



# Recycling Steering Committee

Modernizing Oregon's recycling system with support from Oregon Consensus

## Infrastructure Research Subcommittee Meeting Summary

March 12, 2020, 12:30 p.m. – 3:00 p.m.

Zoom Meeting

### ACTION ITEMS:

ACTION	BY WHOM?	BY WHEN?
<ul style="list-style-type: none"><li>Draft meeting summary to Infrastructure Research Subcommittee members for review</li></ul>	OC	3/20
<ul style="list-style-type: none"><li>Recycling Steering Committee and Infrastructure Research Subcommittee members to provide any additional feedback or data to DEQ (if not proprietary) or Cascadia (if proprietary) regarding the recycling infrastructure base-case model.</li></ul>	RSC & IRS members	8 a.m. 3/20*

\*This was the deadline established during the March 12 meeting. It has since been extended as follows:

- Feedback on tonnage model: Monday 3/23, 3 pm. Send to [allaway.david@deq.state.or.us](mailto:allaway.david@deq.state.or.us) and copy [stafki.brian@deq.state.or.us](mailto:stafki.brian@deq.state.or.us).
- Feedback on cost model: Wednesday 3/25, 8 am. Send to [stafki.brian@deq.state.or.us](mailto:stafki.brian@deq.state.or.us) and copy [allaway.david@deq.state.or.us](mailto:allaway.david@deq.state.or.us).
- Additional (proprietary) cost data: Monday 3/30, 12 pm. Send to [Chris@Bellassociatesinc.com](mailto:Chris@Bellassociatesinc.com) and [jessica@cascadiaconsulting.com](mailto:jessica@cascadiaconsulting.com)

*Steering Committee Members & Infrastructure Subcommittee Members:* Bryce Jacobson, Dave Clausus, David Allaway, Kristin Lechner, Vinod Singh, Bruce Walker, Jay Simmons, Timm Schimke, Nicole Janssen, Jason Hudson and Jeff Murray.

*Cascadia Consulting Team:* Jessica Branom-Zwick, Chris Bell, Sophia Ahn

*Facilitation Team:* Robin Harkless and Amy Delahanty

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

### MEETING SUMMARY:

#### Welcome and Agenda Review

Facilitator Robin Harkless, Oregon Consensus, welcomed the Infrastructure Research Subcommittee (IRS) and Recycling Steering Committee (RSC) members and participants gave brief introductions.

Robin then reviewed the meeting agenda and objectives, which were for the subcommittee and interested

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>.**

RSC members to understand Cascadia Consulting Group's model of the base-case recycling infrastructure, including how the model works, data sources, and projections. Robin noted members would have opportunities during Cascadia's presentation to ask clarifying questions today, and if needed, provide additional data and information to the research team as follow up to today's meeting.

Brian Stafki, DEQ, then briefly reminded members of the arc of the infrastructure research and purpose of the base-case model research task. The base-case model will serve as the baseline (Oregon's) system, against which infrastructure scenarios will be compared to show directionality. As such, he noted it will be important to DEQ that members have a good enough understanding of the model and an opportunity to provide additional data to Cascadia so they are confident in the outputs.

### **Baseline Model Presentation**

Jessica Branom-Zwick (Cascadia Consulting Group) presented the Oregon base-case model. Topics included an overview of the tonnage and cost models, and a detailed walk through of the excel spreadsheet components (*please see PPT and base-case materials for additional detail*). During the review of the cost model, Jessica encouraged participants to provide any additional collection cost data and depot cost allocations that might be different than what was reflected in the model. Participants were invited to share the information directly with Cascadia to keep proprietary data confidential (Cascadia has a non-disclosure agreement through their contract to be able to retain files as confidential), or to both DEQ and Cascadia if not needing to remain confidential.

During the presentation, questions from participants were as follows:

*Question:* Was Oregon's minimum-wage law accounted for in the model?

