



Evaluation, Assessment, and Recommendations for the Responsible Management of Plastic Packaging in Washington

Report prepared under RCW 70A.520

Solid Waste Management Program

Washington State Department of Ecology

Olympia, Washington

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Related Information

- [Publication 20-07-023 Recycled Content Use in Washington Report](#)¹
- [Publication 20-07-024 Plastic Packaging in Washington Assessing Use, Disposal, and Management](#)²
- [Publication 20-07-025 Successful Plastic Packaging Management Programs and Innovations Report](#)³
- [Publication 20-07-026 Stakeholder Consultations](#)⁴
- [Publication 20-07-027 Recommendations for Managing Plastic Packaging Waste in Washington](#)⁵

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¹ <https://fortress.wa.gov/ecy/publications/SummaryPages/2007023.html>

² <https://fortress.wa.gov/ecy/publications/SummaryPages/2007024.html>

³ <https://fortress.wa.gov/ecy/publications/SummaryPages/2007025.html>

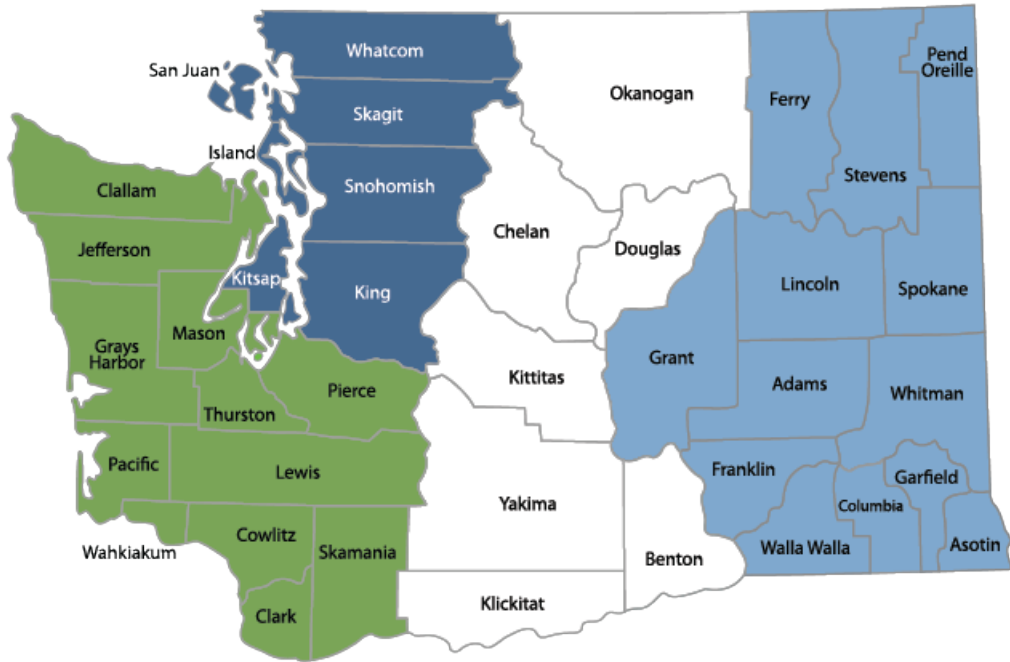
⁴ <https://fortress.wa.gov/ecy/publications/SummaryPages/2007026.html>

⁵ <https://fortress.wa.gov/ecy/publications/SummaryPages/2007027.html>

⁶ www.ecology.wa.gov/contact

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Region	Counties served	Mailing Address	Phone
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Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	3190 160th Ave SE Bellevue, WA 98008	425-649-7000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
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DEPARTMENT OF
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State of Washington

