costs of program administration or enforcement. • EPR for packaging, such as those passed in OR, CA, and other states require producers to pay fees to the state agency for administering the program and to support addition waste impact reduction.	• Competition with other pressing issues. • Opposition from industry • Potential public opposition/Need for outreach and education

START CONSULTING RRS

FOCUS AREA #2: BIBLIOGRAPHY/ CASE STUDIES

- Upstream Solutions in EPR Policy - advocates embedding reuse into Extended Producer Responsibility (EPR) and Deposit Return System (DRS) policies by mandating producer-funded, shared infrastructure and incentives to prioritize reusable packaging over single-use alternatives.
- 2025 compliance deadlines approach as EPR legislative and regulatory frameworks develop - outlines the impending compliance deadlines for Extended Producer Responsibility (EPR) laws in Oregon, California, and Colorado, detailing reporting requirements, producer fees, and the role of the Circular Action Alliance in facilitating these obligations.
- Donate NYC Data Tracking, Donate NYC 2021 Annual Report - DonateNYC employs the Reuse Impact Calculator (RIC) to quantify the environmental benefits of reuse activities, tracking metrics like diverted material tonnage and associated reductions in CO_2 emissions.
- Biden announces goal to phase out federal procurement of single-use plastics - The Biden administration plans to phase out federal purchases of single-use plastics by 2035, starting with food service items in 2027, as part of a broader plastic pollution strategy.
- Oregon Food Serviceware Guide - assists restaurants in transitioning to sustainable practices by outlining upcoming bans on polystyrene foam and PFAS-containing items, promoting reusable alternatives, and offering strategies to minimize single-use waste.
- EPR for Textiles: Washington and New York Make the First Move - Washington and New York have introduced the first U.S. bills establishing Extended Producer Responsibility (EPR) for textiles, mandating producers to manage the collection, recycling, and disposal of apparel and textile products.

START CONSULTING RRS

FOCUS AREA #2: BIBLIOGRAPHY/ CASE STUDIES

- Rhode Island Legislation that was introduced but never passed on textile reporting mandate - Rhode Island House Bill 5293 proposes a statewide textile recycling program with public education, annual collector reporting by 2028, and recycling benchmarks set by 2026.
- Berkeley Single Use Plastic Ordinance - outlines the city's initiative to reduce single-use disposable foodware and packaging due to their significant contribution to litter, pollution, and greenhouse gas emissions, promoting the use of reusable and compostable alternatives to protect public health and the environment.

START CONSULTING RRS

FOCUS AREA #3: PUBLIC PROGRAMS AND SERVICES

- **Goal:** Establish and/or support programs and services that support recovery and reuse, especially for textiles, bulky goods, and common single use items like foodservice ware and packaging.
- **Strategies:**
  - Outreach and education campaigns targeting textiles, bulky waste, and reuse and refill best practices
  - Reuse and repair programs targeting high-turnover housing areas (such as college campuses)
  - Mandate new recovery services from contracted/franchised service providers

START CONSULTING RRS

PROGRAMS AND SERVICES BENEFITS AND CONSEQUENCES

Strategy	Organizational Sponsors	Cost	Waste Impact	Time horizon	Economic Impact	Human Health Impact	Environmental Impact
Outreach and Education programming	State and local government with community partnerships	Medium - Requires staff and / or paid media.	Medium - When effective, outreach and education programs change behavior.	Medium - Once funded, effective campaigns need a research and design phase, then an implementation phase.	Varied/Unknown Depends on the focus of the outreach and education.	Varied/Unknown Depends on the focus of the outreach and education.	Varied/Unknown Depends on the focus of the outreach and education.
Bulky goods reuse and repair (reuse mall)	Local Governments, Non-Profit organizations, Economic Development Agencies, Private Sector Partners	Medium - Example City of Austin allocated $7.5 million to develop a hub.	High - Lower landfill waste. Support local businesses through reusable materials. Reduces recycling processing .	Varied/Unknown - Time horizons can vary widely depending on availability of funding and a usable space.	High - Retaining the value of materials in the local economy Partnership opportunities between Stakeholders Job Creation Avoids disposal hauling and tipping fee charges.	Medium - Creates jobs that adhere to health and safety standards Reduces harmful pollutants and contaminants that could end up in soil or water sources .	High- Reduce GHG emissions compared to landfilling Localizing recycling and reuse processes vs transporting materials overseas or out of state.
Additional Collection Services for bulky waste or hard to recycle items (plastics, batteries)	County Recycling Department/Recycling Centers Contracted Haulers	Medium - Low cost to jurisdiction but costs to haulers would likely be passed through to ratepayers.	High- Bulky waste collection programs reduce illegal dumping and ensures that large waste items are processed appropriately.	Medium- Policies could be enacted to take effect as contracts renew.	Medium - Service providers must invest in collection trucks, staff, sorting facilities, wood processing equipment, and drop-off centers to handle bulky waste.	High - Reduces Illegal dumping . Some bulk waste contain harmful chemicals. Bulky collection program can be designed to ensure proper handling.	Medium -Many bulky items have hazardous substances like mercury and lead Conserves resources and reduces the demand for new products to be manufactured.

PROGRAMS AND SERVICES CONSIDERATIONS

Who Needs to Act in the Region?	How is this funded?	What are the barriers for this region?
• Local Government • Non-Profits Organizations • Economic Development • Public Works Utilities • Retailers • Training Centers • Federal Government • Storage Warehouses • Private Sector Investors • NGO's	• Households' taxes and fees • Landfill tipping fees • PAYT (Pay as you throw) programs • State Grants • Federal Grants • Revenue from tenants in the Reuse Hub/Mall • Examples: • The South Carolina Department of Environmental Services (SCDES) offers grants that are supported by fees collected from the sale or disposal of items such as tires and appliances. • The Environmental Protection Agency provides SWIFR grants to assist local governments in implementing waste reduction and recycling initiatives.	• High Upfront Costs (Construction) • According to research there are more grant opportunities for recycling projects vs reuse • Reuse Hubs/Malls must have partnerships • Non-profits usually require volunteers • According to research there are much more recycling mandates vs reuse mandates

START CONSULTING RRS

FOCUS AREA #3: BIBLIOGRAPHY/ CASE STUDIES

- Richland County Program Budget with Bulky Waste Included - Richland County's FY2025 budget, bulky waste disposal including items like brown goods and appliances is charged at $27.50 per ton, while residents can dispose of up to two mattresses or box springs per day at no cost.
- Recycling and Reuse Tenants for Austin's New [re]Manufacturing Hub - Austin is developing a 105-acre [re]Manufacturing Hub to attract recycling and reuse businesses, aiming to bolster the local circular economy and create green jobs.
- How to grow your city's reuse and repair economy - The C40 Knowledge Hub provides strategies for cities to expand their reuse and repair economies, such as establishing municipal repair centers, supporting local businesses, and engaging communities to reduce waste and promote circular practices.
- Austin [re]Manufacturing Hub Feasibility Analysis - Austin's feasibility study for a 105-acre [re]Manufacturing Hub highlights its potential to support reuse businesses and create jobs, but notes high infrastructure costs and funding challenges.
- The Environmental Impact of Bulky Waste: A Closer Look at Responsible Disposal - Bulky waste items like furniture and appliances often contain hazardous materials, making responsible disposal crucial to prevent environmental harm.
- Richland County Bulky Waste Collection Program - curbside bulk item collection by appointment, allowing residents to schedule pickups for large items like furniture and appliances.
- EPA SWIFR Grants - offers funding to local governments for developing or enhancing recycling infrastructure, including facilities and equipment, with a focus on supporting underserved communities.
- South Carolina Department of Environmental Services Grants for Local Governments - offers annual grants to local governments for recycling and waste reduction initiatives, funded by fees on appliances, batteries, motor oil, and tires.

