



Recycling Steering Committee

Modernizing Oregon's recycling system with support from Oregon Consensus

Recycling System Steering Committee Meeting

Agenda

February 28, 2020

10:00 a.m. – 4 p.m.

Location: DEQ Headquarters

700 NE Multnomah Street, Portland, 3rd floor conference room

Join via Zoom Meeting

Register in advance for this meeting: <https://bit.ly/3bY8F03>

After registering, you will receive a confirmation email with information about how to join the meeting.

Meeting Purpose: Hear an update from an end market perspective on contamination issues; review infrastructure research, and refine and approve infrastructure scenarios for in-depth evaluation by Cascadia research team.

PROPOSED AGENDA

(Times are approximate and subject to change based on the needs of the group)

10:00 a.m. Welcome/Introductions/Get Settled

10:15 a.m. NORPAC Update on Paper Industry End Market Contamination Concerns

Objective: Jay Simmons will update the RSC from his previous presentation on contamination issues in the paper industry end market with implications for long term recycling system planning.

10:45 a.m. Brief Refresher of Infrastructure Research to Date (Cascadia Consulting Group)

- Collection alternatives — results and outstanding questions from 1/17/20 RSC meeting
- Processing alternatives — results, recommendations and outstanding questions from 2/13/20 Infrastructure Research Subcommittee meeting

Objective: Recycling Steering Committee and interested Infrastructure Research Subcommittee members have an understanding of summary of research and Cascadia's recommendations for scenario development.

The Recycling Steering Committee is a collaborative of representation from the Assoc. of Oregon Counties, Assoc. of Oregon Recyclers, Assoc. of Plastics Recyclers/Denton Plastics, EFI Recycling, Far West Recycling, Lane County, League of Oregon Cities, Metro, NORPAC, Oregon Department of Environmental Quality, Oregon Refuse & Recycling Assoc., City of Portland, The Recycling Partnership, Rogue Disposal & Recycling, Waste Connections, and Waste Management. **For more information, visit <https://go.usa.gov/xmYYe>.**

- 11:15 a.m. **Break – Group Photo**
- 11:30 a.m. **Lunch**
- 12:00 p.m. Present and Discuss Customer Engagement, Compliance and Incentives Alternatives Research Results and Recommendations (Cascadia Consulting Group)
- Questions and dialogue — RSC and Cascadia

Objectives: Recycling Steering Committee and interested Infrastructure Research Subcommittee members have answers to questions about research. Cascadia has feedback on case studies, summary and recommendations from IRS and RSC members.

- 1:00 p.m. **Break**
- 1:15 p.m. Review and Confirm Task 5 Scenario Definitions

- Context for the research (DEQ)
- Draft scenarios based on work to date — Cascadia
- Discussion — RSC
- Confirm the approach to scenarios for study — RSC and Cascadia

Objectives: Recycling Steering Committee and interested Infrastructure Research Subcommittee members have answers to questions about draft scenarios. RSC and IRS have an opportunity to work with Cascadia to refine draft scenarios. Infrastructure research definitions are finalized.

- 3:15 p.m. Public Comment
- 3:30 p.m. Wrap Up and Next Steps

- Identify action items and next steps
- Future Infrastructure Research meetings / dates
- 3/18 RSC meeting : Frameworks agenda outline

4 p.m. Adjourn

Meeting Summary

ACTION ITEMS:

ACTION	BY WHOM?	BY WHEN?

<ul style="list-style-type: none"> Draft meeting summary to SC members for review 	OC	3/10
<ul style="list-style-type: none"> There was a request for data that shows changes in contamination levels before and after a recycling system moves to an EPR program. DEQ will circulate to RSC members. 	Justin Gast, DEQ	When available
<ul style="list-style-type: none"> RSC members to provide Brian Stafki and Cascadia input and suggestions for the list of materials for on-route and depot collection in Infrastructure Scenarios A and B. Due: March 4th 	RSC	Completed.

Meeting Attendees:

Steering Committee Members: Dylan de Thomas, Sarah Grimm, Nicole Janssen, Scott Keller, Laura Leebrick, Matt Stern (via phone), Amy Roth, Kristan Mitchell, Jeff Murray, Pam Peck, David Allaway, Abby Boudouris, Timm Schimke, Jay Simmons, Jason Hudson, and Bruce Walker.

Infrastructure Subcommittee Members: Kristin Leichner

Cascadia Consulting Team: Jessica Branom-Zwick, Chris Bell, Tim Buwalda (via phone)

Facilitation Team: Robin Harkless and Amy Delahanty

DEQ Staff: Sanne Stienstra, Justin Gast, Peter Spendelow, and Brian Stafki

Registered Meeting Participants: Janine Bogar, Contracia Carrier, Lauren Aguilar, Scott Klag, Beth Vargas Duncan, Shannon Jones, Brian May, Nick Isbister, Reed Carlson, Jenna Devenberg, Hans Van Dusen, Rachel VanWoert, Dan Weston, Nickole Vargas, Hannah Sholes, Carla Johnson, Jules Renaud, Ron Jones, Joel Kohlstedt, Heather Church, Melanie Chase, Josie Cummings, Leigh LaFleur, Daniel Redick, Paul Cosgrove, Sean Daoud, and Patty Moen.