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Executive Summary

In 2019, the Washington State Legislature passed the Plastic Packaging–Evaluation and Assessment law ([Chapter 70A.520 Revised Code of Washington \(RCW\)](#)⁷). This law directed the Washington State Department of Ecology (Ecology) to contract with a third-party independent consultant to study how plastic packaging is managed in Washington. Recommendations from the study should strive *“to meet the goals of reducing plastic packaging, including through industry initiative or plastic packaging product stewardship, or both, to achieve one hundred percent recyclable, reusable, or compostable packaging in all goods sold in Washington by January 1, 2025; achieve at least twenty percent postconsumer recycled content in packaging by January 1, 2025; and reduce plastic packaging when possible optimizing the use to meet the need.”* (RCW 70A.520.020(3)(b)(ii))

In the fall of 2019, Ecology contracted with Cascadia Consulting Group (Cascadia) and their subconsultant team of CPG LLP, Eunomia Research & Consulting, Full Circle Environmental, Kelleher Environmental, and MORE Recycling. In the fall of 2020, Cascadia submitted five reports to Ecology.

Plastic Packaging in Washington Assessing Use, Disposal, and Management ([Ecology publication number 20-07-024](#)) [describes waste generation, management, and disposal of plastic packaging in Washington State. This report also details infrastructure needed to meet the legislated goals.](#)

Recycled Content Use in Washington Report ([Ecology publication 20-07-023](#)) summarizes plastic manufacturing in Washington. This report includes business feedback on barriers and solutions to incorporate post-consumer recycled plastic into their products.

Successful Plastic Packaging Management Programs and Innovations Report ([Ecology publication 20-07-025](#)) identifies plastic packaging management programs, policies and technological innovations to reduce, reuse, recycle, or compost plastic packaging.

Plastic Packaging Stakeholder Consultations ([Ecology publication 20-07-026](#)) describes the consultation process followed to consult with packaging and packaged goods producers, solid waste management providers, and other stakeholders.

Recommendations for Managing Plastic Packaging Waste in Washington ([Ecology publication 20-07-027](#)) describes Cascadia’s policy recommendations based on research, analysis, and stakeholder consultation. There are a total of ten policy recommendations for reducing plastic packaging waste.

Cascadia Recommendations

Cascadia developed ten policy recommendations based on best practices and program research, analysis of available data on current plastic packaging use and management in

⁷ <https://app.leg.wa.gov/RCW/default.aspx?cite=70A.520>

Washington, and stakeholder consultation. These recommendations focus on policy approaches that provide and rely upon sustainable funding sources. Cascadia separated the ten recommendations into four categories:

- Three primary recommendations that require legislative action.
 1. Extended Producer Responsibility Policy Framework for All Consumer Packaging and Paper
 2. Deposit Return System for All Beverage Containers
 3. Recycled Content Requirements for All Plastic Packaging
- Two legislative interim policy options that are supplemental to the primary recommendations.
 4. Producer Registry and Packaging Reporting
 5. Recycled Content Requirements for Plastic Beverage Containers
- Three legislative policy actions that advance the goals in ways that complement the primary recommendations.
 6. Recycled Content Requirements for Trash Bags
 7. Ban on Problematic and Unnecessary Plastic Packaging
 8. The Standard for Customer Opt-in for Foodservice Packaging and Accessories
- Two recommended agency activities that do not require legislative action.
 9. Strengthen Data Collection on Final Destinations of Materials Sent for Reprocessing
 10. Support Development and Adoption of Reusable Packaging Systems

Ecology's Next Steps

Ecology did not propose legislative action based on the recommendations in the Cascadia report. As resources allow, Ecology will implement the Cascadia recommendations that do not require legislative action.

- **Strengthen Data Collection on Final Destinations of Materials Sent for Reprocessing:** use Ecology's existing authority under Washington Administrative Code (WAC) 173-350-210 to request additional information from recycling facilities.
- **Support Development and Adoption of Reusable Packaging Systems:** support and prioritize projects that advance or adopt safe, scalable transitions from single-use plastic and other packaging to use of reusable packaging.

In 2021, pending legislative direction, Ecology will consult with stakeholders, including the packaging industry, to incorporate their comments into the Cascadia recommendations. Following that consultation Ecology will consider the need for future legislative proposals.

