

TO: JUSTIN GAST, OR DEQ
FROM: BRYCE HESTERMAN, RESA DIMINO, RRS
DATE: 10.29.2019
RE: FUNCTION REVIEW

This memo outlines the key functions necessary for a modernized recycling system in Oregon to support the 2050 vision for materials management and achieve the system goals as defined by the Recycling Steering Committee. It reflects the research team's review of the functions developed by the Recycling Steering Committee (RSC) consensus process, over the course of several meetings in 2018 and 2019 and approved by RSC members on 3/15/19.

This memo presents the team's approach to using the functions to evaluate the legal and relational frameworks that will be addressed in the study. The functions are unchanged from those developed by the RSC. For the purpose of this research, the team intends to utilize the detailed descriptions or sub-functions (presented by the RSC as footnotes to the functions) as criteria to evaluate the extent to which each framework fulfills a given function. Where necessary and appropriate, the team recommends adding, combining, updating, or eliminating these sub-functions to arrive at a set of criteria to be carried forward in the framework evaluation process. In addition, the team identified certain criteria that, while important, will be challenging to measure due to their normative nature or lack of data and therefore will be addressed through narrative description as appropriate. These criteria are identified in *italics* with a note on the challenges of measurement.

For ease of reference, we have updated the Functions document to reflect the recommended changes provided in this memo. It is appended here.

Overarching functions

Whole-system design

- a. Function: Optimizes the benefits of recycling considering life-cycle impacts and costs
 - Steering Committee Criteria:
 - Public policies support sustainable materials management at product end of life*
 - Supports highest and best use of discarded materials with stable infrastructure and markets*
 - Minimizes health and environmental risks from disposed wastes*
 - *Balances outcomes achieved with the costs to provide them*
 - *Note: It may be difficult to evaluate the costs of certain frameworks given lack of transparency or availability of data; where data are not available, the team will identify key cost factors that influence those frameworks.*
 - Updated Steering Committee Criteria

- Shares responsibility for recycling system
 - Shares responsibility for reducing other (non-recycling) life-cycle impacts*
 - *Note: It will be difficult to measure whether frameworks share responsibility for reducing full life-cycle impact; the team will identify any elements of the framework that affect life-cycle impacts, other than those related to the recycling system.*
- b. Function: Resiliently adapts to changes in material supply and end-market demand
- Steering Committee Criteria:
 - Responds to markets and economic fluctuations and other system-wide changes
 - *Fuels technological advances and economic vitality in Oregon**
 - *Note: It may be difficult to quantify or model some of the potential technological and net economic effects that may result from implementation of the frameworks; the team will seek to describe factors within the framework that would foster or inhibit such advances.*
 - Additional Criteria
 - Able to adapt to changes in material composition
- c. Function: Provides sustainable and equitable financing for stable operations and capital investments
- Steering Committee Criteria:
 - Shares investment in infrastructure throughout the system and life-cycle
 - Sets utility rates for system users consistently
 - *Note: The team will evaluate this criterion where utility rates are used. If utility rates aren't used, the team will mark as N/A and, instead focus on additional criteria below related to on sustainable funding mechanisms.*
 - Creates transparency for system costs
 - Additional Criteria
 - Sufficiently finances system operations, capital needs, and covers the costs to continuously educate users
 - Relies on a sustainable funding mechanism that sets consistent rates or fees on the party who holds financial responsibility
 - Supports market development activities that include processing technologies, end markets, recycled-content, and innovative research and development
- d. Function: Integrates system components to achieve overall system goals
- Steering Committee Criteria:
 - *Coordinates investment and innovation throughout the life-cycle of products to lead to better collection, sorting and processing with upstream packaging decisions**
 - *Note: There are limited data connecting the recycling frameworks to decision making on packaging design; the team will provide narrative descriptions of the potential influence of frameworks on upstream design decisions where appropriate.*
 - Balances efforts to improve the system on all parts*

