Resources

Ecology Resources

Ecology's Recycle Right campaign and Toolkit – a statewide campaign to reduce contamination and increase the value of the material collected for recycling in Washington State. https://ecology.wa.gov/recycleright#:~:text=Recycling%20Right%20Matters,recyclables%20in%20the%20recycling%20bin.&text=They%20can%20also%20contaminate%20other,support%20local%20jobs%20and%20businesses.

The Recycle Right toolkit includes free customizable outreach materials for local governments and community partners in both English and Spanish - https://ecology.wa.gov/Waste-Toxics/Reducing-recycling-waste/Recycle-Right/Toolkit-request-form

- **2018 – Best Management Practices: Commingled Residential Recycling** – *updated BMPs to address the impacts of export bans and the high levels of recycling contamination* https://ecology.wa.gov/DOE/files/ed/ed59ba23-7f4c-4053-a47b-5abb644ad228.pdf

- **2016 - Northwest Region Report** – *Optimizing the Commingled Residential Curbside Recycling Systems in Northwest Washington* https://fortress.wa.gov/ecy/publications/documents/1607028.pdf

- **2011 – Best Management Practices Guides for Local Governments** What to include in Your Residential Commingled Recycling Collection Program https://fortress.wa.gov/ecy/publications/documents/1107026.pdf

- **2012 – Public Outreach for Your Residential Commingled Recycling Collection Program** https://fortress.wa.gov/ecy/publications/summarypages/1207061.html

- **2010 - Beyond the Curb –** *Tracking the Commingled Residential Recyclables from Southwest WA* https://fortress.wa.gov/ecy/publications/summarypages/1007009.html

The Recycling Partnership Resources

- **Anti-Contamination Toolkit & Campaign Builder** Free, step-by-step planning guide with lots of links to other resources - https://recyclingpartnership.org/contamination-kit/

The toolkit includes:
- Contamination fighting readiness assessment tool
- Artwork – *downloadable design files for anti-contamination tools*
- MRF & Hauler contract considerations focused on contamination
- Worksheets to work with your MRF, haulers and other stakeholders to develop a contamination reduction plan
- Pro Tips – *advice form communities that have used the toolkit*
- MRF survey tool – *to identify issues and goal*
- MRF tracking form to track contamination metrics
- Standard Operation Procedures – *lays out the roles, responsibilities, timeline and tracking for your anti-contamination plan*
- Training video for drivers and enforcement staff to provide curbside feedback
- Set out video – *overview of the difference between set-out rate and participation rate and how to calculate*
- Tally sheet to track tagging progress

- **Campaign Builder -** *free, easy-to-customize anti-contamination materials including OOPs tags, top-issue mailers, and annual recycling program info cards* https://recyclingpartnership.org/pdf-builder-login/

- **Webinar on how to use the toolkit** – NERC – TRP -Massachusetts DEP – April, 2018 https://nerc.org/documents/Implementing%20the%20Recycling%20IQ%20Toolkit%20to%20Reduce%20Contamination%20of%20Residential%20Recycling_%20Lessons%20Learned%20.mp4

- **Municipal Measurement Program (MMP)** - https://www.municipalmeasurement.com/ The MMP provides municipalities with free access to a centralized database to measure program performance, benchmark results, and access tools and resources to improve curbside recycling programs.

- **Best Management Practices for MRF contracting** file:///C:/Users/pgut461/Downloads/RecyclingPartnership-Community-MRF-Contracts-6.24.20%20(1).pdf

The Context for Contamination

- **From Green Fence to Red Alert** – A China Timeline – Resource Recycling - regularly updated
  https://resource-recycling.com/recycling/2018/02/13/green-fence-red-alert-china-timeline/

- **Why China Stopped Buying U.S. Recycling** – CNBC – March 1, 2020
  https://www.youtube.com/watch?v=YYjkdYAUa0c&feature=youtu.be

- **Recycling's dirty truths exposed** - Seattle Times - April, 26, 2020
  https://www.seattletimes.com/pacific-nw-magazine/with-recyclings-dirty-truths-exposed-washington-works-toward-a-cleaner-more-sustainable-system/#:~:text=Local%20News-,With%20recycling's%20dirty%20truths%20exposed%2C%20Washington%20works,a%20cleaner%2C%20more%20sustainable%20system&text=IN%202017%2C%20ABOUT%20three%2Dquarters,tubs%20%E2%80%94%20was%20shipped%20to%20China.