Legislative Requirements

In 2019, the Washington State Legislature passed the Plastic Packaging Evaluation and Assessment law ([Chapter 70A.520 Revised Code of Washington \(RCW\)](#)⁸). This law directed the Washington State Department of Ecology (Ecology) to contract with a third-party independent consultant to study how plastic packaging is managed in Washington. Based on their analysis the Cascadia Consulting Group, the third-party consultant, recommended actions to meet the legislated goals of reducing plastic packaging, including through industry initiative or plastic packaging product stewardship, or both, to:

- Achieve one hundred percent recyclable, reusable, or compostable packaging in all goods sold in Washington by January 1, 2025;
- Achieve at least twenty percent postconsumer recycled content in packaging by January 1, 2025; and
- Reduce plastic packaging when possible optimizing the use to meet the need.

The full details of the study as required by statute is below:

RCW 70A.520.030 Evaluation and assessment—Report to the legislature. (Expires July 1, 2029.)

(1) The department must evaluate and assess the amount and types of plastic packaging sold into the state as well as the management and disposal of plastic packaging. When conducting the evaluation, the department must ensure that producers, providers of solid waste management services, and stakeholders are consulted. The department must produce a report that includes:

(a) An assessment of the:

(i) Amount and types of plastic packaging currently produced in or coming into the state by category;

(ii) Full cost of managing plastic packaging waste, including the cost to ratepayers, businesses, and others, with consideration given to costs that are determined by volume or weight;

(iii) Final disposition of all plastic packaging sold into the state, based on current information available at the department;

(iv) Costs and savings to all stakeholders in existing product stewardship programs where they have been implemented including, where available, the specific costs for the management of plastic packaging;

(v) Infrastructure necessary to manage plastic packaging in the state;

⁸ <https://app.leg.wa.gov/RCW/default.aspx?cite=70A.520>

(vi) Contamination and sorting issues facing the current plastic packaging recycling stream; and

(vii) Existing organizations and databases for managing plastic packaging that could be employed for use in developing a program in the state;

(b) A compilation of:

(i) All the programs currently managing plastic packaging in the state, including all end-of-life management and litter and contamination cleanup; and

(ii) Existing studies regarding the final disposition of plastic packaging and material recovery facilities residual composition, including data on cross-contamination of other recyclables, contamination in compost, and brand data in litter when available;

(c) A review and identification of businesses in Washington that use recycled plastic material as a feedstock or component of a product produced by the company; and

(d) A review of industry and any other domestic or international efforts and innovations to reduce, reuse, and recycle plastic and chemically recycle packaging, utilize recycled content in packaging, and develop new programs, systems, or technologies to manage plastics including innovative technologies such as pyrolysis and gasification processes to divert recoverable polymers and other materials away from landfills and into valuable raw, intermediate, and final products.

(2) The department must contract with a third-party independent consultant to conduct the evaluation and assessment as required under subsection (1) of this section. In developing the recommendations, the department must ensure consistency with the federal food, drug, and cosmetic act (21 U.S.C. Sec. 301 et. seq).

(3)(a) By October 31, 2020, the department must submit a report on the evaluation and assessment of plastic packaging to the appropriate committees of the legislature. The department must cite the sources of information that it relied upon in the report and that the independent consultant relied upon in the assessment, including any sources of peer-reviewed science.

(b) The report required under this subsection must include:

(i) Findings regarding amount and types of plastic packaging sold into the state as well as the management and disposal of plastic packaging;

(ii) Recommendations to meet the goals of reducing plastic packaging, including through industry initiative or plastic packaging product stewardship, or both, to:

(A) Achieve one hundred percent recyclable, reusable, or compostable packaging in all goods sold in Washington by January 1, 2025;

(B) Achieve at least twenty percent postconsumer recycled content in packaging by January 1, 2025; and

(C) Reduce plastic packaging when possible optimizing the use to meet the need; and

(iii) For the purposes of legislative consideration, options to meet plastic packaging reduction goals, that are capable of being established and implemented by January 1, 2022. For proposed options, the department must identify expected costs and benefits of the proposal to state and local government agencies to administer and enforce the rule, and to private persons or businesses, by category of type of person or business affected.