- Coordinates roles and expectations among systems players*
- Uses consistent process to determine how materials are added and removed from acceptable lists
- Additional Criteria
 - Supports market development activities that include end market creation and strengthening market demand
 - Framework decides on materials to be included for collection based on whether there are consistent, robust markets
- e. Function: Includes mechanisms to reduce upstream impacts of materials
 - Updated Steering Committee Criteria:
 - *Shares responsibility for reducing other (non-recycling) life-cycle impacts**
 - *Note: It will be difficult to measure whether frameworks share responsibility for reducing full life-cycle impact; the team will identify any elements of the framework that affect other life-cycle impacts, other than those related to the recycling system.*
 - Additional Criteria
 - Drives upstream waste prevention and design changes using regulatory requirements or economic levers such as variable rates and modulated fees, where appropriate
 - Incentivizes the use of recycled content where practicable and appropriate
- f. Function: Designs for equity – examining the burdens and benefits across the state.
 - Steering Committee Criteria:
 - None
 - Additional Criteria
 - Promotes service sufficiency and equity in recycling access for all state residents – urban and rural areas, single and multi-family housing, and commercial / industrial entities, with a focus on evaluating equivalency of service for recycling and waste disposal

Responsibility

- g. Function: Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry
 - Steering Committee Criteria:
 - None
 - Additional Criteria
 - Shares responsibility among program participants in a way that is justifiable, reduces risk, and leverages roles to provide program stability

Additional functions

Goals and measures

- h. Function: Uses goals and metrics to measure progress and support ongoing improvement
 - Steering Committee Criteria:
 - Sets goals, measures success and learns from experience*
 - Uses feedback loops to constantly monitor, share and discuss opportunities*
 - Note: It may be challenging to identify specific feedback loops within each framework; the team will evaluate whether frameworks include clear and transparent reporting, oversight of advisory boards, stakeholder groups, or other engagement methods.

Education, outreach, and engagement

- i. Function: Educates and encourages residents and businesses to use the system properly
 - Steering Committee Criteria:
 - None
 - Additional Criteria
 - Clearly defines who is responsible for education and outreach activities
- j. Function: Engages the public to understand the benefits and the costs of recycling, preventing waste, and reducing impacts of materials throughout their lifecycles
 - Steering Committee Criteria:
 - None
 - Additional Criteria
 - Utilizes economic incentives, such as PAYT, contamination upcharges, and other mechanisms to drive appropriate recycling behavior among residents
 - Engages the public to understand the benefits and the costs of recycling, preventing waste, and reducing impacts of materials throughout their lifecycles

Materials collected

- k. Function: Identifies beneficial materials acceptable for collection programs
 - Steering Committee Criteria:
 - Complete and transparent information on product/packaging contents and life-cycle impacts is readily available*
 - Note: This criterion will be very hard to measure in the context of a recycling framework as the disclosure of life-cycle impacts is not typical within existing programs; the team will identify the extent that frameworks provide information on life-cycle impacts and where labeling for life-cycle impacts and end of life management is incorporated into frameworks.
 - Provides a consistent list of materials to focus for on-route collection and depots — locally and statewide

- Uses consistent process to determine how materials are added and removed from acceptable lists
- Updated Steering Committee Criteria:
 - Ensures facilities have sufficient volume of materials for economic viability
- Additional Criteria
 - Framework decides on materials to be included for collection based on whether there are consistent, robust markets

Collection


- I. Function: Collects clean, acceptable materials for processing
 - Steering Committee Criteria:
 - Collects materials effectively and efficiently
 - *Reduces costs for rural access to sorting and processing*
 - *Note: It may be difficult to gather cost data for recycling frameworks studied; the team present data where possible and will address rural access by evaluating the extent that there is service sufficiency and equity for all state residents – urban and rural areas, single and multi-family housing.*
 - Additional Criteria:
 - Supports low contamination rates

Processing

- m. Function: Ensures processing facilities receive clean materials and in sufficient volumes
 - Steering Committee Criteria:
 - *Provides economic incentives for cleaner incoming materials*
 - *Note: The team will evaluate frameworks on their ability to provide clear, consistent, effective, economic, and other signals/incentives for cleaner incoming materials.*
 - Ensures sufficient volume of materials for economic viability
- n. Function: Produces quality materials that reach end markets
 - Steering Committee Criteria:
 - Accesses economically viable domestic end markets and/or responsible international end markets
 - Effectively, efficiently sorts and processes materials for end markets

Transparency and accountability

- o. Function: Ensures materials are managed responsibly from collection through end markets
 - Steering Committee Criteria:
 - *Materials have a useful life after discard**
 - *Note: This criterion will be evaluated based on the extent that material accesses viable domestic end markets and/or responsible international end markets.*
 - Tracks materials to final destinations and ensures they are managed responsibly
 - Additional Criteria