  - **Backstory for Times article** – I've cleaned up my act, but the system needs to be cleaned up too - https://www.seattletimes.com/pacific-nw-magazine/the-backstory-ive-cleaned-up-my-act-but-the-system-needs-to-be-cleaned-up-too/

- **In My Opinion – Fix the Broken System** – Plastics Recycling News – Feb. 2, 2017
  https://resource-recycling.com/plastics/2018/02/20/opinion-fix-broken-system/

- **NWRA – issue brief on China Sword** -
  https://cdn.ymaws.com/sites/wasterecycling.site-ym.com/resource/resmgr/files/issue_brief/China's_Changing_Policies_on.pdf

- **MRSC – Recycling in Crisis – WA's response** - http://mrsc.org/Home/Stay-Informed/MRSC-Insight/November-2018/A-Recycling-Crisis-in-Washington.aspx

- **Is this the End of Recycling?** – The Atlantic- March 6, 2019
  https://www.theatlantic.com/technology/archive/2019/03/china-has-stopped-accepting-our-trash/584131/

- **Recycling in the U.S. is Broken. How do we Fix it?** - Earth Institute – March 13, 2020
  https://blogs.ei.columbia.edu/2020/03/13/fix-recycling-america/#:~:text=Photo%3A%20USEPA-

,Recycling%20in%20the%20U.S.%20is%20broken.,actually%20end%20up%20being%20recycled.

- **Monopoly and the U.S. Waste Knot** – ILSR - December 4, 2018 - https://ilsr.org/monopoly-and-the-us-waste-knot/

- **The era of easy recycling may be coming to an end** – FiveThirtyEight - January 10, 2019 https://fivethirtyeight.com/features/the-era-of-easy-recycling-may-be-coming-to-an-end/

- **The Conflict of Interest that is Killing Recycling** – NY Times – August 15, 2018 - https://www.nytimes.com/2018/08/15/opinion/fixes-recycling-labeling-landfills.html

- **All the ways recycling is broken** – and how to fix them – Fast Company – April 4, 2019 - https://www.fastcompany.com/90321566/all-the-ways-recycling-is-broken-and-how-to-fix-them

- **Single Stream Recycling: Explaining the Waste Knot**– ILSR – August 29, 2018 https://medium.com/@ILSR/single-stream-recycling-explaining-the-waste-knot-16bdf8c47e22

- **Single-Use Plastics – A roadmap for Sustainability** – UNEP- June, 5, 2018 https://www.unenvironment.org/resources/report/single-use-plastics-roadmap-sustainability

- **Americans believe strongly in recycling** – TRP – June 17, 2020 https://recyclingpartnership.org/americans-strongly-believe-in-recycling/

- **Derek Ruckman – Presentation on Recology's Zero Waste Mission** – April 29, 2020 https://1drv.ms/v/s!AuL3p2W6v4a1iIYpjoSuQTEiicpvNA?e=kdFpnX

Certificated Hauler Service Area Maps

Includes statewide and county maps from the WA Utilities and Transportation Commission
- **PDFS of maps** https://www.utc.wa.gov/regulatedIndustries/transportation/solidWaste/Pages/SWSserviceMaps-ByCounty.aspx

- **Statewide searchable map**
  https://wutc.maps.arcgis.com/home/webmap/viewer.html?webmap=d379029aa77d4f2086c0570706c02efa

Gable Top - Aseptic Containers

- **Expanding Carton Recycling Within Evolving Fiber Markets** – Upcyclers Network – 07/08/2020
  https://www.upcyclersnetwork.org/wp-content/uploads/2020/07/Evolving-Fiber-Markets-and-Expanding-Carton-Recycling-Access-for-Municipalities-1.pdf