- *Cascadia Response:* Yes, that was taken into consideration. After talking with other Material Recovery Facilities (MRFs), the estimated cost per ton was increased due to minimum wage law, as well as MRFs who use full-time positions. In order to project to 2025, Cascadia will reach back out to MRFs and others to obtain additional information.

*Question:* Why is there such a large variance in transportation costs of source-separated materials?

- *Cascadia Response:* Metro provided an overall number that includes materials that are reloaded and transferred to MRFs. If you look at the overall costs, it's represented in the model.

*Question:* To what degree did you compare this cost model to similar studies or cost data in order to reality test the information?

- *Cascadia Response:* Every system is unique, but we ran a similar model for Washington and could look to see other data we might have.

*Question:* Would you welcome it if other RSC or IRS members have reports that benchmark the costs of recycling in other communities? Costs may be different for legitimate reasons. If we had those data points, would you like to see them?

- *Cascadia Response*: We welcome any and all data.

Following this, David Allaway (DEQ) encouraged members to continue to dive into the model to assist Cascadia in ground-truthing their work. He suggested two ways for participants to review the model, which were as follows: 1.) If a participant was a collector or processor operating a part of the system, approach the model from a bottom up perspective and see if the inputs were reasonable; 2.) If a participant was a city or county involved in rate setting (and knows the total system cost for single, multifamily, and commercial), to approach this from a top-down perspective to determine if the outputs are in the right range. DEQ noted that while the model cannot be precise in terms of granular detail, they would like to make sure the data in the model is in the right range.

Brian shared that RSC and IRS members are invited to provide any additional information and data to DEQ and Cascadia by no later than 8 a.m., Friday, March 20. Cascadia encouraged members to reference which model, tab and cells their feedback is associated with. Brian noted that once Cascadia has incorporated any additional data, the model will be finalized and shared prior to the May 15<sup>th</sup> Recycling Steering Committee meeting.

#### **Upcoming Important Dates:**

- March 18<sup>th</sup> Recycling Steering Committee Meeting.
  - Topic: Provide updates on constituency conversations and a brief process update on the Frameworks effort.
- April 10<sup>th</sup> Recycling Steering Committee Meeting.
- April 23<sup>rd</sup> Infrastructure Research Subcommittee Meeting.
  - Topic: DEQ will share information on methods and tools that will be used in estimating environmental benefits of the base case and infrastructure scenarios using a life cycle analysis and DEQ's waste impact calculator.
- May 1<sup>st</sup> Recycling Steering Committee Meeting
- May 15<sup>th</sup> Recycling Steering Committee Meeting.
  - RSC members will review results from the first round of infrastructure scenario evaluation and seek to confirm a second round of two scenario definitions for analysis by Cascadia.
- July 22<sup>nd</sup> Recycling Steering Committee Meeting to hear results of second round of infrastructure scenario analysis.



# Improving Oregon Recycling Systems Infrastructure

Baseline Model Presentation

3/12/2020



# Today's Outline

- ▶ Tonnage model
  - Overview (slides)
  - Walk through (Excel)
- ▶ Cost model
  - Overview (slides)
  - Walk through (Excel)
- ▶ Discussion

# Tonnage Model

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Document and estimate what is known about tons:

- ▶ Generated
- ▶ Collected for recycling
- ▶ Marketed
- ▶ Disposed

# Cost Model

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Estimate overall cost of recycling by:

- ▶ Stage (e.g., engagement, collection, sortation)
- ▶ Cost type (e.g., labor, capital)

# Stages

- ▶ Customer engagement
- ▶ Collection
- ▶ Transfer and consolidation
- ▶ Sortation
- ▶ Marketing of recyclables

# Groupings

## 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.



# Sectors

- ▶ On-route collection (franchised or permitted):
  - Single-family residential (SF)
  - Multifamily residential (MF)
  - Commercial (COM)
- ▶ Depot collection:
  - Self-haul
- ▶ Not included: Other commercial recycling (private recyclers, backhauling, etc.) and bottle bill