START CONSULTING RRS

Food and Organics Subcommittee

Research and Case Studies

FOCUS AREA #1: COMMERCIAL INTERVENTION CAMPAIGNS

- **Goal:** Reduce commercial food waste by x%

- **Strategies:**
  - Prevention Awareness: Raise awareness about the importance of reducing/preventing food waste
  - Prevention in Schools and Institutions: Increase food waste prevention in schools & institutions
  - Increase gleaning: divert waste from production for distribution as food

START CONSULTING RRS

STRATEGY #1: COMMERCIAL INTERVENTION CAMPAIGNS

Strategy	Partners	Cost	Waste Impact	Economic Impact	Human Health Impact	Environmental Impacts
Waste Tracking & Analytics	IKEA + Leanpath; Sodexo; Compass Group	Medium	High (30–50% reduction typical) waste prevention (not primary focus) waste diversion	High ROI: $7+ return per $1 spent	Safer food handling; less overproduction	Reduced pressure on landfills, less water & energy used per meal. Reduced methane, lower embodied emissions
Staff Training & Culture Shift	WRAP (UK), Guardians of Grub, Sodexo, Hilton	Low	High waste prevention Low waste diversion	Strong: cost savings through waste cuts	Better kitchen safety and cleanliness	Reduced back-of-house waste, less strain on waste systems. Lower emissions from avoided waste
Smart Inventory Management	Tesco, Kroger, ReFED Toolkit users	Medium	High waste prevention Low waste diversion	Reduces procurement cost, spoilage losses	Fresher food in consumer hands	Less packaging and spoilage = reduced runoff and waste packaging. Less transport, less spoilage = reduced emissions
Portion/Menu Redesign	Hilton, Aramark, smaller restaurants	Low	Moderate waste prevention Low diversion	Reduces food cost, improves plate consistency	Can help reduce overeating	Less uneaten food = reduced kitchen waste.
Consumer Education (e.g., Save the Food)	NRDC + Ad Council; Too Good To Go	Medium - High	Low waste prevention Low diversion	Modest: may shift consumer habits	Promotes healthier use of leftovers	Indirect impact on household and community waste. Emissions reduction from household waste prevention.
Ugly Produce / Secondary Markets	Intermarché, Misfits Market, Imperfect Foods	Low	Moderate waste prevention Moderate waste diversion	Builds new markets for producers; reduces loss	Increases produce access	Reduces farm waste, pesticide runoff, better land use. Reduces emissions from farm-level waste + adds soil organic matter

COMMERCIAL INTERVENTION CAMPAIGNS CONSIDERATIONS

Oregon Examples Not included Above	Who Needs to Act	How is it Funded	What are the Barriers
• TooGoodToGo - PH	• Local governments support staff training • Businesses need to engage • Staff needs to implement • Focus should not be on small restaurants. Focus more on manufacturers, larger institutions and foodservice providers (at least at the beginning) • Through commercial can actually get through to residences (of staff that work there)	• For larger institutions, the savings justify the investment	• Cost – regulation doesn't require, so it is reliant on voluntary actions. Only early adopters are engaging, as it does add costs to businesses. • Time – time is cost to low-overhead businesses. • Staff turnover. • ROI is actually high – why isn't it easier to get them to adopt? • Attitudes: Foodservice doesn't think they waste food. They get defensive if you say they are. • Getting attention of these businesses. • Economies of scale • Space constraints- Signage, etc.

START CONSULTING RRS

FOCUS AREA #1: BIBLIOGRAPHY/CASE STUDIES

Commercial Intervention Campaigns:
Waste Tracking & Analytics IKEA + Leanpath; Sodexo; Compass Group
Staff Training & Culture Shift WRAP (UK), Guardians of Grub, Sodexo, Hilton
Smart Inventory Management Tesco, Kroger, ReFED Toolkit users
Portion/Menu Redesign Hilton, Aramark, smaller restaurants
Consumer Education (e.g., Save the Food) NRDC + Ad Council; Too Good To Go
Ugly Produce / Secondary Markets Intermarché, Misfits Market, Imperfect Foods
Metro: Food waste stops with me.
State of Oregon: Bad Apple campaign (assets to local government)
Corvallis: No Food Left Behind

Gleaning
Society of St. Andrew (SoSA) – A national faith-based nonprofit that organizes volunteers to glean surplus produce from farms and deliver it to hunger relief agencies.
CA Association of Food Banks – Farm to Family – A statewide program that partners with growers to distribute surplus California produce to food banks across the state.
Feeding Florida – Farmers Feeding Florida – A network initiative that rescues and distributes unmarketable produce from Florida farmers to the state's food banks.
AmpleHarvest.org – A national platform that connects home and community gardeners with local food pantries to donate excess produce.
Food Forward – A California-based nonprofit that recovers surplus fruits and vegetables from farms, farmers markets, and backyards for donation to hunger relief agencies.
Hidden Harvest – A Southern California gleaning organization that hires farmworkers to recover surplus produce from fields and distributes it to low-income communities.
Second Harvest Heartland – A Midwest food bank that includes a farm gleaning program to collect and redistribute fresh produce from regional growers

FOCUS AREA #1: BIBLIOGRAPHY/CASE STUDIES

Gleaning (cont'd)

Food Forward – A California-based nonprofit that recovers surplus fruits and vegetables from farms, farmers markets, and backyards for donation to hunger relief agencies.

Hidden Harvest – A Southern California gleaning organization that hires farmworkers to recover surplus produce from fields and distributes it to low-income communities.