Contracting for Processing of Recyclables

- **The Recycling Partnership BMPs for MRF contracting**
  file:///C:/Users/pgut461/Downloads/RecyclingPartnership-Community-MRF-Contracts-6.24.20%20(1).pdf

- **MRF & Hauler contract considerations focused on contamination**
  https://therecyclingpartnership.box.com/s/2cbpcxvgrjkj6tfbhspzjhnb0p3cre49

- **SWANA/NWRA contracting guide**
  https://cdn.ymaws.com/wasterecycling.org/resource/resmgr/docs/resource_library/SWANA-NWRA_Best_Contracting_.pdf

- **Using Contract Language to Improve Recycling** – King County Responsible Recycling Task Force
  Includes sample contract language
  https://kingcounty.gov/~/media/depts/dnrp/solid-waste/about/planning/documents/task-force-contract-language.ashx?la=en

- **City of Palo Alto Contract for Collection & Processing** – *includes detailed reporting requirements, certificates of end-use, etc.*
  https://www.cityofpaloalto.org/civicax/filebank/documents/68449

Multi-Family

- **WSRA – 2019 Annual Conference**
  Building for Success: Using Code to Improve Multifamily Recycling - Speakers: Angela Wallis; Seattle Public Utilities, Sarah Kirby; Metro Oregon, Jenna McInnis; City of Kirkland, Andrea Lei; Cascadia Consulting

  - SPU – MF Code to Drive diversion https://wsra.xyz/wp-content/uploads/2019/12/WSRA_AOR-Presentation-2019_MF-Code.pdf

  - Oregon Metro – MF Community Engagement - https://wsra.xyz/wp-content/uploads/2019/12/WSRA_MF_METRO_final.pdf

  - City of Kirkland – Using Simple Code to increase recycling - https://wsra.xyz/wp-content/uploads/2019/12/MF-Code-Conference-Presentation.pdf

  - Cascadia – the role of recycling code and policy - https://wsra.xyz/wp-content/uploads/2019/12/Cascadia-WSRA-AOR-2019_MF-Policy-and-Code_DRAFT.pdf

- **Salt Lake City Business and MF Recycling Ordinance** – Creating a recycling plan – case studies
  http://www.slcdocs.com/slcgreen/Waste&Recycling/SLC%20Business%20Recycling%20Toolkit%20FINAL_December%202018_Small.pdf

- **MF Recycling guide** – from rental association
  https://www.rentecdirect.com/blog/create-recycling-program/

- **Reducing Contamination at Apartment Complex** - Michigan
  https://wmich.edu/sites/default/files/attachments/u691/2016/Swanson_1.pdf

- **Oregon DEQ MF** – Improving access to tenants
  https://www.oregon.gov/deq/recycling/Pages/Recycling-for-Tenants.aspx
  https://www.oregon.gov/deq/FilterDocs/recMultiTenOppFS.pdf

Cart Tagging

WSRA – 2019 Annual Conference

Cart Tags for a Less Contaminated Tomorrow - Speaker/s: Lindsay Chapman; Spokane County, James Tieken; City of Spokane, Steven Gimpel; Waste Management
Speakers: Joel Kohlstedt; Waste Management, Stacy Ludington; Clackamas County Sustainability and Solid Waste, Cody Marshall, The Recycling Partnership

- TRP – overview - https://wsra.xyz/wp-content/uploads/2019/12/3b_Partnership-Tagging-Presentation-4.22.19.pdf

- City of Spokane, Clackamas County, Waste Management - https://wsra.xyz/wp-content/uploads/2019/12/WSRA_Slides_3b.pdf

Single & Dual Stream

- **Experts duel over dual-stream's merits** – Resource Recycling – 5/14/2019 https://resource-recycling.com/recycling/2019/05/14/experts-duel-over-dual-streams-merits/

- **Dual-stream collection regains appeal in some areas** - Resource Recycling – 7/17/2018 https://resource-recycling.com/recycling/2018/07/17/dual-stream-collection-regains-appeal-in-some-areas/