# Tonnage Model

# Tonnage Model Data Sources

## ► From DEQ:

- 2017 tons **generated** and **marketed** by grouping, sector, and material type

## ► From Metro:

- Contamination rates by sector (COM is preliminary)

## ► From Phase 1 Modeling:

- Growth rates to 2025 by grouping, sector, and material

# Tonnage Data from DEQ

Tons Generated by Grouping

Disposed

Recovered

SF  
Res

MF  
Res

Com

Depot

SF  
Res

MF  
Res

Com

Depot

# Estimating Contamination and Tons Collected

Disposed  
(from DEQ)

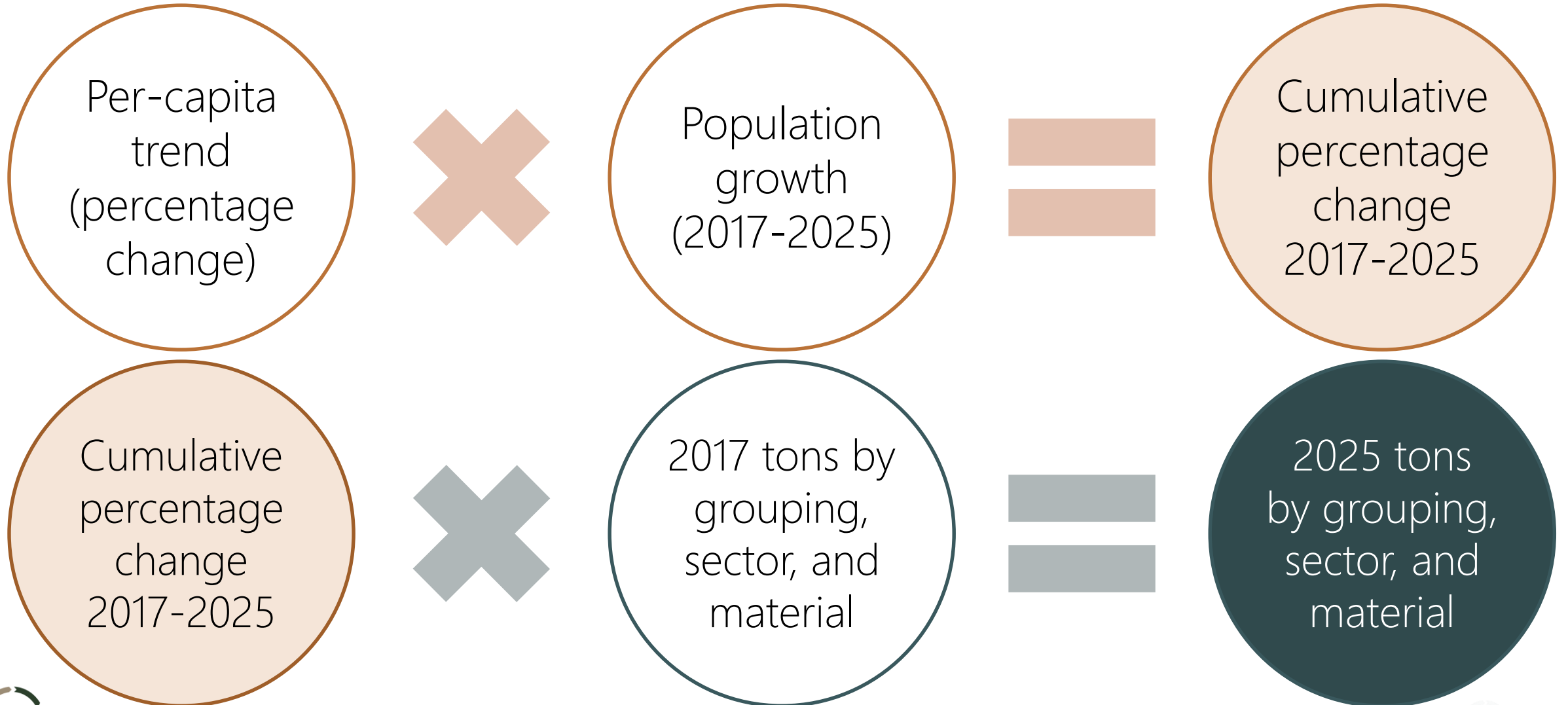
Contamination  
(Metro studies)