Second Harvest Heartland – A Midwest food bank that includes a farm gleaning program to collect and redistribute fresh produce from regional growers

Schools/Institutions Programs

Zero Waste Schools Program - California, USA Waste audits, composting, food donation, student education

Real Food Challenge - Nationwide, USA Sustainable food sourcing, waste reduction, food recovery networks

Wasted Food Initiative - Michigan State Univ., USA Food waste education, portion control, composting, food donation

Food Rescue Program - Toronto, Canada Surplus food collection, redistribution to local charities, waste prevention

Love Food, Hate Waste - United Kingdom Educational campaigns, waste reduction workshops, competitions

NYC DOE Food Waste Reduction Food waste audits, composting, food recovery partnerships

Waste Not Program - University of Arizona, USA Waste tracking, portion control, food donation, student education

NSLP Food Waste Reduction - Nationwide, USA Healthier portions, food waste reduction in lunch programs, donation, composting

FOCUS AREA #2: SCHOOLS AND INSTITUTIONS

- **Goal:** Reduce food waste at high volume / concentrated locations with large kitchens organizational stability
- **Strategies:**
  - Donation Awareness: Raise awareness about the importance of sustainable consumption (donation)
  - Increase Donation: Increase donation to agencies for distribution
  - Food Insecurity Data: Increase data collection for food needs & Food insecurity mapping (combined from 2 bullets)

START CONSULTING RRS

Strategy #2: Schools & Institutions

Strategy	Partners	Cost	Waste Impact	Implementation Timeline	Economic Impact	Human Health Impact	Environmental Impacts
Education Campaigns in Schools	Schools, NGOs, local gov't, curriculum developers	Low to moderate	Indirect waste prevention through behavior change	Short (1–3 months)	Low to moderate (long-term savings)	Promotes healthy eating if paired with nutrition education	Indirect reduction of GHG emissions via behavior change
Food Waste Collection and Redistribution from Institutions	Schools, food banks, nonprofit partners, logistics orgs	Moderate to high (storage, logistics)	High diversion of edible food from waste	Moderate (3–6 months)	Reduces food procurement costs for recipients	Improves food security and nutrition for underserved communities	Prevents methane emissions from landfilled food
Composting in Schools	Schools, compost haulers, municipal composting programs	Moderate (infrastructure, training)	Moderate to high diversion of organic waste	Moderate (3–6 months)	Potential cost offsets (less trash hauling)	Neutral; no direct food access impact	Significant reduction in landfill emissions
Food Waste Audits & Tracking	Schools, data consultants, software providers	Low to moderate (tools/software)	High potential for upstream prevention	Short to moderate (1–4 months)	Saves food purchasing costs	May lead to improved menu planning and nutrition	Upstream climate benefits from avoided food production waste
Sustainable Food Sourcing by Institutions	Institutions, local farmers, procurement policy orgs	Moderate to high (food sourcing, policy coordination)	Indirect—may reduce surplus and spoilage	Long (6–12+ months)	Potentially higher costs but long-term local economic benefits	Can improve nutrition quality	Reduces emissions from long-distance transport and high-impact foods
Cold Storage for Distribution in Schools	Schools, food rescue orgs, donors, facilities staff	High (equipment + facilities upgrades)	Enables higher diversion of rescued food	Moderate (3–6 months)	Reduces spoilage and expands donation windows	Improves availability and quality of rescued food	Avoids landfill disposal, preserves food resources

SCHOOLS AND INSTITUTIONS CONSIDERATIONS

Oregon Examples not included above	Who Needs to Act	How is it Funded	What are the Barriers
	• Schools – different type of partnership for schools vs other entities – different audience. Staff (back of house) • Volunteers (front of house) • Local Governments – program support, funding, mandate • Food banks • Other institutions • Associations – restaurant and lodging association • Partnership amplifies messaging and is from a more • Include afterschool programs • Include boys and girl program • Need local champion • Crossover with diversion – with a compost mandate it gets their attention	• Highly variable. Some from city, some from non-profit. Not a ton of funding.	• Strong programs in OR often small scale • Each institution is very different in how they operate – not a one-size-fits all solution • Federal vouchers given based on meals served – incentivizes more meals served, • Not common dedicated funding – needs a local champion. Doesn't happen without. Need buy in. • Back of house is best starting point. Front of house is an equity issue, as it relies on volunteer. – Share table could be an approach.

START CONSULTING RRS

FOCUS AREA #2: BIBLIOGRAPHY/CASE STUDIES

Donation Awareness Campaigns

- **MealConnect (2014–ongoing)** – A technology platform developed by Feeding America to connect food donors with local nonprofits.
- **Too Good To Go (2016 EU, 2020 US)** – An app enabling consumers to purchase surplus food from retailers/restaurants at a discount.
- **Love Food Hate Waste (UK, 2007–ongoing)** – A national campaign to educate households on reducing food waste, encouraging behavior change more than direct donation.
- **San Diego Donation Campaign (~2016–ongoing)** – Localized awareness and engagement effort encouraging food donation, usually through public education and partnerships.
- **ReFED Roadmap (2016 & 2020)** – A data-driven framework and national guidance tool to prioritize food waste solutions, including donation, through research and systems mapping.

Increasing Donation Acceptance Capacity

- **Feeding San Diego – San Diego, CA:** Cold storage equipment grants to partner agencies
- **Oregon Food Bank – Oregon statewide:** Mini-grants & TA for infrastructure upgrades
- **City Harvest – New York City, NY:** Mobile markets + cold storage upgrades

Data Tools

- **ReFED Insights Engine** tracks quantitative data on food waste generation, environmental and economic impact, solution cost-effectiveness, and investment opportunities
- **NYC's DonateNYC Food Portal** is a digital platform to facilitate food donations in New York City that tracks real-time donation listings, pounds of food donated, donation types, donor and recipient
- **City of Austin's Food Recovery & Mapping Program** tracks food donor and recovery partner locations, food insecurity zones, donation quantities, focusing on identifying gaps in food recovery and access in Austin
- **San Diego Food System Alliance's Save the Food, San Diego** tracks community engagement metrics, pounds of food saved (estimated), outreach reach
- **Boulder County's Food Rescue Alliance + SNAP Outreach** tracks pounds of rescued food, number of recipients, number of SNAP enrollments
- **Oregon Metro's Waste Prevention and Food Access Grants** tracks grant impact metrics (e.g. food rescued, people served, community benefit), project outcomes

START CONSULTING RRS

FOCUS AREA #3: GLEANING PROGRAMS

- **Goal:** Improve food waste recovery systems from collection through end markets
- **Strategies:**
  - Collection: Maximize food waste recovery in multifamily (combined multi-family and maximize recovery)
  - Infrastructure: Support/improve transfer and processing (capacity) – can include depackaging as a "processing technology"
  - Markets: Improve markets for finished compost

