

REPORT TO THE LEGISLATURE



Recycling Development Center

Introduction

The Recycling Development Center (Center) was created within the Department of Ecology (Ecology) in partnership with the Department of Commerce (Commerce) in a 2019 law: [Chapter 70A.240 Revised Code of Washington](#) (RCW). The Center's legislative direction is highlighted below and provided in detail in the [Appendix](#).

The purpose of the center is to *provide or facilitate basic and applied research and development, marketing, and policy analysis in furthering the development of markets and processing for recycled commodities and products. The Center must direct its services to businesses that transform or remanufacture waste materials into usable or marketable materials or products for use rather than disposal.* (RCW 70A.240.030 (2))

Center work includes partnerships with *material recovery facility operators; public and private sector recycling and solid waste industries; packaging manufacturers and retailers; local governments; environmental organizations; interested colleges and universities; and state agencies, including the department of commerce and the utilities and transportation commission.* (RCW 70A.240.030 (3)(j))

Ecology prepared this report to the Legislature on the progress and activities of the Center as required by RCW 70A.240.030(3)(k), which states: *Report to the legislature and the governor each even-numbered year on the progress of achieving the center's purpose and performing the center's activities, including any effects on state recycling rates or rates of utilization of postconsumer materials in manufactured products that can reasonably be attributed, at least in part, to the activities of the center.*

RCW 70A.240.030(3)(k) states that the center should report on “*any effects on state recycling rates... that can reasonably be attributed, at least in part, to the activities of the center.*” The Center advisory board has proposed a set of metrics relevant to utilization rates and a board subcommittee has been working to identify which ones are feasible and optimal. The Center will be reaching out to gather more information from businesses using recyclable materials, including material brokers, specific end users, out-of-state and out-of-country users of recyclable materials. Once optimal metrics are identified, the Center will move forward with collecting data for future legislative reports.

Center Accomplishments

Work kicked off in the fall of 2019 with invitations from the Directors of Ecology and Commerce to 14 representatives to join the advisory board. This action met the requirements for board membership specified in RCW 70A.240.040. All 14 representatives agreed to serve on the advisory board and are identified in the next section.

In November 2019, Ecology entered into an interagency agreement with Commerce to implement Center activities. The interagency agreement is effective until June of 2021 and will be renewed every biennium.

Ecology hired staff for Center work in September 2019 and April 2020. In May of 2020, due to the COVID-19 pandemic, Governor Inslee ordered a freeze on state hiring and contracting¹. As a result, both Ecology and Commerce have one unfilled staff position and are unable to contract for market development research.

Since November 2019, online access to Center-related information can be found at an [Ecology webpage](#) and a [board meeting website](#). Interested parties can keep up-to-date on Center work and advisory board meetings through an [email list](#). Center staff facilitated advisory board meetings through 2020. More information about advisory board meetings is provided in the next section.

In consultation with the advisory board, the first [Center work plan](#) was developed, shared with interested parties, and posted on the advisory board website. The work plan is summarized in a later section.

Research

Market development research involved review of webinars, activities, and reports from other market development efforts by several states' agencies and non-profit organizations:

[California](#) Recycling Market Development
Zone Program

[South Carolina](#) Department of Commerce

[Michigan](#) Department of Environment, Great
Lakes, and Energy

[Minnesota](#) Pollution Control Agency

[Northeast](#) Recycling Council

[South East](#) Recycling Development Council

[Pennsylvania](#) Recycling Markets Center
Corporation

Examples of activities conducted in those jurisdictions that would help market development in Washington include:

- **Data and research** – conduct an analysis of recycling data to provide useful information to businesses involved in manufacturing using recyclable materials. The Northeast Recycling Council regularly provides information for the northeast states on their [website](#). They provide information about the value of recyclable materials, capacity to use recycled paper, evaluation of recycling end markets, and economic studies.
- **Funding opportunities** – offer grants to supplement efforts to grow recycling markets and increase the use of recycled materials. Michigan's Department of Environment, Great Lakes, and Energy provides [matching grants](#) to commercialize technology to replace materials with recycled content, increase the quantity and grow demand for using recyclable materials in manufacturing.
- **Market platforms** – create a searchable online directory listing companies that collect, transport, broker, process or remanufacture recyclable materials. North Carolina's Department of Environmental Quality offers a [Recycling Markets Directory](#). That directory provides essential links between businesses, industries, and local governments

¹ <https://www.governor.wa.gov/sites/default/files/20-05%20-%20Hiring-PS%20Contracts-Purchasing%20%28tmp%29.pdf>

searching for markets for recyclables and the companies that accept the materials for reprocessing and reuse.