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- Provides incentive(s) encouraging material flow to responsible end markets with domestic options as the highest priority
- p. Function: Ensures all players in the system perform responsibly
- Steering Committee criteria:
 - None
 - Additional criteria
 - Ensures roles and responsibilities are well defined
 - Provides transparent reports on activities of each responsible party
 - Provides effective enforcement mechanisms for those not performing responsibly
 - Applies economic incentives consistently and reinforces responsible performance
 - Ensures compliance with Basel Convention and/or other applicable regulations

*From the 2050 Vision

Appendix: Concise List of Functions and Criteria

UPDATED OVERARCHING FUNCTIONS

Whole-system design

- a. Function: Optimizes the benefits of recycling considering life-cycle impacts and costs
 - i Public policies support sustainable materials management at product end of life* (RSC)
 - ii Supports highest and best use of discarded materials with stable infrastructure and markets* (RSC)
 - iii Minimizes health and environmental risks from disposed wastes* (RSC)
 - iv *Balances outcomes achieved with the costs to provide them¹. (RSC)*
 - v *Shares responsibility for recycling system (Updated RSC)*
 - vi *Shares responsibility for reducing other (non-recycling) life-cycle impacts*² (Updated RSC)*
- b. Function: Resiliently adapts to changes in material supply and end-market demand
 - i Responds to markets and economic fluctuations and other system-wide changes (RSC)
 - ii *Fuels technological advances and economic vitality in Oregon*³ (RSC)*
 - iii Able to adapt to changes in material composition (Additional)
- c. Function: Provides sustainable and equitable financing for stable operations and capital investments
 - i Shares investment in infrastructure throughout the system and life-cycle (RSC)
 - ii *Sets utility rates for system users consistently⁴ (RSC)*
 - iii Creates transparency for system costs (RSC)
 - iv Sufficiently finances system operations, capital needs, and covers the costs to continuously educate users (Updated RSC)
 - v Relies on a sustainable funding mechanism that sets consistent rates or fees on the party who holds financial responsibility (Additional)
 - vi Supports market development activities that include processing technologies, end markets, recycled-content, and innovative research and development (Additional)
- d. Function: Integrates system components to achieve overall system goals

¹ *It may be difficult to evaluate the costs of certain frameworks given lack of transparency or availability of data; where data are not available, the team will identify key cost factors that influence those frameworks.*

² *It will be difficult to measure whether frameworks share responsibility for reducing full life-cycle impact; the team will identify any elements of the framework that affect other life-cycle impacts, other than those related to the recycling system.*

³ *It may be difficult to quantify or model some of the potential technological and net economic effects that may result from implementation of the frameworks; the team will seek to describe factors within the framework that would foster or inhibit such advances.*

⁴ *Note: The team will evaluate this criterion where utility rates are used. If utility rates aren't used, the team will mark as N/A and, instead focus on additional criteria below related to sustainable funding mechanism*

- i Coordinates investment and innovation throughout the life-cycle of products to lead to better collection, sorting and processing with upstream packaging decisions*⁵ (RSC)
 - ii Balances efforts to improve the system on all parts* (RSC)
 - iii Coordinates roles and expectations among systems players* (RSC)
 - iv Uses consistent process to determine how materials are added and removed from acceptable lists (RSC)
 - v Supports market development activities Supports market development activities that include end market creation and strengthening market demand (Additional)
 - vi Framework decides on materials to be included for collection based on whether there are consistent, robust markets (Additional)
- e. Function: Includes mechanisms to reduce upstream impacts of materials
- i Shares responsibility for reducing other (non-recycling) life-cycle impacts* ⁶ (Updated RSC)
 - ii Drives upstream waste prevention and design changes using regulatory requirements or economic levers such as variable rates and modulated fees, where appropriate (Additional)
 - iii Incentivizes the use of recycled content where practicable and appropriate (Additional)
- f. Function: Designs for equity – examining the burdens and benefits across the state.
- i Promotes service sufficiency and equity in recycling access for all state residents – urban and rural areas, single and multi-family housing, and commercial / industrial entities, with a focus on evaluating equivalency of service for recycling and waste disposal (Additional)