[2019 c 460 § 3. Formerly RCW 70.380.030.]

Background

Chapter 70A.520 RCW required Ecology to contract with a third-party independent consultant to conduct the evaluation and assessment of plastic packaging. In the fall of 2019, Ecology issued a Request for Qualifications to conduct this study and received two proposals. Ecology awarded the contract to Cascadia Consulting Group (Cascadia). Throughout this report, Cascadia, or the consultant team, refers to the entire team of consultants: Cascadia, CPG LLP, Eunomia Research & Consulting, Full Circle Environmental, Kelleher Environmental, and MORE Recycling.

Cascadia submitted five reports that meet the requirements of the legislation:

- [Plastic Packaging in Washington Assessing Use, Disposal, and Management \(Publication 20-07-024\)](#)⁹
- [Recycled Content Use in Washington Report \(Publication 20-07-023\)](#)¹⁰
- [Successful Plastic Packaging Management Programs and Innovations Report \(Publication 20-07-025\)](#)¹¹
- [Plastic Packaging Stakeholder Consultations \(Publication 20-07-026\)](#)¹²
- [Recommendations for Managing Plastic Packaging Waste in Washington \(Publication 20-07-027\)](#)¹³

This legislative report includes Cascadia's recommendations resulting from their evaluation and assessment.

⁹ <https://fortress.wa.gov/ecy/publications/SummaryPages/2007024.html>

¹⁰ <https://fortress.wa.gov/ecy/publications/SummaryPages/2007023.html>

¹¹ <https://fortress.wa.gov/ecy/publications/SummaryPages/2007025.html>

¹² <https://fortress.wa.gov/ecy/publications/SummaryPages/2007026.html>

¹³ <https://fortress.wa.gov/ecy/publications/SummaryPages/2007027.html>

Methodology

Cascadia took a wide range of actions to complete the tasks and requirements of the study. A summary of those actions for four of the report are provided in this section. The fifth report, *Plastic Packaging Stakeholder Consultation*, is discussed in a following section.

Assessment of Use, Disposal, and Management Report

To assess Washington's current plastic packaging management system conditions, costs, and outcomes, Cascadia utilized data provided by Ecology, supplemented with additional reference data, and conducted further primary research where needed. All data was derived from Washington State sources except for the weight to volume conversion factors used for estimating costs of recycling collection and sorting on a volume basis.

To combine and compare data from multiple sources, the consultant team developed a set of plastic packaging material categories that was consistently applied to relevant source data. This report provides material definitions for the list and definitions of material categories used across analyses.

To maintain consistency across all the data sources used, the consultant team categorized and analyzed data by region, using Washington's six waste generation areas: Central, East, Northwest, Puget Sound, Southwest, and West. Those waste generation areas are consistent with Ecology's [2015-16 Washington Statewide Waste Characterization Study](#)¹⁴. Data on residential recycling and organics collection service access comes from a 2019 Zero Waste Washington report, [The State of Residential Recycling and Organics Collection in Washington State](#).¹⁵

Recycled Content Use in Washington Report

To gather information about use of post-consumer recycled content resin (called post-consumer resin, or PCR), Cascadia compiled a list of companies that make or sell plastic products in the state of Washington through internet research, review of business lists, and consultation with industry and trade associations to identify relevant members. The consultant team also identified plastic reprocessors in Washington, British Columbia, and Oregon. While the geographic scope of the study was limited to Washington, the team recognized that several large plastics reprocessors are located just outside Washington's borders and receive material from the state. While this list is still not complete, for the sake of providing a more accurate picture of the plastics recycling landscape, the team included a subset of the reprocessors they know to be closely linked to Washington either through the purchase of recyclables as feedstock or through the sale of end products.