While the Center was not able to directly contract for research, other research efforts completed in 2020 provide useful data and market information. Those efforts focused on specific recyclable materials and contamination reduction:

- **Glass:** Under the interagency agreement supporting the Center, Commerce’s Research Services provided a [report on glass recycling](#) in Washington and other states and countries. This report identified transportation costs, and recycling facility and equipment upgrade needs as several barriers to recycling glass in Washington. The report recommended several policies to incentivize reuse of glass: promote use of glass as construction materials, implement minimum recycled content requirements, and establish an extended producer responsibility policy for glass packaging.
- **Paper:** King County contracted for a [paper market assessment](#). This report identified challenges to paper recycling due to feedstock contamination that contributes to yield loss, equipment damage, disposal costs, and product quality. Several recommendations were offered to improve paper recycling. Those included infrastructure improvements, improved education, technical assistance, financial incentives, research, economic development, and extended producer responsibility.
- **Plastic:** Ecology submitted a [report to the legislature](#) on the impacts of plastic packaging and recommendations for managing plastic packaging in Washington ([RCW 70A.520](#)). Ecology’s consultant provided five reports evaluating the use of plastic packaging, identifying barriers to plastic recycling, and recommending policies to reduce plastic waste. The policy recommendations included extended producer responsibility, bottle deposit return system, recycled content requirements, producer reporting, problematic and unnecessary plastic packaging ban, and opt-in for food packaging.
- **Contamination reduction:** Ecology developed a [statewide contamination reduction and outreach plan](#) for use by local jurisdictions. In addition to the plan, there is a [library of resources](#) available to help reduce contamination in the recycling system. Ecology offers grants to local jurisdictions to develop and implement contamination reduction and outreach plans.

Regional and national efforts

Several regional and national market development discussions happened in 2020 where the Center represented Washington State. AMERIPEN, a trade association for packaging manufacturers, hosts quarterly meetings of a Market Development Task Force. In November 2020, the Center presented at EPAs 2020 America Recycles Summit as a panelist on Bolstering Markets for Recyclables via Recycling Market Development Centers or Programs.

Advisory Board

The Center’s 14-member advisory board was established in November 2019, current board members are listed in Table 1. The advisory board convened seven meetings in 2020, materials from each of those meetings are posted on the [advisory board website](#). After the January in-

person meeting all board meetings in 2020 were held remotely. All board meetings are open to interested parties and include an opportunity for public comment.

Table 1 - Recycling Development Center Advisory Board

Board Member	Organization	Representing
Sego Jackson	Seattle Public Utilities	City
Deb Geiger	Spokane County Solid Waste	County
Margo Gillaspay	Skagit County Solid Waste	County
Heather Trim	Zero Waste Washington	Public interest group
Scott Morgan, Board Chair	The Evergreen State College	University
Karl Englund, Board Co-Chair	Washington State University	University
Corinne Drennan	Pacific Northwest National Laboratory	Research institution
Kyla Fisher	AMERIPEN	Packaging
Nina Goodrich	Sustainable Packaging Coalition	Packaging
Allen Langdon	Return-It	Not for profit
Mike Range	Waste Management	Solid waste management
Derek Ruckman	Recology	Solid waste management
Tim Shestek	American Chemistry Council	Manufacturing
Jay Simmons	North Pacific Paper Company	Manufacturing

Board Meetings

Ecology and Commerce provided Center progress updates at each advisory board meeting. Advisory Board meeting topics and accomplishments were:

- [January 9, 2020](#): held the initial board meeting at Highline Community College. The board and interested parties conducted a brainstorming effort to identify Center work ideas.
- [April 14, 2020](#): reviewed the draft Center work plan and charter. Board members selected a chair and co-chair and convened a goals and metrics board subcommittee.
- [June 22, 2020](#): King County Solid Waste Division offered a presentation to the advisory board on extended producer responsibility.
- [July 13, 2020](#): reviewed the revised Center work plan and approved the Center [goals and metrics](#).
- [September 3, 2020](#): approved the board [charter](#) and convened a subcommittee on data and outreach. Ecology provided updates to the board on the plastic study, contamination reduction and outreach plan, and solid waste data. The board decided to focus on specific topics at future meetings.