MEETING SUMMARY:

Welcome and Agenda Review

Facilitator Robin Harkless, Oregon Consensus, welcomed the group and Recycling Steering Committee (RSC) members and other participants gave brief introductions. Robin then reviewed the meeting agenda and purpose, which were to hear an update from NORPAC's perspective on contamination issues impacting the paper recycling market; review the infrastructure research to date; and refine and approve infrastructure scenarios for in-depth evaluation by the Cascadia research team. Robin reminded the group the Recycling Steering Committee (RSC) heard presentations on end markets from members Jay Simmons and Nicole Janssen previously. She noted Jay will update the group on developments since his last presentation to the group.

NORPAC Update on Paper Industry End Market Contamination Concerns

Jay Simmons provided an update to the RSC from his previous presentation on contamination issues in the paper industry market sharing implications for long-term recycling system planning. Presentation topics included, but were not limited to: history of mixed paper usage at NORPAC; 2019 yield trends; 2019-2H Sourcing; material recovery facilities (MRF) supplier quality; mixed paper quality impact on NORPAC costs; and mixed paper quality impacts on NORPAC's future. In sum, Jay reflected that contamination is financially straining NORPAC's ability to maintain use of recycled feedstock, particularly as it expands operations to cover a broader geographic scope. NORPAC's stated goal is to improve the quality of inbound mixed paper for successful marketing and reduce unnecessary financial and environmental costs. Throughout Jay's presentation, the following questions and comments were shared by RSC members:

RSC Question: Do you have information on where the contamination is coming from?

- Jay shared a slide of MRF supplier quality that noted trends across MRFs and illustrated that different MRFs have widely varying degrees of outbound contamination. Jay noted that as the consumption level of mixed paper increases, NORPAC does not have the flexibility in being selective for where they access materials. Sourcing increased volume from MRFs that have higher contamination levels, will increase operating costs and risks due to higher glass levels. Jay noted that it's anticipated NORPAC will spend over \$4 million per year to dispose of the non-fiber waste component of the mixed paper grade. Jay shared that if NORPAC expands the project, it will be critical to get a handle on the quality of paper. If not, NORPAC will have to move away from recycling.

RSC Question: How do you determine how many samples NORPAC takes from each supplier?

- *Response:* Right now, the sampling is random and not consistent throughout the year. NORPAC used to fund one to two full time positions for this work, but stopped in 2015/16. As the company looks to use more mixed paper, the company will need support in testing.

RSC Question: Is the way the glass is processed a root cause of the high contamination levels?

- *Response:* I haven't dug into the data to that level of detail to say definitively. Some samples may be a cause of a bad day or low sample size.

RSC Comment: The disposal number looks dramatically higher than years past. Is there an explanation?

- *Response:* That's possible; we used to run a landfill so 'disposal' was a different consideration for us than it is now.

RSC Data Request: RSC members requested a breakdown of contaminants as a follow up. Jay committed to trying to get more details and sharing with the RSC.

Following this, there was a discussion about potential solutions, which included:

- *Regulatory mechanisms:* Setting caps on contamination via MRF standards. Pam Peck (Metro) shared that the Metro Council has prioritized a process to determine what types of performance standards Metro can implement at MRFs in an effort to have cleaner materials.
- *Technology improvements:* Bruce Walker (City of Portland) shared there are grant opportunities at Metro that MRFs could take advantage of for technology improvements.
- *Education:* Educating generators remains an important component to tackle this issue.

David Allaway (DEQ) acknowledged that DEQ had visited NORPAC and viewed the scale of the contamination issue. He stated there is a need to protect and maintain the mixed paper system and encouraged producers to step in to assist NORPAC manage the externalized cost of the problem, as a statewide regulatory solution will not be implementable in the short term in Oregon.

Robin offered that Jay's presentation highlighted contamination as an important issue for both the near and long-term and asked the group to consider how the current situation being presented helps inform the RSC's long-term planning for a resilient system. She also asked the group to consider how the Infrastructure research being conducted in this process might inform near-term problem solving around this issue.

Brief Refresher of Infrastructure to Date

Brian Stafki reminded the group on the arc of the research and high-level research objectives. He noted the goals of the infrastructure research were to improve recycling infrastructure by optimizing the benefits of recycling; create strong and resilient systems; and restore and maintain public trust in the system. To achieve those goals, he stated the research will seek to explore and identify how markets, collection alternatives, processing alternatives, and effective customer engagement methods to reduce contamination might all need to change. He shared that once the first four tasks (which provide preliminary research on these topics) have been completed, that will serve as a starting place for evaluating infrastructure scenarios against the Oregon base case. He noted Cascadia Consulting Group shared the results of the collections research at the January 17th RSC meeting and processing results at the February 13th Infrastructure Research Subcommittee.