The team identified 67 companies producing or selling plastic products in Washington, including plastic converters, manufacturers, fabricators, and distributors. They determined that several of

¹⁴ <https://fortress.wa.gov/ecy/publications/documents/1607032.pdf>

¹⁵ <https://zerowastewashington.org/publications/#ReportsStudies>

these firms were fabricators using pre-formed plastic elements or distributors and thus not directly using plastic pellets or flake as a feedstock in their production. The team contacted each identified manufacturer to ask questions about their operations, production capacity and costs, use and sources of recycled content resins, and barriers to using PCR in their products. The team successfully interviewed 12 converters and manufacturers. They also identified 11 plastic reproducers and interviewed four to learn about their operations, production capacity and costs, materials sources and end markets, and challenges with producing and marketing PCR.

Plastic Programs and Innovations Report

The consultant team used a four-step approach for this paper, starting with a geographical scan to detail policies, programs, and technologies available to manage plastic packaging in line with the waste management hierarchy, and the circular economy. They also compared costs and savings to different stakeholders of packaging stewardship programs in other jurisdictions. In addition, they identified existing organizations that could play a role in the management of a plastics stewardship program in Washington, as well as existing databases of plastic packaging producers that were used in other programs.

Recommendations Report

Cascadia developed their independent policy recommendations by analyzing best practices from successful plastic packaging management programs as well as data on current plastic packaging use and management in Washington. Additionally, Cascadia contacted received input from, or otherwise engaged a wide range of stakeholder sectors including industry (packaging producers, consumer goods companies, brand owners), solid waste management services and collection companies, recycling facilities, plastics recyclers, nonprofit environmental groups, litter, and marine debris clean-up programs, academia, state agencies, and members of the public. Stakeholders also provided comments on the recommendations report. Those comments are provided in an appendix to the recommendations report.

Research Limitations

Cascadia encountered barriers that precluded them from gathering information related to several of the original research questions, including specific resin quantities, origins of feedstock and destinations of end products, and production capacity and costs. Some companies had very limited publicly available information; it was difficult to determine whether a company was a primary manufacturer of plastic products using resin pellets or flake as a feedstock, or merely a fabricator using pre-formed plastic materials. Several national or multinational companies producing plastic packaging also have distribution or sales offices in Washington, but no manufacturing presence. The consultant team worked diligently to accurately characterize these companies using available information.

Several companies contacted were unresponsive. Anecdotally, the consultant team heard from one company who reported that most manufacturers were unlikely to respond to a request for

information since it was not mandatory to disclose and that the consultant team was not a potential customer.

Several companies interviewed were unable or unwilling to share specific information about their products, operations, feedstocks, or end-markets in order to protect supplier and customer relationships. Most manufacturers and reprocessors declined to provide specific cost information citing proprietary information and competition concerns. As such, where possible, the consultant team noted where they were unable to obtain information, where contacts were unresponsive, or where contacts provided qualitative and anecdotal information. Appendix A provides the list of companies contacted as well as a summary of the company operations, including those who were deemed to be distributors, secondary manufacturers, or fabricators of plastic products.

Uncertainty From COVID-19

The widespread disruption from the COVID-19 pandemic began just as Cascadia's research began, providing unique complications and considerations for the research. COVID-19 hindered the consultant team's ability to connect with manufacturers and reprocessors as some companies were temporarily shuttered, had shifted production to COVID-related personal protective equipment (PPE) or did not have time for an interview. It also caused disruptions in the recycling collection and commodities markets.

The price of oil—a key factor in the price of virgin plastic resin and already at historic lows due to the shale gas boom in the U.S.—turned negative for the first time in history in April 2020. Some municipalities in Washington and other states suspended collection of recyclables through curbside or deposit return systems (DRS) and some retailers discontinued their film and bag recycling drop-off programs.

In general, it is difficult to predict what long-term impact COVID-19 will have on the demand for PCR and products made with recycled content, as well as the recycling system and commodities markets in general.