- [October 14, 2020](#): Meeting focus: Market Development efforts in other states. Representatives from Michigan, South Carolina, and the Southeast region presented to the board. Commerce’s Research Services provided a glass study update.
- [December 9, 2020](#): The meeting focus: Paper Markets in Washington. Presentations to the board from Ecology on available data, North Pacific Paper Company on pulp and paper industry, and King County Solid Waste Division’s report on the paper market assessment.

Center Work Plan

A [Center work plan](#) was developed in consultation with the advisory board. The work plan will be updated annually and guided by the [goals and metrics](#) established by the advisory board. The Center’s work plan is outlined in the three categories summarized below:

Develop effective partnerships that will support sustainable materials management and market development:

- [Conduct outreach](#) to the recycling and market development community to understand local and regional opportunities and challenges.
- [Engage with other recycling coalitions](#) to assist and improve collection, processing, and market development in Washington or the Pacific Northwest.
- [Communicate with other jurisdictions](#) along the west coast to identify and engage in opportunities for regional collaboration on recycling market work, economic development, and green jobs.
- [Reach out to national entities](#) involved in recycling to collaborate on research and development of recycling related activities as well as funding opportunities.
- [Establish a technology partnership](#) in Washington and across the west coast to provide a platform for technology discussions to improve or create new recycling feedstocks and end-markets.

Research solutions that advance market development for use of recyclable materials:

- [Market analysis](#) of waste stream supply chain and incentives, unmet capital, and other needs of reprocessing and manufacturing firms using recycled materials, such as financing and incentive programs.
- [Data analysis](#) to identify the movement of recyclable materials (curbside, industrial, commercial, institutional) to processing operations and domestic or international end markets.
- [Infrastructure analysis](#) to identify barriers and opportunities at collection, processing, and end market material use.
- [Policy analysis](#) to evaluate regulatory options to expand and sustain environmentally and socially just reuse and recycling markets, improve processing and remanufacture capabilities, encourage business development, and provide for local green jobs.
- [Other analyses](#) to understand trends and demographics that impact recycling, for example, immigration impacts, housing statistics, equity, and social justice issues.

Advance technology that improves remanufacturing recyclable materials in the state and region:

- Provide business assistance to existing, new, and expanding businesses involved in recycling and use of recovered materials.
- Identify funding opportunities to support business expansion, innovative technology, or pilot projects.
- Actively promote manufacturing with recyclable materials to existing, new, and expanding businesses, based on strategic goals and research results.
- Advocate for infrastructure investment in recycling (collection, material sorting, processing, and end use) in existing programs that support infrastructure.
- Partner on pilot projects with industry, product and packaging producers, and other regional partners, like material recovery facilities or research institutions, establish and support pilot projects.

Center Focus for 2021

Due to the freeze on hiring and contracting for state agencies both Ecology and Commerce support was limited to existing resources. As these restrictions continue into 2021, Center staff will focus on work plan activities that can be accomplished with existing resources, specifically outreach, analysis, and business assistance. More detail on these activities is provided in Table 2.

Due to Covid-19 impacts which included a hiring and contracting freeze, some work planned for 2020 did not get started. In 2021, Center staff will be looking for opportunities to work on other planned activities like contracting for policy analysis, actively promoting recycling business expansion, and advocating for investment in recycling infrastructure. Center-related research projects will be drafted and ready for when the contracting freeze is lifted or when there are other funding opportunities.

Table 2 - Center Focus for 2021

Work Plan Activities	Activity description	Anticipated outcome
Conduct Outreach	Reach out to recycling and market development community, to share the work of the Center and connect with parties involved in recycling, including manufacturers, collectors, processors, and end users.	Develop relationships with recycling industry in Washington and the northwest through phone calls, conference calls, or other personal connections to gather recycling and market development information.
Market analysis	Conduct additional analysis of recycling markets, supply chain, current trends, and needs of reprocessing and manufacturing or recyclable materials.	Identify where there is unmet capital and other needs in Washington.
Data analysis	Evaluate existing solid waste data to identify the movement of recyclable materials to processing operations and domestic or international end markets.	Provide more robust data to assist businesses interested in using recyclable materials to manufacture new products.

Work Plan Activities	Activity description	Anticipated outcome
Business assistance	Commerce’s economic development staff provides business assistance to existing, new, and expanding businesses involved in recycling and the use of recovered materials.	Improve recycling infrastructure in the state through business assistance.
Identify funding opportunities	While conducting outreach efforts, look into public and private funding opportunities to support market development.	Connect funding resources with new or existing recycling businesses or pilot projects to support market development.