Jessica Branom-Zwick and Chris Bell (Cascadia Consulting Group) provided a brief summary of the collection and processing alternatives research. Cascadia noted for Task 1 collection alternatives research, they researched two types of systems to understand the operations, costs, impacts, and changes necessary if Oregon were to migrate from Oregon's standard dual-stream system to a triple-stream system (dual-stream of paper/cardboard and mixed containers/other materials, with glass continuing to be collected separately). The goal of this task was to provide the RSC with information on alternative collection methods that will help them decide which collection methods to include in scenario analysis. During the presentation, Chris provided an overview of the two-cart and split-cart systems highlighted for this case study research; discussed the benefits and drawbacks of single and dual-stream collection; and provided their high-level recommendation for consideration in scenario building. The research team's recommendation was to include two-cart dual-stream (technically, three-stream, as glass would be on the side) as one alternative scenario.

After the quick update, RSC members offered comments and questions, primarily around the recommendation to look into dual-stream systems as a method to produce 'cleaner' materials. Cascadia offered that they used a combination of anecdotal information from interviews, some hard data and a literature review as sources informing their recommendations for studying dual stream approaches.

Cascadia then reviewed the key learnings from Task 2 processing alternatives research. As a reminder, Cascadia (with subcontractors Circular Matters and Drennen Consulting Services) researched five types (seven facilities) of processing systems/MRFs to understand the operations, costs, and impacts of each type of facility. The goal of this task was to provide DEQ and partners with information on alternative processing methods to assist the group on which collection and processing methods to include in further scenario analysis. During the presentation Jessica and Chris briefly reviewed learnings from 2-3 facilities that were recommended by Cascadia for further analysis. The research team recommended considering the following processing systems in infrastructure scenarios analysis: 1.) dual-stream processing; 2.) container recovery facility; and, 3.) modernize single-stream MRFs. After the presentation, several questions and comments were asked by RSC and subcommittee members. The following is a synthesis of those discussions.

RSC Question: What does "modernizing" mean in this context?

- *Response:* Generally, it means structural improvements. With regards to a single-stream MRF, modernizing would mean improvements to screen designs; increasing diameter of rotator shafts; screens with more square footage of surface area. For containers this could mean robotic sorting technologies and optical sorters as well.

Oregon MRFs offered their perspective on their ability to accommodate modernization improvements that would impact space. Generally, it requires either additional space or optimizing layouts.

RSC Comment: If you are running a dual-stream system, you are probably running dual lines. Seems like you could have the same system for a commingled and dual stream collection systems?

- *Cascadia Response:* Our understanding is that dual stream MRF doesn't need 2D / 3D because fibers and containers are already separated. A single-stream MRF can process dual stream; however, it would need to be modified to have a separate infeed added and a container line presort area added.

RSC Question: Are there existing programs that set standards for quality/contamination caps at the back end of the system?

- *Facilitator Response:* This is a good governance question and intersects with the ongoing frameworks effort in this process

RSC Comment: I have a concern with a dual-cart system and moving that forward as a recommendation for further study as an infrastructure scenario. Adding a cart is too much for the density of urban areas, among other issues. My recommendation is to improve MRFs to reduce contamination, and remove dual-cart options.

- *DEQ Response:* Oregon hasn't studied the dual-cart comprehensively and the goal is to show an array that's different than what Oregon is doing now. We are hoping to show an array of different ways of changing the system with regards to collection, sorting, etc.

RSC Question: have we looked at a community that implements split-collection weeks but use the same cart (i.e. alternating weeks of paper and other materials pick up)?

- *Cascadia Response:* We did look at that and found out that customers strongly disliked it.

Customer Engagement Research

Jessica Branom-Zwick provided an overview of the Customer Engagement, Compliance and Incentives Alternatives Results and Recommendations to the RSC. Cascadia conducted a literature review and web- and interview-based research on the cost and effectiveness of education, feedback, incentive, and compliance alternatives. The goal of this task was to provide the RSC with information on the state of knowledge regarding the use and effectiveness of engagement, compliance, and incentive programs that are aimed primarily at reducing contamination in set-out / curbside recyclables. Jessica noted that the research focused on the following areas:

- Direct feedback, such as cart-tagging, phone calls, letters, or visits related to contamination observations.
- Compliance actions, such as cart refusal or removal as well as fines, fees or surcharges. Compliance actions were usually preceded by direct feedback efforts.
- Simplified or standardized accepted material list.
- Effects of collection frequency or variable prices on contamination, primarily pay-as-you-throw (PAYT).