General Contamination Reduction

- **WSRA** - https://wsra.net/events/2018-wred-events/- Contamination Fest March – many presentations

- **SCS Engineers** – high-level guides for reducing contamination and includes other linked resources https://www.scsengineers.com/minimize-contamination-in-recycling-programs/ https://www.scsengineers.com/proven-methods-reduce-contamination-recycling/

- **NWRA** – Anti-contamination Poster https://cdn.ymaws.com/wasterecycling.org/resource/resmgr/images/Reduce_Contamination_Infogra.pdf

- **Oregon DEQ** – Recycle Right campaign
  https://www.oregon.gov/deq/recycling/Pages/Recycle-Right.a

- **Recycle or Not** – Oregon Metro https://www.recycleornot.org/

Hauler Websites

- **Republic Services** – Recycling Simplified - https://recyclingsimplified.com/
- **Waste Management** – Recycle Right - https://www.wm.com/us/en/recycle-right
- **Waste Connections** – Recycle Right – Clark County -
  https://wcnorthwest.com/recycleright
- **Recology** – Better at the Bin - https://www.recology.com/better-at-the-bin/

Glass

- **Recycling glass with alternative collections –** *Laura Hennemann, Strategic Materials-07/22/2020*
  https://www.upcyclersnetwork.org/wp-content/uploads/2020/07/Upcyclers-Strategic-Materials-July-20_Laura.pptx

- **Glass Recycling in Today's Market –** *Scott DeFife, Glass Packaging Institute – 07/22/2020*
  https://www.upcyclersnetwork.org/wp-content/uploads/2020/07/Upcyclers_Glass-Webinar_Scott.pptx

- **Refresh Glass** – *Ray DeMuro, Refresh Glass – wine bottles into glassware – 07/22/2020*
  https://www.upcyclersnetwork.org/wp-content/uploads/2020/07/Ray-DelMuro_Refresh-Glass-short.pptx

Measurement and Cost Analysis

- **Measuring Composition and Contamination at the MRF** – NERC Conference – 10/31/2018
  https://nerc.org/documents/conferences/Fall%202018%20Conference/Measuring%20Composition%20and%20Contamination%20at%20the%20MRF_John%20Culbertson.pdf

- **Municipal Measurement Program (MMP)** - https://www.municipalmeasurement.com/

The MMP provides municipalities free access to a centralized database to measure program performance, benchmark results, and access tools and resources to improve curbside recycling programs.

- **2013 Material Composition Study** – Ontario Blue Box Program https://stewardshipontario.ca/wp-content/uploads/2016/03/2013-MRF-Material-Composition-Study-March-22-16-1.pdf

- **Costs of adding non-core materials to processing costs and recovery rates** https://thecif.ca/understanding-how-program-costs-and-recovery-have-changed-over-time/

Life Cycle Analysis

- **EPA Waste Reduction Model (WARM) Calculator** – estimate GHG emissions reductions, energy savings, and economic impacts of alternative waste management strategies.

- **Oregon Department of DEQ Environmental Footprinting for Packaging** - https://www.oregon.gov/deq/mm/production/Pages/Packaging.aspx

- **Waste Management 2018 Sustainability report** – includes data on impacts of recycling on GHG emission - page *31* - https://sustainability.wm.com/downloads/report.php

Product Design for Recyclability

- **How2Recycle Recyclability Insights Report** https://how2recycle.info/insights?utm_source=newsletter&utm_medium=email&utm_content=Explore&utm_campaign=H2R%20Guidance%20Doc%207.2017

Glossary, Acronyms, and Abbreviations

Acronyms and Abbreviations

ADA	Americans with Disabilities Act
BMP	Best Management Practice
C&D	Construction and Demolition Debris
CPG	Consumer Product Goods
CROP	Contamination Reduction Outreach Plan
Ecology	Washington State Department of Ecology
EPR	Extend Product Responsibility
LCA	Life Cycle Analysis
LSWFA	Ecology's Local Solid Waste Financial Assistance program
RCW	Revised Code of Washington
RDC	Recycling Development Center
SWMP	Solid Waste Management Plan. Counties and municipalities must participate per RCW 70.95.080.
TRP	The Recycling Partnership
WAC	Washington Administrative Code
WACSWM	Washington Association of Counties Solid Waste Managers affiliate
WGA	Waste Generation Area
WRRA	Washington Refuse and Recycling Association