START CONSULTING RRS

GLEANING PROGRAMS BENEFITS AND CONSEQUENCES

Strategy	Partners	Cost	Waste Impact	Implementation Timeline	Economic Impact	Human Health Impact	Environmental Impacts
Faith-Based or Volunteer Networks	Churches, volunteers, small farms, food banks	Low (few thousand to tens of thousands USD); mainly coordination, training, transportation; relies heavily on donated labor and in-kind resources.	Medium-scale (10–30M+ lbs/year)	Short (3 to 6 months)	Extremely low-cost per pound	Improves diets; supports mental health through volunteering	Reduces field tilling and protects soil Prevents methane from decomposing food waste
State or Regional Public-Private Partnerships	Departments of Ag, growers, retailers	Moderate to High (tens to hundreds of thousands USD); includes staffing, transport, warehousing, technology systems; multi-stakeholder setup can increase costs.	Large-scale (40M–160M+ lbs/year)	Medium (6 to 18 months)	High-value recovery (~$70M–$300M/year)	Reduces food-related illness and improves food access	Conserves water and prevents overproduction Major landfill diversion; reduces food miles
Digital/Tech-Based Platforms	Gardeners, pantries, small nonprofits	Moderate ($50K to $500K+); primarily software development, digital infrastructure, marketing, ongoing maintenance and support.	Small-scale; many donations	Short to Medium (3 to 12 months)	Low cost with high community return	Boosts nutrition in areas where insecurity is hidden	Promotes biodiversity via local gardening Reduces localized emissions and waste
Urban-Focused Food Redistribution Initiatives	Markets, orgs, wholesalers	Moderate ($50K to $200K); costs for urban logistics, staffing, storage; urban operating costs higher but volunteer support can reduce expenses.	Medium-large (~80M lbs/year)	Medium (6 to 12 months)	Significant produce value since launch	Replaces processed food with fresh options	Cuts emissions from food transport Reduces terminal waste and emissions
Labor- and Dignity-Focused Harvest Models	Farms, labor orgs, food banks	High (hundreds of thousands annually); includes fair wages, training, safety equipment, transport; funded through grants or social enterprise models.	Small-medium (1–2M lbs/year)	Medium to Long (9 to 18+ months)	Job creation; hunger reduction	Supports farmworker and food-insecure family health	Enhances soil and water conservation Prevents in-field food loss
Culturally-Tailored Tribal or Community-Based Programs	Retailers, farmers, community food hubs	Moderate to High; involves community engagement, cultural protocols, capacity building; funding often from tribal grants or philanthropy focused on Indigenous communities.	Small-medium (~20M lbs/year)	Long (12 to 24 months)	Supports regional food relief systems	Enhances access to culturally appropriate diets	Lowers pressure on landfills & preserves habitats Reduces greenhouse gases from various sources

GLEANING PROGRAMS CONSIDERATIONS

Oregon Examples not included above	Who Needs to Act	How is it Funded	What are the Barriers
	• Small scale volunteer orgs • Farmers • Food banks • Independent food pantries • National gleaning associations • DEQ has given grants • Foundations (grants)	Grants	• Farmers have to allow volunteers to do this. – liability challenges • A lot of moving parts – very complex • Difficult to define the universe • A lot is already happening. • Often an informal arrangement. Hard to track data • Low-no cost Space to store and pack boxes (gov. can play the role to create this space) • Distribution channels • Information on where there is information to glean (directory of gleaning opportunities)

START CONSULTING RRS

FOCUS AREA #3: BIBLIOGRAPHY/CASE STUDIES

MF Housing

Zero Waste SF (San Francisco, CA) – Offers separate bins, a pay-as-you-throw system, and robust education and farm partnerships to support organics collection in multifamily housing.
Organics Collection Program (New York City, NY) – Provides food waste bins, education, and community partnerships to support food waste collection from multi-family buildings.
Green Bin Program (Toronto, Canada) – Distributes green bins and runs outreach campaigns to promote organics collection in multi-family residences.
Food Waste Recycling Program (Seattle, WA) – Mandates food waste recycling in multi-family units with strong education and composting partnerships.
Food Waste Collection in Multi-family Housing (London, UK) – Collects food waste from multi-family homes using designated bins and public education.
Portland Organics Recycling Program (Portland, OR) – Collects food scraps from multi-family homes with outreach and composting partnerships.

Infrastructure

Seattle Organics Recovery (Seattle, WA) – Upgraded transfer stations and regional composting using aerated static piles, without depackaging, process ~400,000 tons annually.
San Jose Dry AD Facility (San Jose, CA) – A dry anaerobic digestion facility with depackaging handles ~90,000 tons of organics per year.
Toronto Organics Processing (Toronto, ON) – Expanded wet AD facility with partial depackaging capacity processes ~75,000 tons annually.
Massachusetts Commercial Organics Ban (Statewide, MA) – Statewide waste ban paired with AD and composting infrastructure and depackaging supports recovery of ~250,000 tons annually.
Minnesota Regional Organics Projects (Statewide, MN) – Regional composting and AD projects use mobile depackagers and transfer upgrades to recover ~25,000 tons per year.

START CONSULTING RRS

FOCUS AREA #3: BIBLIOGRAPHY/CASE STUDIES

Market Development

California SB 1383 – Requires procurement of compost and mulch by jurisdictions to stimulate end markets and reduce short-lived climate pollutants.
Maryland Healthy Soils Program – Incentivizes compost use on farmland to improve soil health and boost demand for organic amendments.
Washington Compost Standards – Establishes quality standards for compost to support its use in public projects and agricultural applications.
Massachusetts RBDG Program – Funds rural business development, including compost market expansion, through USDA-supported grants.
San Diego "Grown 60" – Aims to grow 60% of the region's food locally, encouraging compost use to improve urban and peri-urban soils.
Vermont Organics Management – Promotes compost markets through food scrap bans, state purchasing, and agricultural outreach.
King County Zoning Reforms – Updates land use policies to support compost use in landscaping, development, and agriculture.

START CONSULTING RRS

CONSIDERATIONS

Oregon Examples not included above	Who Needs to Act	How is it Funded	What are the Barriers
	• Regional waste "authority" (overall guidance and roadmap) • Counties (develop infrastructure, research, contracting, technical resources) • Local Governments (contracting, oversight) • Private haulers and processors (provide services and investment) • DEQ (funding / research) • Residents (engage appropriately)	• Certa funding - $28M for compost processing infrastructure. • USDA cooperative agreement? • If publicly owned, tip fees • Franchise fees? • CLP – compost infrastructure grants	• Funding • Franchise agreements • Challenges to "flow control" • State and local Permitting • Land use • NIMBY • Cost of transport • Compost buy-back - If compost is unavailable • Quality • Ag industry is risk averse

START CONSULTING RRS

ADDITIONAL BENEFITS AND CONSEQUENCES: DONATION AWARENESS

Strategy	Partners	Start-up Cost	Operational Cost	Waste Impact	Implementation Timeline	Economic Impact	Human Health Impact	Environmental Impacts
Nonprofit-Led Tech Platforms	National food banks, retailers, tech donors	Moderate–High(app + logistics setup)	High(support, training, ops)	High – direct rescue of millions of pounds of food	1–2 years to scale nationally	High – cost savings for donors & recipients	Moderate – improved food access	High – major GHG reduction from food diversion
For-Profit Social Enterprise Apps	Restaurants, grocers, consumers	High(tech + marketing)	High(but self-sustaining via revenue)	High – commercial food waste prevention	~1 year to launch per market	Moderate – boosts vendor income, user savings	Moderate – low-cost meals access	Moderate–High – reduces landfill emissions
Government or NGO-Led Public Campaigns	Local governments, nonprofits, media, haulers	Low–Moderate(depends on scale)	Moderate–High(ongoing communications)	Moderate – behavior change dependent	6 months–1 year to launch	Moderate – household savings, small donor incentives	Moderate – more efficient household food use	High – cumulative reduction in waste & emissions
Research & Coalition-Led Initiatives	Foundations, businesses, governments, researchers	High(research, convening, analysis)	Moderate(dissemination, updates)	Indirect – influences other high-impact efforts	1–2 years per roadmap cycle	High – enables billions in potential savings	Indirect – supports informed public health policy	High – strategic targeting of climate interventions