Jessica noted that overall, reliable data on the effectiveness of customer engagement strategies are limited in part because many communities employ combinations of techniques or short-term strategies. She briefly reviewed the elements of a high-quality study, and noted that jurisdictions may lack sufficient funding for data collection and analysis that would help provide more robust assessment strategies.

Following this, Jessica provided the summary of findings (*Please see PPT and [Customer Engagement Research Summary](#) for additional details.*) She highlighted the following education, outreach and compliance strategies that Cascadia recommended be included in some, if not all, of the alternative scenarios studied by the RSC:

- Direct feedback using cart tagging
- Refusal to collect
- Standardized list within groupings

RSC members shared questions and comments related to campaign costs; types and frequency of measuring; use of contamination fees; process to get to a standardized list; and whether contamination reduction campaigns now would be more effective with increased public awareness since China's National Sword policy began impacting the US system. Metro stated they conducted a statistically valid regional study at the beginning of 2019, which showed the general public was not aware of National Sword and issues facing the recycling system. They are planning to retest those questions and survey, but they don't know the timeline for that yet. It was noted The Recycling Partnership commissioned a study [on backsliding](#) as an additional resource.

ACTION ITEM: There was a request for data that shows changes in contamination levels before and after a recycling system moves to an extended producer responsibility program.

Review and Confirm Task 5 Scenario Definitions:

Brian Stafki provided a reminder to the RSC regarding the process and approach to scenario definitions development. He noted Cascadia will review the four proposed draft scenario definitions based on the RSC's priorities, values, and suggested configurations, as well as the infrastructure research completed to date. Once the four scenarios are confirmed by the RSC, Cascadia will model them; obtain the results; and compare the results to the baseline (Oregon's) system. The results of the evaluation will be a mix of quantitative information and qualitative narratives and presented to the RSC at a future meeting. The RSC will then have an additional opportunity to inform an additional round of scenario definitions, which will be limited to two additional scenarios.

Brian acknowledged that there are many ways for Cascadia to combine the infrastructure elements and millions of permutations, however there are limitations of time and funding for the research. DEQ's goal will be for the agency and the RSC to conduct to the extent possible a robust and "broad enough" evaluation of options to determine what is best for Oregon.

Cascadia reminded the group of the evaluation criteria they will use:

- Quantity and quality of materials
- System costs and employment
- Environmental impacts
- Access to opportunities
- Resiliency/ability to adapt
- Potential for stranded assets

- Workforce conditions

They also reviewed the four geographic grouping definitions:

- Metro area
- Willamette Valley, etc.
- Other curbside communities
- Those without curbside/depot only

They then reviewed the four draft scenarios proposed for evaluation (*see PPT and the [Initial Alternative Scenario Definition report](#) for additional details*):

- **Scenario A:** Single-Stream with Modern MRFs — Single-stream/glass on side — same accepted material list as currently collected and modernized MRFs in Metro Area (paper/containers)
- **Scenario B:** Single-Stream with CRF — Single-stream/glass on side — expanded list and modernized MRFs in Metro Area plus out-of-state CRF
- **Scenario C:** Dual-Stream Statewide — Dual-stream/glass on side everywhere — expanded list, modernize and create dual-stream fiber MRFs in Metro Area; add/upgrade one or two container lines in Metro Area, modernize fiber MRF in Eugene-area
- **Scenario D:** Dual-Stream Outside Metro Area — Dual-stream/glass on the side outside Metro — expanded list, modernized MRFs in Metro Area (paper/containers), dual-stream fiber sorted in Eugene and Metro Area, dual-stream containers sorted in Metro Area

Following the presentation, RSC engaged in a discussion to refine Cascadia’s draft proposed scenarios. The below is a summary of the discussion:

- Cascadia confirmed they assumed “no change” to glass or the landscape of depots as they exist in Oregon today, although the list of materials accepted at depots change between scenarios.
- Cascadia confirmed they are using the same definition of ‘modernizing’ for scenario building as they did in the preliminary research (as discussed above).
- RSC members recommended expanding “refusal to collect” as an intervention to all curbside groupings.
- RSC members discussed Cascadia’s definitions of ‘variable’, ‘reliable’ and ‘emerging’ markets, as well as the specific materials being considered in each of these categories. Cascadia suggested they are important to clarify but not necessary to get ‘perfect’ for this research. Generally, they suggested it’s based on ‘ability to move to market regardless of price’, but RSC members were interested in diving more into this.
 - **ACTION ITEM:** RSC members to provide Brian Stafki and Cascadia input and suggestions for the list of materials for on-route and depot collection in Infrastructure Scenarios A and B.
 - Cascadia explained that Scenario A is the most similar to the current situation to help RSC see how variations of changes to the current system, small to large, might impact the system. Scenario A will show what improvements to MRF efficiencies might yield.