Impacts from COVID-19 have presented disruptions to many of the stakeholders involved in this report. In the stakeholder consultations, many referenced the uncertainty and challenges they are continuing to face in light of COVID-19.

Stakeholder Consultations

As part of this study, the consultant team provided stakeholders with multiple opportunities throughout the project to share data and feedback in the development of recommendations to increase recovery and reduce plastic packaging in the waste stream, as well as comment on those recommendations.

For more in depth information, including survey results, letters, and comments received refer to the original report [Plastic Packaging Study Stakeholder Consultation Process](#)¹⁶.

The goals of the consultation process were to:

- Identify key stakeholders
- Consult with stakeholders on research and findings
- Gather information
- Keep stakeholders informed
- Provide stakeholders with opportunities to share data and feedback in the development of options and recommendations to increase recovery and reduce plastic packaging in the waste stream. Stakeholder comments on the final recommendations are included as an appendix to that report.

The consultant team contacted, received input from, or otherwise engaged the following stakeholder sectors:

- Industry (packaging producers, consumer goods companies, brand owners)
- Solid waste management services and collection companies
- Recycling facilities
- Plastics recyclers
- Nonprofit environmental groups and community-based organizations
- Litter and marine debris clean-up programs
- Local government solid waste or recycling personnel
- Academia
- Ecology management and staff
- Other state agencies
- Members of the public

The consultant team established several channels to communicate with stakeholders and solicit input, including:

- Webpage where all study documents and deliverables were published
- An opt-in listserv for all study-related updates and notifications (202 subscribers) which was used to request data, comments, feedback and conduct surveys

¹⁶ <https://fortress.wa.gov/ecy/publications/SummaryPages/2007026.html>

- Data requests and interviews during the research phases of the study
- Survey on policy and technology options for managing plastic packaging waste
- Public comment opportunities via the website, monitored study email, and voicemail box
- Feedback form designed to gather targeted input on draft recommendations

Cascadia's Recommendations

The consultant team independently developed policy recommendations based on best practices and program research, analysis of available data on current plastic packaging use and management in Washington, and stakeholder consultation. The recommendations summarized in this legislative report are the result of the study conducted by Cascadia's consultant team. The recommendations focus on policy approaches that provide and rely upon sustainable funding sources and that respond to the Legislature's goals in ways that do not further burden State and local government agency budgets or lead to greater inequity in cost allocations for residents and businesses.

Cascadia provided ten plastic packaging recommendations in four categories.

- Three primary recommendations that require legislative action.
- Two recommendations for legislative consideration covering interim policy options that could be implemented in advance of—or during the transition period following—legislative adoption of the three primary recommendations.
- Three recommended policy actions that advance the legislative goals in ways that are complementary to the primary recommendations.
- Two recommendations covering agency activities that may not require legislative action to implement.

While [Chapter 70A.520 RCW¹⁷](https://app.leg.wa.gov/RCW/default.aspx?cite=70A.520) focused specifically on plastic packaging, the consultant team found policies focused exclusively on one material type would cause market distortions. Single material-focused policies could also lead to unintended consequences due to packaging substitutions with materials whose impacts are unknown, poorly understood, or which have higher lifecycle impacts. For this reason, the consultant team developed recommendations following the principle that regulation of plastic packaging should seek to achieve net environmental benefits. Therefore the recommendations were expanded to include consideration of all packaging to avoid unintended consequences and higher environmental impacts as a result of regulation and to gain economies of scale and operational efficiencies.