ADDITIONAL BENEFITS AND CONSEQUENCES: INCREASING DONATION ACCEPTANCE CAPACITY

Strategy	Partners	Start-up Cost	Operational Cost	Waste Impact	Implementation Timeline	Economic Impact	Human Health Impact	Environmental Impacts
Cold Storage Equipment Grants to Partner Agencies	Food banks, hunger relief orgs, funders, equipment vendors, utilities	Medium – Cost of refrigeration units, installation, and delivery; moderate one-time investment per site.	Low – Once installed, cold storage has relatively low maintenance costs (energy, upkeep).	High – Prevents spoilage of perishable donations; allows agencies to accept much more food safely.	2–6 months for procurement, site readiness, and installation	Medium–High – Boosts efficiency of food programs; avoids costs of food waste and supports local businesses through equipment purchases.	High – Expands nutritional quality of distributed food by enabling storage of fruits, vegetables, dairy, and meat.	High – Reduces methane from food waste and supports more sustainable consumption of perishable food.
Mobile Markets (donation-based redistribution)	Food recovery orgs, drivers/logistics teams, municipalities, donors, farmers markets	High – Requires purchasing and outfitting vehicles, regulatory approval, staffing, insurance, and fuel.	High – Ongoing costs include driver wages, vehicle maintenance, fuel, and logistics coordination.	Medium–High – Brings food directly to underserved communities and can recover food that agencies lack capacity to store.	6–12+ months for vehicle acquisition, permitting, route planning, staffing	Medium–High – Supports local workforce, reduces transportation burden for recipients, and improves access.	High – Increases fresh food access in food deserts or for those without transportation, improving diet and food security.	Medium–High – Avoids food waste while also reducing trips by individual consumers but increases emissions from mobile units.
Mini-Grants & Technical Assistance for Infrastructure Upgrades	Local food pantries, community-based orgs, regional food system planners, funders	Medium – Small capital improvements (e.g., shelving, prep areas, scales) plus staff training.	Medium – Varies by project; may increase staff capacity needs, but typically manageable.	Medium–High – Enables more efficient food handling, prep, and distribution in high-need locations.	1–3 months for grant rollout, applications, and disbursement	High – Builds long-term resilience and capacity among grassroots organizations, often at lower overall cost.	Medium–High – Improves reliability and safety of food programs; boosts access in high-barrier areas.	Medium–High – Reduces food spoilage and expands infrastructure without large-scale new construction.

ADDITIONAL BENEFITS AND CONSEQUENCES: DATA COLLECTION TOOLS

Strategy	Partners	Cost	Waste Impact	Economic Impact	Human Health Impact	Environmental Impacts
Strategic Enablement	Data scientists, policy analysts, researchers, nonprofits, funders	Medium to High Start-up cost – data infrastructure, modeling	Indirect – enables targeting/scaling of diversion	High (indirect) – improves intervention ROI	Low – doesn't directly increase food access	Medium – supports smarter planning/emissions modeling
Operational	Food donors, logistics partners, food banks, volunteers	Low to Medium Start-up cost – tech setup or logistics networks	High – directly rescues food from waste stream	Medium – supports local orgs, may reduce disposal costs	High – provides food directly to those in need	High – prevents methane, reduces wasted resource inputs
Hybrid (Strategic + Operational)	GIS analysts, food donors, local governments, nonprofits, funders	Medium to High Start-up cost – tools + staff + coordination	Moderate to High – diverts food + improves planning	High – stimulates job creation, local economies	High – combines redistribution with outreach and equity work	High – supports emissions reduction + long-term infrastructure

ADDITIONAL BENEFITS AND CONSEQUENCES: EXPANDING MULTI-FAMILY ORGANICS RECOVERY

Strategy	Partners	Cost	Waste Impact	Implementation Timeline	Economic Impact	Human Health Impact	Environmental Impacts
Expand Collection to MF Housing	Utilities, Composter, local haulers	$.86/capita startup cost for Portland ($500,000)	25% to over 60% diversion (40% in Portland)	3-5 years	Economic savings from landfill diversion, supports compost industry, job creation; supports local agriculture.	Improved community health through cleaner air and reduced landfill waste. Reduced exposure to harmful chemicals/ toxins	Reduction of landfill waste, improved soil quality through composting. Reduces methane emissions from landfills, improves carbon sequestration

ADDITIONAL BENEFITS AND CONSEQUENCES: INFRASTRUCTURE

Strategy	Partners	Cost	Waste Impact	Economic Impact	Human Health Impact	Environmental Impacts
Composting (Aerated Static Pile)	Utilities, Composter, local haulers	~$140M	60% residential diversion (organics)	Supports compost industry; reduced hauling costs	Less diesel truck emissions near stations	Urban compost improves soils; reduces erosion Avoided methane; urban composting boosts sequestration
Dry Anaerobic Digestion w/ Depackaging	City Government, WTE Company, Republic Services	~$68M	Processes 90K tons/year	Energy sales; reduced tipping fees	Reduced methane near landfills	Digestate enriches soil; supports local farms Methane reduction; renewable energy
Wet Anaerobic Digestion w/ partial depackaging	City Solid Waste Division, Energy Corp.	$48M USD	Full household organics diversion	Energy generation; landfill cost savings	Reduced landfill truck traffic	Digestate supports urban gardens Reduced GHGs from transport and landfill ops
AD & Composting w/ depackaging	Casella, private haulers, food generators	$7.5M avg. across facilities	Thousands of tons/year via commercial ban	Stimulates processing market; logistics growth	Improved sanitation at generators	Restores degraded land via compost Strong GHG cuts via AD, organics ban
Composting & AD (regional) w/ depackaging	State Pollution Control Agency, counties, local haulers	$100K–$1M per project	Local-scale diversion boost	Low-cost access; decentralized circular economy	Reduced rural landfill impacts	Compost aids soil retention; benefits small farms Localized GHG savings from shorter hauling and composting

ADDITIONAL BENEFITS AND CONSEQUENCES: MARKET DEVELOPMENT PROGRAMS

Strategy	Partners	Cost	Waste Impact	Implementation Timeline	Economic Impact	Human Health Impact	Environmental Impacts
Minimum Diversion Mandate(s)	State Recycling Org, local govts, waste haulers, food recovery orgs	~$20.9B over 11 yrs; $3–$5/mo per household in CA example	prevention- 20% edible food recovery goal High diversion set by mandate	2-8 years	Comes with major investment, job creation	Better air; fewer hospital visits	Healthier soils; less landfill use. Major methane cuts; soil carbon storage
Encouraging Compost Use	State Dept. of Ag, NRCS, conservation districts, City government, Waste haulers, retailers.	<$1M/year; low grant costs	Not a primary goal Encourages compost use on farms. Promotes compost use = more collection	3-12 months	Grants; Boosts Sales, local branding	Reduced runoff; healthier soils	Boosts biodiversity; better water retention. Soil carbon sequestration
Compost Standards	State Dept. of Ag., Ecology, State University Extension	Low; administrative + outreach only	Not targeted Enhances diversion via market confidence	3 - 6 years	Stable markets; better product value	Reduced contaminants; cleaner air	Fewer toxics; sustainable landscapes. Supports soil-based CO_2 capture
Business Development Grant Program	Local composters, towns, co-ops, USDA	$1.8M in 2024 in Massachusetts example	Some prevention via logistics/education Boosts small-scale diversion capacity	6 months – 2 years	Small Business Development	Safer ops; fewer hazards	Shorter supply chains; lower emissions. Methane cuts from increased composting
Zoning Reforms	County Parks & Natural Resources Department, facility developers, cities	~$5M for a facility; moderate capital costs	Not directly aimed at prevention Easier compost facility development	Several months – few years	Lowers startup costs for processors, increases chance of investment	Siting = less exposure risk	Less illegal dumping, smarter land use. Big potential for GHG cuts