Agreements on Scenario Revisions:

Based on the dialogue, RSC members proposed and approved (via consensus check of all members) the following changes to Cascadia's proposal:

- Remove Scenario D (Dual-Stream Outside Metro Area) - justified by on the ground awareness from RSC players that this not be a viable option for Oregon and the dual-stream option will still be studied under Scenario C.
- Under customer engagement strategies: expand "refusal to collect" to all curbside groupings
- Create a new scenario based on a revised Scenario A to include single-stream, modernizing MRFs with an expanded list (expanded beyond Scenario A) including emerging market materials.

For plastics, Cascadia will use Association of Plastics Recyclers standards for plastics as a proxy for plastic commodity specs. There was some push back to using ISRI standards since these targets are not actually used by MRFs; however, for the purposes of modeling, ISRI is the only logical reference point for paper commodities. RSC members accepted this with shared agreement that it in no way is meant to indicate a target level being recommended.

Next Steps:

Robin then reviewed the next steps with the RSC, which were as follows:

- March 13th Infrastructure Research Subcommittee Meeting.
 - Topic: Cascadia will review the base case tonnage and costs models and look for feedback including additional data. The meeting is open to interested subcommittee and Recycling Steering Committee members.
- April 23rd Infrastructure Research Subcommittee Meeting.
 - Topic: DEQ will share information on methods and tools that will be used in estimating environmental benefits from the base-case and alternative scenarios and answer questions. The meeting is open to interested subcommittee and Recycling Steering Committee members.
- May 15th Recycling Steering Committee Meeting.
 - RSC members will review results from the first round of infrastructure scenario evaluation and seek to confirm the second round of scenario definitions recommended for analysis by Cascadia.
- July 22nd Recycling Steering Committee Meeting.
 - RSC members will hear the results of second round of infrastructure scenario analysis.

Public Comment:

No public comment was given.

Frameworks Effort:

Robin shared a proposed approach for the March 18th frameworks discussions and deliberations with the RSC. Robin offered this to help RSC members prepare for the March 18th Frameworks workshop.

(Following today's meeting, an email with instructions was sent out, ultimately reflecting the following guidance to RSC):

- For those that are working on developing ideas / draft concepts: members were asked to complete a checklist of elements, and fill out a description template to help members organize their idea/concept. Members who have developed concepts, will be invited to present their idea at the March 18 meeting in the same format as the template. Robin reminded members that the OC won't consider the ideas full proposals; she expects the draft concepts to be further developed and refined based on the group discussions.
- For those **not** submitting draft ideas/concepts: Robin asked members to familiarize themselves with the list of elements and come prepared to discuss the potential impacts if applied in Oregon, and which might be viable for Oregon. RSC members also have an opportunity to offer their 'checklist' of elements they feel should continue to be considered for Oregon as the RSC continues its work.

ACTION ITEM: OC sent the checklist of elements and description template to RSC members on March 2th, with a follow up on March 6th.

There was then a question about which elements would be included in the checklist. DEQ noted that the checklist will include the common and uncommon elements. David Allaway shared DEQ included one additional element based on RSC member discussions, which regarding modifying the economic test. One RSC member did not recall the RSC discussing that element. RSC members were invited to bring forth additional new elements, if desired.

Wrap Up:

David Allaway shared that DEQ has seen a preliminary draft of Cascadia's Task 4 cost model which estimates Oregon's current total cost of the public on route and depot system at around \$300 million dollars annually. In current dollars, that approaches a 20-year expenditure of 6 billion dollars. He suggested that a consideration of investing in a program at this level deserves careful scrutiny of all the options and thus the work of the RSC is very important. He thanked RSC members for doing a tremendous service to the State and Oregonians in that regard.

DEQ also shared that the news show *Frontline* will release an expose about plastics recycling that will be aired on March 31st called, "Plastic Wars". DEQ and other RSC members were interviewed. David said he expects the episode to be critical of the plastic industry's use of recycling as a means of distracting the public and policymakers away from other issues and solutions. While DEQ is not sure what they will end up reporting on, David clarified that DEQ does not necessarily endorse the opinions of Frontline, and can't take a position until it sees the broadcast. The agency is prepared to respond with any needed clarifications following the airing. NPR will likely have at least three radio stories that lead up to the *Frontline* show.

Following this, there were no other questions or comments from RSC members. The meeting adjourned at 3:30 p.m.