Glossary

Accepted Materials List (AKA Acceptance list): The most recent list published/promoted by a jurisdiction and/or its hauler for residential recycling services that is meant to guide residents on what materials they can put in their recycling containers. Because commercial recycling is an open market, lists may vary by hauler within a jurisdiction. The acceptance list should mirror closely the designated recyclables list found in the Solid Waste Management Plan that the jurisdiction participates in.

Adopt: To adopt a CROP, a local government must formally add its CROP to its SWMP by way of either the locally-defined or Ecology-approved amendment process, or via a revision and the standard local resolutions of adoption by all SWMP signatories as done in the regular SWMP revision process. In either case, Ecology's subsequent approval of the adopted document is the final step of the process.

Amendment: A minor alteration (update) of an existing Solid Waste Management Plan following the process described in the Plan itself, or a process agreed upon with Ecology.

Aseptic containers: Boxes made from paper layered with polyethylene and aluminum that contain shelf-stable consumables such as milk, soup, and tomatoes.

Cardboard: Contains a wavy middle layer. Mills use old corrugated containers to make new recycled-content shipping boxes and more. AKA - Old Corrugated Containers (OCC).

Cartons: Packaging for food and beverage products, both shelf-stable and refrigerated. Aseptic cartons (defined above) are often used for shelf-stable applications. Gable-top cartons are commonly used in refrigerated applications, such as milk and juice.

China's export ban: Enacted in March 2018 after being announced the previous year during the National Sword customs contamination enforcement action (which the ban is sometimes erroneously referred to). Both the ban and National Sword are often used as placeholder terms to describe the outsized economic impact of this large export market disruption (estimated at a fifth of all commodities markets).

Commercial recycling: Recycling collected from commercial (business), institutional or industrial sources. (Multi-family is considered as residential recycling, not commercial.)

Commingled Recycling: Mixing recyclable materials for the purposes of efficient collection. This term is almost always used synonymously with single-stream recycling, in which the aggregated recyclables are in a single container such as a wheeled cart with a lid that ranges from 32-90 gallons in capacity, or a multi-yard dumpster, or a drop box. However, it is also technically possible for commingled recycling to be a part of a dual-stream or multi-stream system. An example is a system where commingled recyclables without glass are collected in a cart, and glass is collected in a separate bin placed next to the cart.

Contamination: Per RCW 70.95.100(4)(b), "Contamination means any material not included on the local jurisdiction's acceptance list." More broadly, this is any item collected with materials meant for recycling that could create significant negative environmental, financial, or health or safety impact anywhere in the recycling system from collection through remanufacture or disposal.

Contamination Reduction Outreach Plan (CROP): The element that must be included by July 1, 2021 in local solid waste management plans per RCW 70.95.090(10). This local CROP is intended to improve the uniformity, marketability, and environmental benefits of recyclable material streams. The Local CROP Template is included in the State CROP. Ecology prepared a State CROP to assist local governments in preparing and implementing their local CROPs.

Drop box (or drop off) recycling: Recycling collection sites for residential and sometimes commercial recyclables where residents can drop off materials to be recycled. May be used as an alternative for a community that does not offer curbside collection of recyclables.

Dual-stream: One type of a commingled collection system in which some recyclable materials are placed in a cart or bin at the curb, and one or more different materials are placed in another cart or bin (or, less frequently, in different sides of a divided cart). Examples – all materials except glass in one cart, and glass in a bin next to the cart; all fibers in one cart and all containers in another cart.

End User or mill: The facility that first uses recycled material to manufacture a new product. The product of an end-user or mill may be further converted into other value-added products, such as a sheet of boxboard from a paper mill being converted into a box.