Built Environment Subcommittee

Research and Case Studies

FOCUS AREA #1: EXISTING BUILDINGS

- **Goal:** Revitalize and repurpose old, vacant, or underused structures for new, uses instead of demolishing them giving buildings a second life.
- **Strategies:**
  - Adaptive reuse for sustainable growth - Encouraging renovation over new construction to retain embodied carbon and cultural value. Building transformation strategies - Policies and incentives to revitalize underutilized structures and prevent unnecessary demolition.
  - Preservation though innovation - Aligning historic preservation with modern energy efficiency and sustainability goals.

START CONSULTING RRS

EXISTING BUILDINGS BENEFITS AND CONSEQUENCES

Strategy	Organizational Sponsors	Cost	Waste Impact	Time horizon	Economic Impact	Human Health Impact	Environmental Impact
Adaptive Reuse (Encouraging renovation over new construction to retain embodied carbon and cultural value.)	• Federal/Local Government agencies • Nonprofits and advocacy organizations • Private Sector Sponsors and Foundations • Oregon DEQ • Oregon building codes division	High: According to research adaptive reuse projects can range from $250 to $700 per square foot, depending on complexity and building type.	High Adaptive reuse significantly decreases the volume of waste generated from demolishing buildings, which constitutes a substantial portion of Oregon's waste stream. By preserving existing structures, the need for new materials is reduced, leading to lower waste production.	Varies/Unknown • Building Condition • Regulatory Compliance • Securing funding (grants, tax credits)	High Adaptive reuse can be more cost-effective than new construction, as it avoids demolition costs and often requires less capital. Projects may also qualify for tax credits and grants, while boosting nearby property values by enhancing neighborhood appeal.	Medium Enhances Indoor Air Quality by incorporating modern ventilation systems and using low-emission materials. Older buildings may harbor hazardous materials such as asbestos, lead-based paint, or mold.	High Significantly reduces construction waste, a major contributor to landfill volume. Lowers the need for new materials, helping conserve resources and reduce the environmental impact of development.
Preservation through innovation (Aligning historic preservation with modern energy efficiency and sustainability goals.)	• Nonprofits and advocacy organizations • Federal Agencies • US Green Building Council • Oregon DEQ • Oregon building codes division	High with Benefits Upfront costs are high but long-term benefits of tax credits and grant opportunities are super beneficial	Medium Preservation projects help conserve natural resources and shrink the environmental impact by reducing the demand for newly extracted and processed materials.	Varies/Unknown • Historic structure Reports • Design and Planning Phase • Construction and Rehabilitation	High • Job Creation • Increased Property Values • Tax incentives and Grants • Sustainable Development and Cost Savings	Medium Poorly executed upgrades can lead to ventilation or moisture problems, potentially causing indoor air pollution or mold growth that harms occupant health.	Medium Historic preservation often targets centrally located, already developed areas, helping to prevent expansion into undeveloped or natural land.

EXISTING BUILDINGS CONSIDERATIONS

Who needs to act?	How is it Funded (Examples)	What are the Barriers
• Property Owners • Local Government and Planning Agencies • Architects and Engineers • State Historic Preservation Office • Community Stakeholders	**Federal and State Incentives – Examples:** • Oregon offers a 10-year property tax freeze for owners of historic properties who commit to a preservation plan and meet minimum rehabilitation expenditures. **Local Programs – Examples:** • Portland's Historic Preservation Incentives offer zoning flexibility for adaptive reuse, relax parking requirements, and allow the transfer of unused development rights to encourage the preservation of historic properties. • Oregon city offers Offers forgivable loans for projects with total costs between $300,000 and $1,000,000, supporting substantial building improvements. **Grants – Examples:** • Oregon Parks and Recreation Department grants, support historic building preservation efforts—such as the "Diamonds in the Rough" grant, which helps restore modified historic facades to their original appearance.	• Local permitting offices - There could be a program to ease the process of converting a building from commercial to residential or residential to commercial, etc. • Hazardous materials abatement needs - lead paint in historic properties • **Potential Actions:** • Advocate to State for added historic property preservation or adaptive reuse credit/funding - may be best paired with housing production strategy. • County or another jurisdiction could also support this area with a program to help property owners apply for historic register – Making it its own process before you can apply for the tax credits etc.

START CONSULTING RRS

FOCUS AREA #1: BIBLIOGRAPHY

- Adaptive Reuse Projects Give New Residents a Place to Call Home - highlights how adaptive reuse projects in downtown Dallas are transforming vacant office buildings into residential units, aiming to add 1,500 homes and boost the local economy.
- Conveying Portland's History in Modern Use: The Role of Industrial and Cultural Heritage in Adaptive Reuse - This thesis explores how adaptive reuse of historic industrial buildings in Portland, Oregon, can preserve cultural heritage and promote social sustainability.
- Adaptive (Re)use: Developing an Economical, Environmental, and Social Understanding - Hennebery Eddy Architects, Inc. - Hennebery Eddy Architects explore how adaptive reuse balances economic, environmental, and social benefits by repurposing existing buildings to reduce waste, lower emissions, and strengthen community identity.
- Adaptive Reuse and Sustainability: Reducing Environmental impact - explores how adaptive reuse promotes sustainability by repurposing existing buildings, thereby conserving resources, reducing waste, and lowering carbon emissions.
- Rehabilitation Credit for Historic Preservation: What It Is and How It Works - The federal Rehabilitation Tax Credit offers a 20% tax credit for substantial rehabilitations of historic income-producing properties, aiming to preserve heritage, stimulate investment, and revitalize communities.
- Oregon Parks and Recreation : Tax Incentives : Oregon Heritage : State of Oregon - Oregon offers a 20% federal tax credit for rehabilitating income-producing historic buildings listed on the National Register, encouraging preservation and adaptive reuse.

START CONSULTING RRS

FOCUS AREA #1: BIBLIOGRAPHY

- Historic preservation incentives | Portland.gov - Portland offers financial and zoning incentives—including tax credits, adaptive reuse flexibility, and grants—to encourage the preservation and rehabilitation of historic properties.
- Oregon Business Grants and Loans: Funding for Oregon Businesses | Gusto - details various Oregon-specific grants and loans available to small businesses, including programs supporting innovation, rural development, and property improvements.
- Homeownership Development NOFA 2024 - program provides funding to build or reuse homes for low- to moderate-income buyers in Oregon.
- DiamondsGrantGuidelines2023.pdf - Diamonds in the Rough Grant offers up to $20,000 to restore altered historic building facades in Oregon, aiming to return them to their original appearance and potentially qualify them for historic designation.