Improving Oregon Recycling Systems Infrastructure

Customer Engagement Research

2/28/2020



Outline

- ▶ Methodology and research overview
- ▶ Key findings
- ▶ Recommendations

Methodology

- ▶ Wide web-based research
- ▶ Inquiries with The Recycling Partnership, Waste Dive, and Resource Recycling
- ▶ Literature review
- ▶ Interviews with program managers and requests for additional data

Elements of high-quality studies

- ▶ Directly measures effects
- ▶ Meaningful sample
 - Large enough sample size
 - Representative sample
 - Random selection
- ▶ Control group
- ▶ Isolates strategy's effect
- ▶ Measures durability of effects

Engagement strategies

- ▶ Direct feedback
 - Cart tags alone
 - Cart tags with compliance
- ▶ Simplified or standardized accepted material list
- ▶ Effects of pay-as-you-throw (PAYT) and every-other-week (EOW) garbage collection

Types of Cart-Tagging

- ▶ **Generic (education):** No plastic bags in recycling
- ▶ **Feedback-only:** Oops! Please don't put plastic bags in recycling
- ▶ **With compliance:** Oops! We can't collect your cart until you remove the plastic bags

May also be combined with:

- Other education like mailings, social media, door-to-door visits, truck and community signage.
- Other strategies like a simplified or standardized list.

Special Campaign

- ▶ Outreach staff:
 - Drive/walk the route before collection
 - Tag carts with contamination
- ▶ Drivers:
 - Do not collect tagged carts
- ▶ Requires coordination between outreach staff and drivers

Ongoing by Drivers

- ▶ Drivers:
 - Inspect and tag during collection using lid-flip (semi-automated) or hopper cameras (fully automated)
 - Record refusal and inform customer service staff.
 - Tag carts

Available Data

- ▶ Cart tagging often combined with other education or compliance
- ▶ Studies mainly report number of tags distributed in one or more rounds of tagging
- ▶ Some measured contamination rates from sorting recyclables
- ▶ Did not find studies regarding long-term effects of a special campaign using cart tagging

Education Only

- ▶ Consistent reduction in contamination or tags distributed.
- ▶ Some public concern, but in Clackamas, more residents reacted positively
- ▶ Cost vary, but \$1.50-\$2.50 per home is typical for a special cart-tagging campaign with two mailings

With Refusal

- ▶ Consistent reduction in contamination or tags distributed
- ▶ Public concern: Albuquerque (NM), Portland (ME), and Sanford (ME) stopped refusals
- ▶ Cost data was not available beyond cart-tagging costs

Method	Jurisdiction	Results
Feedback only	Clackamas County, OR	↓32% carts receiving second tag
	Chicago, IL	↓32% contamination
Campaign-based refusal	Atlanta, GA	↓57% contamination
	Lowell & W. Springfield, MA	↓30% contamination
	Snohomish County, WA	↓64% carts receiving second tag
Ongoing refusal	Greensboro, NC	↓87% carts receiving second tag, ↓98% third tag
	Albuquerque, NM	↓84% carts receiving second tag, ↓96% third tag
Driver-based refusal + simpler list + more	Rogue Disposal & Recycling, OR	↓72% "garbage" contamination* ↓58% overall contamination* ↓85% tags distributed
Refusal -- unspecified	21 Massachusetts municipalities	↓45% to ↓85% carts tagged (18 cities) ↓21% to ↓33% carts tagged (3 cities)
	Sanford, ME	↓80% contamination (or more)

* "Garbage" contamination measures materials that Rogue never accepted. Overall also includes materials previously accepted for recycling but that were removed from the accepted list when Rogue simplified it.

Standardized or Simplified Materials List

- ▶ **Standardized**
Establishes the same accepted recycling list across all jurisdictions
- ▶ **Simplified**
Reduces the number and complexity of materials accepted for recycling

Standardized or Simplified Materials List

Available impact data: none found

Standardized statewide lists: Massachusetts & Connecticut

- ▶ Neither has data

Simplified list: Rogue Disposal & Recycling

- ▶ Impacts complicated by other factors

Standardized List

- ▶ Can use same messages across the entire region
- ▶ Important to consult MRFs
- ▶ Limits jurisdictions that want to collect more or less than the list

Simplified List

- ▶ Contamination is easier to spot
- ▶ Customer complaints about limiting recycling

Container Size and Pricing Effects: Pay-As-You- Throw (PAYT) Every-Other- Week Collection