Extended Product Responsibility (EPR): EPR is a mandated policy that shifts the responsibility for end-of-life management of products and packaging upstream to producers – rather than the public sector – and creates incentives for producers to incorporate environmental considerations into the design of their products and packaging. *Definition from the King County Responsible Recycling Task Force report - EPR Policy Framework and Implementation Model*

Life Cycle Analysis (LCA): LCA is a method used to evaluate the environmental impact of a product through its life cycle encompassing extraction and processing of the raw materials, manufacturing, distribution, use, recycling, and final disposal.

Materials Management: A systemic approach to using and reusing materials more productively over their entire lifecycle. Materials management is focused on knowing and reducing the lifecycle impacts across the supply chain; using less material inputs (reduce, reuse, recycle); and using less toxic and more renewable materials.

Mixed Waste Paper (MWP): Mixed paperboard, magazines, and catalogs. Mills use mixed paper to produce paperboard and tissue, as a secondary fiber in the production of new paper, or as a raw material in a non-paper product such as gypsum wallboard, chipboard, roofing felt, cellulose insulation, and molded pulp products such as egg cartons. Typically not used for molded pulp products due to the contamination level and risk of damage to food. Also used for production of medium used in corrugated containers.

Materials Recovery Facility (MRF): Pronounced "merf," is a facility that accepts, sorts, processes, and   bales different types of recyclables for sale to an end-user.

MRF-shed: The geographic area that includes the communities that send the material they collect for recycling to same MRF for processing.

Multiple- or multi-family recycling: recycling collection from multiple-family residences such as apartments or generally any buildings containing four or more habitable units.

Plastic bottles and jugs: Plastic containers of any resin type that have a narrower opening than its body (i.e. a "neck").

Plastic film: A thin flexible sheet of plastic which does not hold a particular shape when unsupported.

Polycoat: A type of fiber packaging that contains an outer layer of plastic coating to protect the fiber from breaking down in wet and freezing conditions.

Recyclable materials: Those solid wastes that are separated for recycling or reuse, including, but not limited to, papers, metals, and glass that are identified as recyclable material pursuant to a local comprehensive solid waste plan. For the purposes of a local CROP, these materials do not need to include organics or construction and demolition waste.

Recycling: means transforming or remanufacturing waste materials into usable or marketable materials for use other than landfill disposal or incineration.

Revision: An alteration (update) of an existing Solid Waste Management Plan (or Combined Solid and Hazardous Waste Management Plan) by way of reviewing and adjusting as necessary every element of the Plan, cover to cover. A revision goes through the full review and adoption process, and restarts the 5-year "review and revise as necessary" timeline in RCW 70.95.110.

Right to Repair: "Right to repair" laws refer to legislation that requires manufactures to give owners or independent repair shops access to data needed to repair their products.

Single-family recycling: recycling collection from single-family homes or generally from buildings up to four habitable units.

Single-stream: One type of a commingled collection system in which all recyclable materials are placed in one container at the curb.

Sustainability: Sustainability focuses on meeting the needs of the present without compromising the ability of future generations to meet their needs. The concept of sustainability is sometimes described as being composed of three pillars: economic, environmental, and social—also known informally as profits, planet, and people.

Transcreation: The merger of two words: translation and creation. It's an intricate form of translating a message from one language to another, while maintaining its intent, style, tone, and context. A successfully transcreated message evokes the same emotions and carries the same implications in the target language as it does in the source language.

Update: An alteration of an existing Solid Waste Management Plan by way of either an amendment or a revision with the intent of bringing the Plan into compliance or to reflect a change in current conditions.

Waste generation areas (WGA): Geographic areas within the state that have similar economic, environmental, and social characteristics and are dependent upon similar material transport networks. Other variables, such as waste composition, methods of waste collection and disposal, and the availability of recycling and commodity markets, are also considered in the

determination of WGAs. *from Ecology's 1988 Best Management Practices for Solid Waste – Volume 1, page 1.*

Wishful recycling: The act of tossing items in a recycling bin believing they should be recyclable and with the hope that they will be recycled.