Responsibility

- g. Function: Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry.
- i Shares responsibility among program participants in a way that is justifiable, reduces risk, and leverages roles to provide program stability (Additional)

ADDITIONAL FUNCTIONS

Goals and measures

- h. Function: Uses goals and metrics to measure progress and support ongoing improvement
- i Sets goals, measures success and learns from experience* (RSC)
 - ii Uses feedback loops to constantly monitor, share and discuss opportunities*⁷ (RSC)

⁵ There are limited data connecting the recycling frameworks to decision making on packaging design; the team will provide narrative descriptions of the potential influence of frameworks on upstream design decisions where appropriate

⁶ It will be difficult to measure whether frameworks share responsibility for reducing full life-cycle impact; the team will identify any elements of the framework that affect other life-cycle impacts, other than those related to the recycling system.

⁷ It may be challenging to identify specific feedback loops within each framework; the team will evaluate whether frameworks include clear and transparent reporting, oversight of advisory boards, stakeholder groups, or other engagement methods.

Education, outreach and engagement

- i. Function: Educates and encourages residents and businesses to use the system properly
 - i. Clearly defines who is responsible for education and outreach activities (Additional)
- j. Function: Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their lifecycles
 - i. Utilizes economic incentives, such as PAYT, contamination upcharges, and other mechanisms to drive appropriate recycling behavior among residents (Additional)
 - ii. Engages the public to understand the benefits and the costs of recycling, preventing waste, and reducing impacts of materials throughout their lifecycles (Additional)

Materials collected

- k. Function: Identifies beneficial materials acceptable for collection programs
 - i. *Complete and transparent information on product/packaging contents and life-cycle impacts is readily available*⁸ (RSC)*
 - ii. Provides a consistent list of materials to focus for on-route collection and depots — locally and statewide (RSC)
 - iii. Uses consistent process to determine how materials are added and removed from acceptable lists (RSC)
 - iv. Ensures facilities have sufficient volume of materials for economic viability (*Updated RSC*)
 - v. Decides on materials to be included for collection based on whether there are consistent, robust markets (Additional)

Collection

- l. Function: Collects clean, acceptable materials for processing
 - i. Collects materials effectively and efficiently (RSC)
 - ii. *Reduces costs for rural access to sorting and processing⁹ (RSC)*
 - iii. Supports low contamination rates (Additional)

Processing

- m. Function: Ensures processing facilities receive clean materials and in sufficient volumes

⁸ *This criterion will be very hard to measure in the context of a recycling framework as the disclosure of life-cycle impacts is not typical within existing programs; the team will identify the extent that frameworks provide information on life-cycle impacts and where labeling for life-cycle impacts and end of life management is incorporated into frameworks.*

⁹ *It may be difficult to gather cost data for recycling frameworks studied; the team will address rural access issues as noted in the additional criteria*

- i Provides economic incentives for cleaner incoming materials¹⁰(RSC)
 - ii Ensures sufficient volume of materials for economic viability (RSC)
- n. Function: Produces quality materials that reach end markets
- i Accesses economically viable domestic end markets and/or responsible international end markets (Updated RSC)
 - ii Effectively and efficiently sorts and processes materials for end markets (RSC)

Transparency and accountability

- o. Function: Ensures materials are managed responsibly from collection through end markets
- i *Materials have a useful life after discard*^{*11} (RSC)
 - ii Tracks materials to final destinations and ensures they are managed responsibly (RSC)
 - iii Provides incentive(s) encouraging material flow to responsible end markets with domestic options as the highest priority (Additional)
- p. Function: Ensures all players in the system perform responsibly
- i Ensures roles and responsibilities are well defined (Additional)
 - ii Provides transparent reports on activities of each responsible party (Additional)
 - iii Provides effective enforcement mechanisms for those not performing responsibly (Additional)
 - iv Applies economic incentives consistently and reinforce responsible performance (Additional)
 - v Ensures compliance with Basel Convention and/or other applicable regulations (Additional)

*From the 2050 Vision

¹⁰ The team will evaluate frameworks on their ability to provide clear, consistent, effective, economic and other signals/incentives for cleaner incoming materials

¹¹ *This criterion will be evaluated based on the extent that material accesses viable domestic end markets and/or responsible international end markets*