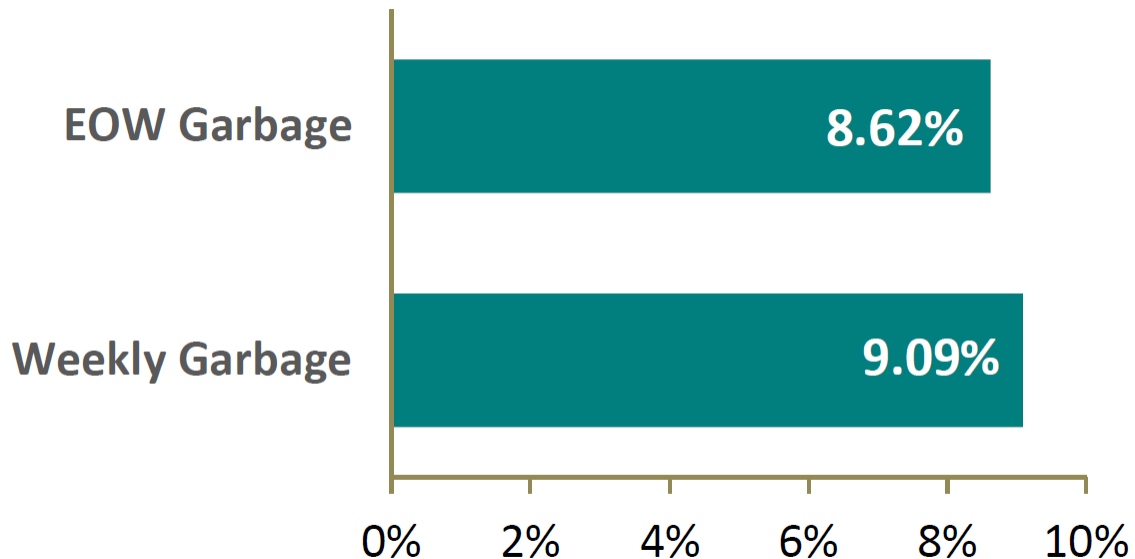
- ▶ Pay-as-you-throw (PAYT), also called variable pricing, charges more for disposing of more garbage:
 - Bag- or tag-based: customers must use approved bags or attach purchased tags to regular bags.
 - Cart-based: larger containers have a larger fee
- ▶ Every-other-week-collection
 - Garbage is collected every other week. Recycling may be weekly or collected on alternating weeks.

Pay-As-You-Throw

- ▶ Lots of data on increased recycling and decreased garbage.
- ▶ Little data on impacts to contamination rates:
 - Chicopee, MA: contamination decreased by 3.8%
- ▶ Contamination rates in other PAYT programs:
 - Shrewsbury, MA: 2% using dual-stream tubs
 - Sanford, ME: 0-3% in single-stream carts due to compliance efforts (reduced from 15-20%).
 - Natick, MA: 14% using single-stream carts

Every-Other-Week (EOW) Collection

Metro study (2014-2015) found no overall statistically significant difference overall.



Three pilot studies comparing weekly to EOW:

- ▶ **Renton, WA (2008):** comparable contamination rates
- ▶ **San Francisco, CA (2015):** no statistically significant difference
- ▶ **Seattle, WA (2012):** more organics contamination, minor recycling contamination

Recommendations

In alternative scenarios, include:

- ▶ **Direct feedback** using special or ongoing campaigns
- ▶ **Refusal to collect** contaminated containers
- ▶ **Standardized list** within groupings (primarily to facilitate modeling of alternative scenarios)

Questions

Improving Oregon Recycling Systems Infrastructure

Draft Initial Scenario Definitions

2/28/2020



Outline

- ▶ Review
 - Evaluation criteria
 - Grouping definitions
 - System components
- ▶ Presentation
 - High-level scenarios
 - Detailed scenario definitions by component
- ▶ Discussion

Evaluation Criteria

- ▶ Quantity and quality of materials to reach markets
- ▶ System costs and employment
- ▶ Environmental outcomes
- ▶ Access to recycling opportunities
- ▶ Resiliency/adaptability
- ▶ Potential for stranded assets
- ▶ Employment and working conditions

Grouping Definitions

1. Metro Area

- All areas within the Metro urban growth boundary

2. Willamette Valley, etc.

- Areas with curbside collection in most of the Willamette Valley, The Oregon Coast south to Lincoln County, Deschutes County, Hood River County, and Wasco County

3. Other Areas with Curbside

- All other areas with curbside collection, including some small towns from areas in Category 2 if they are distant from Portland and other population centers, such as the city of Oakridge in Lane County

4. Areas Without Curbside

- All areas without curbside collection or minimal curbside collection — served mainly by depots, if at all

System Components

- ▶ **Customer engagement** approaches (education, compliance, incentives)
- ▶ **Accepted materials** list
- ▶ **Collection system** (single-family, multifamily, commercial, depot)
- ▶ **Transfer** methods between collection and sortation
- ▶ **Sortation** system (including geographic configuration)
- ▶ **Marketed materials**
 - Bale grades and quality
 - Likely type and location of end-markets

Scenarios

A: Single-Stream with
Modern MRFs

C: Dual-Stream Statewide

B: Single-Stream with CRF

D: Dual-Stream Outside
Metro

Customer Engagement (all scenarios)

Metro area	Residential (RES) and commercial (COM) customers: direct feedback by haulers (with cameras on fully automated trucks and lid-flips on semi-automated trucks); refusal to collect
Willamette, etc.	Same as Metro area
Other Curbside	Same as Metro area, without refusal to collect
At TS/MRF	When haulers deliver: spot-check QA with onsite refusal/fines on incoming material Outbound from MRFs: third-party bale-breaking and estimating quality of outgoing material