¹⁷ <https://app.leg.wa.gov/RCW/default.aspx?cite=70A.520>

Refer to the report [*Recommendations for Managing Plastic Packaging Waste in Washington*](#)¹⁸ for more information on each recommendation including:

- Rationale for recommendations
- Policy design considerations
- Necessary infrastructure requirements
- Associated changes to existing regulations
- Administration and enforcement costs
- Other costs and benefits

Primary Recommendations

1. **Extended Producer Responsibility Policy Framework for All Consumer Packaging and Paper**
2. **Deposit Return System for All Beverage Containers**
3. **Recycled Content Requirements for All Plastic Packaging**

The consultant team found these three policies demonstrate the greatest potential to advance the legislative goals of [Chapter 70A.520 RCW](#)¹⁹. In combination, these three policies create feedback loops between producers of plastic packaging and those involved in its collection and management after it enters the solid waste system. The policies combine economic incentives and outcome-based regulatory principles to solve problems for both the supply of and demand for plastic packaging. The policies are designed to ensure plastic packaging management systems are supported with sustainable funding sources.

The report recommended advancing these legislative goals to address issues across the plastic packaging lifecycle. Therefore, these three primary policies are best implemented together. Also, as the current systems for managing plastic packaging waste in Washington State are integrated with management of all packaging material types, these primary policies are likewise recommended to cover packaging of all material types.

Interim Recommendations

4. **Producer Registry and Packaging Reporting**
5. **Recycled Content Requirements for Plastic Beverage Containers**

These interim policies are components of the first three recommended primary policies. They could be implemented through legislation before the primary recommendations, as the first step toward legislative adoption of the first three primary recommendations.

¹⁸ <https://fortress.wa.gov/ecy/publications/SummaryPages/2007027.html>

¹⁹ <https://app.leg.wa.gov/RCW/default.aspx?cite=70A.520>

Complementary Recommendations

- 6. Recycled Content Requirements for Trash Bags**
- 7. Ban on Problematic and Unnecessary Plastic Packaging**
- 8. The Standard for Customer Opt-in for Foodservice Packaging and Accessories**

These complementary policy actions advance the legislative goals of Chapter 70A.520 RCW in ways that strengthen the primary recommendations. The scopes and anticipated impacts of these policies are narrower than those of the primary recommendations.

Recommendations for Agency Action

- 9. Strengthen Data Collection on Final Destinations of Materials Sent for Reprocessing**
- 10. Support Development and Adoption of Reusable Packaging Systems**

These agency action recommendations cover activities undertaken by Ecology that may not require legislative action to implement. They do, however, require reallocation or additional allocation of resources to the agency.

Recommendations Implementation

Each of the 10 recommended actions require varied degrees of action from Ecology, the legislature, or both.

The following eight recommendations require legislative action to implement. Ecology did not propose agency-request legislation on plastic packaging for the 2021 session.

- 1. Extended Producer Responsibility Policy Framework for All Consumer Packaging and Paper**
- 2. Deposit Return System for All Beverage Containers**
- 3. Recycled Content Requirements for All Plastic Packaging**
- 4. Producer Registry and Packaging Reporting**
- 5. Recycled Content Requirements for Plastic Beverage Containers**
- 6. Recycled Content Requirements for Trash Bags**
- 7. Ban on Problematic and Unnecessary Plastic Packaging**
- 8. The Standard for Customer Opt-in for Foodservice Packaging and Accessories**

Ecology will move forward to implement the two agency actions recommendations:

- 9. Strengthen Data Collection on Final Destinations of Materials Sent for Reprocessing**

Ecology has the authority to request additional information from regulated recycling facilities under Washington Administrative Code (WAC) 173-350-210. Therefore, no statutory changes are anticipated. Managing and verifying additional facility data will require additional agency resources.

It is possible that regulated recycling facilities will not provide the additional data requested or continue to provide requested information in a manner that is difficult to interpret or validate. In that case, Ecology may need to update the rule or request statutory change to compel more complete and verifiable reporting from regulated recycling facilities and others involved in handling recyclable materials in the state.

10. Support Development and Adoption of Reusable Packaging Systems

As resources allow, Ecology will work to support and prioritize projects that advance or adopt safe, scalable transitions from single-use plastic and other packaging to use of reusable packaging. Staff has not yet had time to focus significantly on this area, but Ecology is very interested in securing resources for this important work.