Recovered/Marketed  
(from DEQ)

Collected for disposal =  
Disposed - Contamination

Collected for recycling =  
Recovered + Contamination

# Growing Tons to 2025





# Let's look at the Tonnage Model



# Cost Model

# Cost Model Data Sources (collection)

- ▶ Collection cost data largely come from collectors and local governments in Oregon.
  - **Metro area:** four composite cities (*92,738 cart and 5,727 container customers*)
  - **Willamette Valley, etc.:** Eugene and Salem (*83,894 residential and 5,655 commercial customers*)
  - **Other areas with curbside:** two counties and one coastal city (*14,500 residential and 563 commercial customers*)
  - **Depot costs:** recycling activities at the Lane County transfer stations, Sandy Transfer Station, and the Pacific City Transfer Station

# Cost Model Data Sources (other)

- ▶ Transport cost data from:
  - Combination of actual haul costs plus a rate quote from K&E Trucking in Salem
- ▶ Sortation cost data from:
  - Actual fees paid by franchised haulers in 2018 adjusted for the estimated value of material (per ton collected)
  - Allocation of sortation costs to cost types (e.g., labor, operations) from past projects calculating MRF cost of service, plus input from local MRF managers
- ▶ Local government engagement costs from:
  - Funding reports from Metro, data on other Metro spending on the Recycling Information Center and other education, and additional information from City of Portland

# Costs for On-Route Collection

## Cost per pick-up (cart) and lift (container):

- Driver labor and benefits
- Container and truck capital costs
- Route operations and other direct costs

*Multiply by est. number of customers by pick-up/lifts per year*

## Annual hauler costs per customer for:

- Administrative costs
- Customer engagement
- Profit margin and franchise fee

*Multiply by est. number of customers*

## Transport

- Transport cost per ton-mile

*Multiply by est. tons collected and miles transported (haul cost / (tons x miles))*

## Sortation

- Sortation cost per ton

*Multiply by est. tons collected*

# Costs for Depot Collection

- ▶ Total cost per ton collected
- ▶ Cost allocations (percentages) for:
  - Labor
  - Capital
  - Operations
  - Transport
  - Administrative
- ▶ Sortation cost per ton applied to a portion of tons assumed to be collected single-stream



# Transport Costs

## ► Developed costs per ton-mile for:

- Single-stream and source-separated glass
- Different transport methods

## ► Applied costs per-ton mile to:

- Tons collected from the tonnage model
- Average miles transported by grouping

# Sortation Costs

1. Developed a cost model for an “average Oregon MRF” to estimate as a standard total cost, with percentages of those costs attributable to:

- Labor, capital, and facility
- Residuals disposal
- Admin, marketing, and margin

2. Compared the standard cost to costs charged to Metro-area haulers to estimate material value

3. Estimated grouping-specific sortation costs by adding

- Estimated material value
- Costs charged to haulers in each grouping

4. Allocated the grouping-specific sortation costs to cost types using percentages in Step 1

5. Applied the sortation costs to tons collected from the tonnage model

# Increasing costs to 2025

Unit costs will be increased to 2025 using projections based on historic data from the US Bureau of Labor Statistics for:

- ▶ Consumer Price Index (CPI)
- ▶ Wages for transportation and material moving workers
- ▶ Producer Price Indices (PPI) for:
  - Industrial truck, trailer, and stacker manufacturing
  - Number 2 diesel fuel

Total costs will be expanded by projected increases:

- ▶ Population
- ▶ Tons

# Let's look at the Cost Model



# Discussion