Markets Anticipated in 2025

Reliable Market Examples

- ▶ Corrugated cardboard
- ▶ Sorted clean newsprint
- ▶ PET #1 and HDPE #2 bottles
- ▶ Aluminum and steel cans
- ▶ Source-separated container glass

Existing but Variable Market Examples

- ▶ Aseptics and gable-tops
- ▶ Mixed paper
- ▶ Mixed bulky rigid plastics

Emerging Market Examples

- ▶ PET #1 thermoforms
- ▶ Polycoated paper

On-Route Material Groups

Grouping	A: Single-Stream with Modern MRFs	B: Single-Stream with CRF	C: Dual-Stream Statewide	D: Dual-Stream Outside Metro
Metro area	No change	A, B, & C: reliable, variable, and emerging		
Willamette Valley, etc.	No change	A, B, & C: reliable, variable, and emerging		
Other areas with curbside	No change	B: reliable and variable	C & D: reliable, variable, and emerging	

Depot Material Groups

Grouping	A: Single-Stream with Modern MRFs	B: Single-Stream with CRF	C: Dual-Stream Statewide	D: Dual-Stream Outside Metro
Metro area	All: reliable, variable, and emerging markets			
Willamette Valley, etc.	A: reliable and variable	B, C, and D: reliable, variable, and emerging		
Other areas with curbside	All: reliable and variable markets			
Areas without curbside	All: reliable and variable markets			

Single-Family Collection Method

A: Single-Stream with Modern MRFs

- No change

C: Dual-Stream Statewide

- All curbside: dual-stream in two carts plus glass on side (effectively weekly by alternating collection of each cart), no change to glass

B: Single-Stream with CRF

- No change

D: Dual-Stream Outside Metro

- Metro: no change
- Elsewhere: dual-stream in two carts plus glass on side (effectively weekly by alternating collection of each cart), no change to glass

Multi-Family and Commercial Collection Method

A: Single-Stream with Modern MRFs

- No change

C: Dual-Stream Statewide

- All curbside: dual stream in two receptacles plus glass on the side, no change to glass

B: Single-Stream with CRF

- No change

D: Dual-Stream Outside Metro

- Metro: no change
- Elsewhere: dual-stream in two receptacles plus glass on the side, no change to glass

Depot Collection Method

A: Single-Stream with Modern MRFs

- No change

C: Dual-Stream Statewide

- No change

B: Single-Stream with CRF

- No change

D: Dual-Stream Outside Metro

- No change

Transfer and Consolidation Method

A: Single-Stream with Modern MRFs

- All curbside areas: add transfer of containers to MRFs with upgraded container lines

C: Dual-Stream Statewide

- Metro: send to dual-stream MRFs
- Elsewhere: transport containers to Metro area; transport fiber to Metro area and Eugene area

B: Single-Stream with CRF

- All curbside areas: add transfer of containers to out-of-state CRF

D: Dual-Stream Outside Metro

- Metro: add transfer of containers
- Elsewhere: transport containers to Metro area; transport fiber to Metro area and Eugene area

Sortation (Single-Stream Scenarios)

A: Single-Stream with Modern MRFs

- Modernize paper side of main Metro-area MRFs for single-stream (screens and optical sorters)
- Modernize container side of one to two MRFs for single-stream
- No change to MRFs outside Metro areas

B: Single-Stream with CRF

- Modernize paper side of main Metro-area MRFs for single-stream (screens and optical sorters)
- Send containers to existing CRF outside Oregon for additional sorting
- No change to MRFs outside Metro areas

Sortation (Dual-Stream Scenarios)

C: Dual-Stream Statewide

- Convert Metro MRFs to dual-stream:
 - Modernized paper-line of main MRFs with optical sorters for dual-stream
 - Modernized container side of one to two MRFs for dual-stream
 - Separate in-feeds for dual-stream
- Garten modifies in-feeds
- One upgraded fiber MRF for residential fiber in Eugene area

D: Dual-Stream Outside Metro

- Modernize paper side of main Metro-area MRFs for Metro single-stream and infeed for non-Metro dual-stream fiber
- Modernize container side of one to two MRFs for Metro single-stream and infeed for non-Metro dual-stream containers
- Garten modifies in-feeds
- One upgraded fiber MRF for residential fiber in Eugene area

Bales and Marketing

Bale quality

- All scenarios: meets ISRI specs

Market locations

- All scenarios: domestic markets or responsible/modern export markets

Bale grades

- TBD, based on incoming materials, but avoiding mixed paper and mixed plastics

End-market processing methods

- Scenario A: mechanical recycling only
- Scenarios B-D: mechanical recycling, chemical recycling, and/or energy recovery (*pending environmental review*)

Discussion