START CONSULTING RRS

FOCUS AREA #2:
HEALTHIER MORE CIRCULAR MATERIALS

- **Goal:** Reduce the total lifecycle greenhouse gas emissions of buildings by preserving existing structures when possible, minimizing the need for new materials and managing the emissions already locked into the materials that are in use.

- **Strategies:**
  - Low-carbon building standards & codes - Integrating embodied carbon reduction into building regulations to encourage climate-smart material choices, carbon-conscious construction policy. Embedding life-cycle carbon analysis into permitting and compliance processes.
  - Green material certification & incentives - Promoting low-carbon materials and certification programs within building codes.

START CONSULTING RRS

HEALTHIER, MORE CIRCULAR MATERIALS BENEFITS AND CONSEQUENCES

Strategy	Organizational Sponsors	Cost	Waste Impact	Time horizon	Economic Impact	Human Health Impact	Environmental Impact
Low Carbon building standard & codes, Carbon-conscious construction policy	• Oregon DEQ • Oregon building codes division • New Buildings Institute • Local Government Initiatives	Varies/Unknown Using low-carbon materials like cross-laminated timber and recycled components can be cost-neutral or even lead to savings. They help lower embodied carbon and typically require less energy.	High Building materials account for about 14.4% of Oregon's consumption-based greenhouse gas emissions.	2-5 years is the average time horizon for implementing this strategy.	High Oregon DEQ was awarded $25.6 million to help build lower-embodied carbon housing units in nine communities.	High/long range Significant potential to reduce emissions associated with building materials.	Medium Jurisdictions with climate action plans could begin prioritizing a coalition asking for exemption for certain upstream strategies.
Green material certification & incentives	• U.S. Green Building Council (USGBC) – Oregon Chapter • Green Building Initiative • Oregon DEQ	Varies/Unknown • Registration and Certification Fees • Design and Consulting Fees • Construction Costs	Medium Oregon DEQ's SB4A program offers a tiered system of incentives to encourage the development of low- and zero-carbon buildings.	According to research and different case studies, 1-5 years seems like the average time horizon for implementing this strategy	High Green-certified buildings typically lower operational costs through improved energy and water efficiency	Medium Oregon's Priority Climate Action Plan emphasizes the added benefits of green building practices, such as better indoor air quality and lower health risks from exposure to pollutants.	High Certifications encourage locally sourced products to cut transportation emissions, increase building longevity and minimize material replacement.

HEALTHIER, MORE CIRCULAR MATERIALS CONSIDERATIONS

Who needs to act?	How is it Funded (Examples)	What are the Barriers
• U.S. Department of Energy (DOE) Grants • Environmental Protection Agency (EPA) • State/Local Legislature	• **Example - Federal/State and Utility-Based Funding** The DOE awarded more than $113 million to Oregon to support home energy rebate programs that promote energy-efficient retrofits, with a focus on helping low- to moderate-income households. • **Example - Energy Trust of Oregon Programs** Energy Trust of Oregon uses Public Purpose Charge (PPC) funds to provide cash incentives and technical assistance for energy efficiency and renewable energy projects in residential, commercial, and industrial buildings. • **Example - Portland's Percent for Green Program** Portland's Bureau of Environmental Services provides the Percent for Green grant to support major green infrastructure projects that improve watershed health and benefit local communities. • **Example** – Portland's Deconstruction Ordinance and Low carbon concrete initiative	• Focusing on total certification may be difficult for some projects, in terms of waste, a jurisdiction could focus on waste management factors, ie use LEED v5 waste management credit as a guide for requirements around waste in new construction and demolition. • The City of Portland has multiple internal green building policies across various departments (e.g., city-wide, Prosper Portland, Housing Bureau), which can be complex for project teams to navigate. It would be more effective to streamline these into clear, easily accessible requirements or standardized certification systems. • Critical to frame in terms of forestry industry - mass timber is good for central oregon with several companies investing. • **Potential Actions** • Seek partnership/coalition with OSU (Oregon State University) around salvage wood research (ongoing).

START CONSULTING RRS

FOCUS AREA #2: BIBLIOGRAPHY

- Cost-Effectiveness of the 2021 IECC for Residential Buildings in Oregon - how the IECC is cost-effective for Oregon homes, offering 5.1% energy savings, $79 annual utility savings, and significant CO_2 reductions over 30 years.
- Evidence from the Alliances for Climate Action - highlights how diverse national alliances—comprising over 6,000 climate leaders from sectors like government, business, and civil society—collaborate to drive ambitious climate policies aligned with the 1.5°C goal.
- Low Carbon Materials Fact Sheet - fact sheet outlines strategies to reduce embodied carbon in building materials such as reusing structures, sourcing locally, and selecting natural or low-GWP products as part of its Sustainable Buildings and Sites Policy.
- Embodied Carbon in the Built Environment | Portland.gov - Portland's Bureau of Planning and Sustainability outlines strategies to reduce embodied carbon in buildings, emphasizing adaptive reuse, local material sourcing, and construction waste reduction to meet net-zero emissions goals.
- Benefits of Green Building - Green buildings reduce carbon emissions, conserve resources, lower operating costs, and enhance occupant health and productivity.
- Sustainable Buildings for All Incentive Framework - framework offers Oregon local governments a tiered incentive model to promote low-carbon, equitable, and healthy building projects through certifications, community engagement, and zoning or fee benefits.
- Oregon's Priority Climate Action Plan - outlines strategies to reduce greenhouse gas emissions in transportation, buildings, and materials management, aiming to leverage federal funding for rapid, community-focused climate action.

START CONSULTING RRS

FOCUS AREA #2: BIBLIOGRAPHY

- Oregon to receive $113 million in federal funds for energy efficiency home retrofits - OPB - Oregon has secured over $113 million in federal funding to launch two home energy rebate programs HOME and HEAR targeting energy-efficient retrofits and electrification upgrades for low- to moderate-income households.
- EPA Announces Oregon Department of Energy to Receive $86M to Deliver Residential Solar, Lowering Energy Costs and Advancing Environmental Justice Across Oregon | US EPA - The U.S. Environmental Protection Agency has awarded Oregon $86.6 million through the Solar for All grant to expand residential solar access for low-income and disadvantaged communities, aiming to reduce energy costs and advance environmental justice statewide.
- Oregon | ACEEE - Oregon ranks 9th in the 2025 ACEEE State Energy Efficiency Scorecard, recognized for its strong policies and incentives across buildings, transportation, and utilities.

START CONSULTING RRS

FOCUS AREA #3: BUILDING END-OF-LIFE MATERIAL RECOVERY

- **Goal:** Dismantle (rather than demolish) buildings to recover valuable materials for reuse, recycling, or repurposing.