Business Inquiries

Over the initial year of operation, the Center received many requests for information and proposals for new business. Table 3 lists some of those entities and the area of interest that was discussed. Some requests were preliminary inquiries and others come from existing facilities operating in Washington or another state. Some queries were focused on waste management, not recycling.

Table 3 – Center Business Contacts in 2019-2020

Business	Project, proposal, or data request
American Chemistry Council	Exploring pilot accelerator program for plastic film.
Carbon Black Global	Proposal for a waste-to-fuel operation.
Circular Matters	A consulting firm specializing in market development offered their services to the Center.
Conrad Industries	A facility in Chehalis proposed to convert from tire pyrolysis to plastics-to-fuel operation.
Corumat	Proposal for automatic sorting systems for organic and polymer recovery.
FMI EPS	Request for data, proposal to recycle expanded polystyrene into building materials.
Georgia Pacific	Project Juno pilot proposal to collect fibers from solid waste at Georgia-Pacific facility in Oregon.
Investigative Engineering	Proposal to recycle cartons into building materials.
Kwik Lok Corporation	Manufacturer in Yakima County offers sustainable packaging innovations for the produce and bakery industries.
MacRebur	Proposal for technology to repurpose waste plastics into an asphalt additive for parking lots, roads, and highways.
McConkey Company	Manufacturer in Pierce County looking for financing and a source of clean plastic to convert into agricultural plastic drip lines.

Business	Project, proposal, or data request
Mura	Proposal for a plastic recycling facility.
Paul Muller	Request for plastic utensil data for a drywall-like product.
Performance Infrastructure	Proposal for a waste-to-energy facility.
QCI LLC	Request for data, proposal for a waste-to-energy facility.
Rainier Plastics	Manufacturer in Yakima looking for alternatives to landfilling the clean cardboard cores generated at their facility.
Recycling Revolution, LLC	Request for data for sources of recyclable plastic.
Synergy ECOHUB Solutions	Proposal for a waste-to-energy facility.
Triumph Composite Systems	Manufacturer in Spokane, looking for partners to manufacture aerospace thermoplastic parts from recycled materials.
Urban Mining	Request for glass data for recycling glass into products.
Vesicus	Requesting financing for a proposal to make lightweight/insulating products from plastic to replace concrete.
Viking Pacific	Request for data, proposal to convert plastics-to-fuel.

Conclusion

Despite unexpected COVID-19 challenges, the Recycling Development Center’s team accomplished the legislative directive and completed several goals.

In our inaugural year, the Center convened an advisory board of partners from across the state and industry who are an integral part of the Center’s decision making process. We developed a collaborative partnership between Ecology and Commerce. The Center has a solid work plan for the coming biennium.

We look forward to accomplishing our 2021 priority actions to support development of robust end markets for Washington’s recyclable materials. Our primary focus includes manufacturing with recyclable plastic and paper, expanding data collection, continuing outreach to key players, and providing market development grants to local governments and public institutions.

Appendix: Legislative Direction

RCW [70A.240.030](#) - Recycling development center—Creation—Purpose and duties—Report to the legislature and governor—Interagency agreement—Rules.

- (1) The recycling development center is created within the department of ecology.
- (2) The purpose of the center is to provide or facilitate basic and applied research and development, marketing, and policy analysis in furthering the development of markets and processing for recycled commodities and products. As used in this chapter, market development consists of public and private activities that are used to overcome impediments preventing full and productive use of secondary materials diverted from the waste stream, and that encourage and expand use of those materials and subsequent products. In fulfilling this mission, the center must initially direct its services to businesses that transform or remanufacture waste materials into usable or marketable materials or products for use rather than disposal.
- (3) The center must perform the following activities:
 - (a) Develop an annual work plan. The work plan must describe actions and recommendations for developing markets for commodities comprising a significant percentage of the waste stream and having potential for use as an industrial or commercial feedstock, with initial focus on mixed waste paper and plastics;
 - (b) Evaluate, analyze, and make recommendations on state policies that may affect markets for recyclable materials. Such recommendations must include explicit consideration of the costs and benefits of the market-effecting policies, including estimates of the anticipated: Rate impacts on solid waste utility ratepayers; impacts on the prices of consumer goods affected by the recommended policies; and impacts on rates of recycling or utilization of postconsumer materials;
 - (c) Work with manufacturers and producers of packaging and other potentially recyclable materials on their work to increase the ability of their products to be recycled or reduced in Washington;
 - (d) Initiate, conduct, or contract for studies relating to market development for recyclable materials, including but not limited to applied research, technology transfer, life-cycle analysis, and pilot demonstration projects;
 - (e) Obtain and disseminate information relating to market development for recyclable materials from other state and local agencies and other sources;
 - (f) Contract with individuals, corporations, trade associations, and research institutions for the purposes of this chapter;
 - (g) Provide grants or contracts to local governments, state agencies, or other public institutions to further the development or revitalization of recycling markets in accordance with applicable rules and regulations;
 - (h) Provide business and marketing assistance to public and private sector entities within the state;
 - (i) Represent the state in regional and national market development issues and work to create a regional recycling development council that will work across either state or provincial borders, or both;
 - (j) Wherever necessary, the center must work with: Material recovery facility operators; public and private sector recycling and solid waste industries; packaging manufacturers and retailers; local governments; environmental organizations; interested colleges and universities;