- **Strategies:**
  - Rural-ready deconstruction & salvage - Expanding deconstruction ordinances with rural-friendly adaptations, considering workforce availability and logistics.
  - Construction waste management plans - Ensuring responsible material handling with a focus on high-value salvage like wood and brick.
  - End-of-life building material diversion - Strengthening markets and infrastructure to reuse and recycle post-construction materials.

START CONSULTING RRS

END-OF-LIFE MATERIAL RECOVERY BENEFITS AND CONSEQUENCES

Strategy	Organizational Sponsors	Cost	Waste Impact	Time horizon	Economic Impact	Human Health Impact	Environmental Impact
Rural-ready deconstruction & salvage	• Nonprofit and Industry Organizations (BRING Recycling) • Oregon Department of Environmental Quality (DEQ) • Lane County Waste Management • Private Sector Contributors	Varies/Unknown Portland provides grants up to $2,500 for full deconstruction projects .	Medium Lane County emphasized the importance of building local markets for materials such as wood and gypsum to help make deconstruction a financially sustainable option.	3-5 years is the average time horizon for implementing this strategy	High In rural areas, the market for salvaged materials may be limited, making it challenging to sell or repurpose reclaimed items, which can affect the financial viability of deconstruction projects.	Medium Deconstruction, which carefully dismantles structures, helps limit the spread of hazardous materials.	High Lane County found that construction and demolition debris makes up roughly 31% of its waste stream, highlighting the need for material recovery and reuse to reduce environmental impact.
Construction waste management plans	• Oregon Department of Environmental Quality • Oregon Department of Transportation • Waste Management Divisions	In the Portland metropolitan area, disposing of construction and demolition (C&D) waste at landfills costs approximately $94 per ton. Recycling sorted construction waste is often more affordable, with fees ranging from no cost up to $35 per ton when materials are properly separated.	High DEQ has launched waste prevention campaigns and offers support to local governments to promote community-wide waste reduction, emphasizing improvements in material design, purchasing, and usage practices.	Several weeks to a few months, depending on the project's scale, complexity, and applicable regulations.	Medium Haulers and contractors in the Portland area can lower costs by sending recyclable materials to approved recovery facilities instead of landfills, helping them avoid higher disposal fees.	High Properly managing and disposing of hazardous materials helps reduce exposure risks for both workers and surrounding communities.	Medium The Oregon Department of Environmental Quality reports that buildings are responsible for 30% of the state's consumption-based greenhouse gas emissions, with construction materials making up 8% of that total.
Construction Renovation and Demolition Debris (CRD) diversion in materials transfer/waste hauling	• Oregon Department of Environmental Quality (DEQ) • Circular Action Alliance (CAA) • Nonprofit and Community Organizations • Oregon Refuse & Recycling Association	Running a construction and demolition waste management operation can cost $500,000 to $1 million per year. Permits and environmental certifications can amount to around $10,000 to $30,000 annually.	High Construction and demolition debris make up a large share of Oregon's overall waste. In Portland, C&D materials represent roughly 30–35% of what goes to landfills.	Varies/Unknown Depends on the scale of project.	High Diverting construction and demolition materials for reuse or recycling helps contractors cut costs by avoiding landfill tipping fees and lowering material purchase expenses. Deconstruction can also offer tax advantages.	Medium Reduced exposure to hazardous substances Improved Air Quality	High Promoting circular economy best practices Reduces GHG emissions Conserves Natural resources Reduces landfill waste and pollution.

BUILDING END-OF-LIFE MATERIAL RECOVERY CONSIDERATIONS

Who needs to act?	How is it Funded (Examples)	What are the Barriers
• Oregon Département of Environmental Quality (DEQ) • Oregon Buildings Code Division (BCD) • Oregon Department of Energy • Local Jurisdictions • Non-profit partners • Private Sector Builders and Developers	• Grants and Incentives **Example** - The Oregon DEQ received $25.6 million from the EPA's Climate Pollution Reduction Grant to develop 940 low-embodied carbon housing units in nine communities, aiming to cut 343,487 metric tons of CO_2 by 2050 through adaptive reuse, efficient design, and sustainable materials. • Municipal Codes • State Policy and Code Development/Regional Development **Example -** Metro plans to launch the Reuse Impact Fund in FY 2025–2026 to provide stable funding for nonprofit reuse, repair, and share organizations. It will support activities like workforce training, equipment, and infrastructure to boost material reuse and diversion. • Local Initiatives **Example** – Portland's Deconstruction Ordinance and Low carbon concrete initiative,	• **Risk:** Increased tipping fees may cause illegal dumping, especially in rural areas • **Potential Actions** • Increasing tipping fees can pay for all three focus areas. • Benton County could apply for 2026 round of OR DEQ Materials Management grant which is focused on Built Environment • Solid waste transfer station vs. Landfill. • Materials could be donated to high school training building programs - perhaps a removed permit fee if a project salvages and donates materials to a local program.

START CONSULTING RRS

FOCUS AREA #3: BIBLIOGRAPHY/CASE STUDIES

- Construction and Demolition Waste Recovery and Reuse Project - Lane County's 2022–2023 Construction and Demolition Waste Recovery and Reuse Project recommends policies like deconstruction training, reuse incentives, and streamlined permitting to boost material recovery and reduce landfill waste.
- Mills Open Air School Deconstruction | Portland.gov - The Mills Open Air School in SE Portland is slated for deconstruction in 2025 as a pilot project to explore commercial building material reuse, with salvaged materials like old-growth lumber repurposed and the site planned for future affordable housing.
- Recycling Information | BRING - BRING Recycling in Eugene, Oregon, offers recycling services and promotes reuse by accepting donations of reusable building materials and household items.
- Construction waste | Metro - Oregon Metro provides resources and regulations to help businesses manage construction and demolition waste responsibly, including recycling options, hauling requirements, and compliance guidelines.
- DeconstructionReport.pdf - Oregon DEQ’s 2019 report shows deconstruction of 36 Portland homes cut emissions and energy use while recovering valuable materials like old-growth lumber.

START CONSULTING RRS

FOCUS AREA #3: BIBLIOGRAPHY/CASE STUDIES

- Strategies for Waste Reduction of Construction and Demolition Debris from Buildings - Marion County's demolition recycling initiative achieved an 82% diversion rate by salvaging reusable materials and educating the public, resulting in over $160,000 in savings through reduced disposal costs and material sales.
- What Are the 9 Operating Costs of Construction and Demolition Waste Management? – Businessplan-templates.com - outlines the nine key operating costs in construction and demolition waste management, including equipment maintenance, labor, logistics, utilities, compliance, and community engagement.
- Grants and resources | Metro - Oregon Metro's one-time reuse funding program awarded $750,000 to support nonprofit reuse and repair organizations, aiming to strengthen waste reduction efforts and improve access to affordable materials for underserved communities.
- Current Sustainable Procurement Initiatives | Portland.gov - Portland's Sustainable Procurement Program advances initiatives like the Low-Carbon Concrete Initiative and Clean Air Construction to reduce environmental impact and promote equity in city purchasing.

START CONSULTING RRS