and state agencies, including the department of commerce and the utilities and transportation commission; and

(k) Report to the legislature and the governor each even-numbered year on the progress of achieving the center's purpose and performing the center's activities, including any effects on state recycling rates or rates of utilization of postconsumer materials in manufactured products that can reasonably be attributed, at least in part, to the activities of the center.

(4) In order to carry out its responsibilities under this chapter, the department must enter into an interagency agreement with the department of commerce to perform or contract for the following activities:

- (a) Provide targeted business assistance to recycling businesses, including:
 - (i) Development of business plans;
 - (ii) Market research and planning information;
 - (iii) Referral and information on market conditions; and
 - (iv) Information on new technology and product development;
 - (b) Conduct outreach to negotiate voluntary agreements with manufacturers to increase the use of recycled materials in products and product development;
 - (c) Support, promote, and identify research and development to stimulate new technologies and products using recycled materials;
 - (d) Actively promote manufacturing with recycled commodities, as well as purchasing of recycled products by state agencies consistent with and in addition to the requirements of chapter [43.19A RCW](#) and [RCW 39.26.255](#), local governments, and the private sector;
 - (e) Undertake studies on the unmet capital and other needs of reprocessing and manufacturing firms using recycled materials, such as financing and incentive programs; and
 - (f) Conduct research to understand the waste stream supply chain and incentive strategies for retention, expansion, and attraction of innovative recycling technology businesses.
- (5) The department may adopt any rules necessary to implement and enforce this chapter including, but not limited to, measures for the center's performance.

RCW 70A.240.040 - Advisory board—Duties—Membership.

- (1) The center's activities must be guided by an advisory board.
- (2) The duties of the advisory board are to:
 - (a) Provide advice and guidance on the annual work plan of the center; and
 - (b) Evaluate, analyze, and make recommendations on state policies that may affect markets for recyclable materials to the director and the department of commerce.
- (3) Except as otherwise provided, advisory board members must be appointed by the director in consultation with the department of commerce as follows:
 - (a) One member to represent cities;
 - (b) One member appointed by the Washington association of county solid waste managers to represent counties east of the crest of the Cascade mountains;
 - (c) One member appointed by the Washington association of county solid waste managers to represent counties west of the crest of the Cascade mountains;
 - (d) One member to represent public interest groups;
 - (e) Three members from universities or state and federal research institutions;
 - (f) Up to seven private sector members to represent all aspects of the recycling materials system, including but not limited to manufacturing and packaging, solid waste management, and

at least one not-for-profit organization familiar with innovative recycling solutions that are being used internationally in Scandinavia, China, and other countries;

(g) The chair of the utilities and transportation commission or the chair's designee as a nonvoting member; and

(h) Nonvoting, temporary appointments to the board may be made by the chair of the advisory board where specific expertise is needed.

(4) The initial appointments of the seven private sector members are as follows: Three members with three-year terms and four members with two-year terms. Thereafter, members serve two-year renewable terms.

(5) The advisory board must meet at least quarterly.

(6) The chair of the advisory board must be elected from among the members by a simple majority vote.

(7) The advisory board may adopt bylaws and a charter for the operation of its business for the purposes of this chapter.

(8) The department shall provide staff support to the advisory board.

Publication information

This report is available on the Department of Ecology's website at <https://fortress.wa.gov/ecy/publications/SummaryPages/20-07-022.html>

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