

THE STATE SOLID AND HAZARDOUS WASTE PLAN

# Moving Washington Beyond Waste and Toxics



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

“If we want the U.S. to be competitive in the world economy, sustainable use of materials must be our goal.”

- United States Environmental Protection Agency

*The Road Ahead*



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# EXECUTIVE SUMMARY

## The State Solid and Hazardous Waste Plan: What, Why, and How?

Washington Department of Ecology (Ecology) is required to develop and regularly update a state solid and hazardous waste plan ([Chapter 70.95](#) and [Chapter 70.105](#), Revised Code of Washington [RCW]). The state plan guides the future management of waste and materials in the state. It also gives direction to local governments as they develop local solid and hazardous waste plans.

The state plan is our strategic plan to support the waste management hierarchy established in the main solid and hazardous waste statutes, which identify waste reduction as the highest priority. The 30-year vision -- to eliminate most wastes and toxics and use any remaining waste as resources -- supports this hierarchy.

In preparing this plan update, Ecology consulted local governments, businesses, citizens, and environmental organizations across the state and provided multiple opportunities for commenting. Visit [Ecology's website](#) for more information on the update process and the comments received.

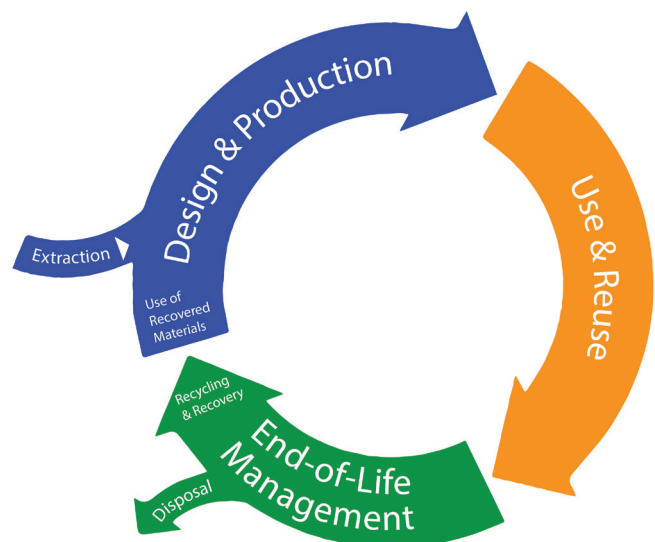
This plan update better connects the vision and the current system. It describes where our solid and hazardous waste systems are now and how we will continue to focus on reducing waste and toxics.

## Planning for Sustainable Materials Management

To represent the current system and focus on reducing waste and toxics, we used a sustainable materials management approach, which is also used by the [U.S. Environmental Protection Agency \(EPA\)](#). The sustainable materials management approach is illustrated in the materials life cycle graphic (below) that Ecology adapted from [Oregon's Department of Environmental Quality](#).

Materials management looks at the full life cycle of materials from the design and manufacturing phase, through the use phase, to the end-of-life phase when the material is either disposed or recycled.

Materials management still focuses on recycling and disposal issues. However, looking at production and use phases can help identify more sustainable ways to design products that use less energy, water, and toxics. This is important because the adverse environmental impacts of extraction, production, and use can be far greater than those associated with disposal when a material becomes a waste. According to EPA, a sustainable materials management approach is essential to conserving our natural resources to meet both today's needs and those of future generations.



Materials life cycle graphic

# VISION & PRIORITIES OF THE STATE PLAN

We can transition to a society where waste is viewed as inefficient, and where most wastes and toxic substances have been eliminated. This will contribute to economic, social and environmental vitality.



Increase our focus on manufacturing & use phases, not just on end-of-life issues



Reduce toxic threats in products and industrial processes



Increase efficiency of recycling (including organic processing) systems, and maximize effectiveness of existing solid and hazardous waste infrastructure



Mitigate climate change through waste reduction, reuse, & recycling

## Structure of the State Plan

We restructured the state plan, shifting from five initiatives and two current issues in previous plans, to five sections. Each section contains goals and actions for the next five years.

1. **Managing Hazardous Waste and Materials** - addresses regulated hazardous waste generators, pollution prevention plans, and moderate risk waste.
2. **Managing Solid Waste and Materials** - deals with the scope of solid waste and materials work, including organic materials.
3. **Reducing Impacts of Materials and Products** - focuses on improving materials that eventually become components of products or waste, by focusing on what is used and produced.
4. **Measuring Progress** - addresses data needed for measuring progress.
5. **Providing Outreach and Information** - focuses on outreach and information.

## Moving Forward >>>

The state plan sets an overall direction for solid and hazardous waste management in Washington State—namely, sustainable materials management. By setting this direction, the state plan aids in the adoption of similar waste and material-related policies and programs by state and local government, private industry, and other partners. **With many partners engaging in similar activities, we are more likely to succeed in sustainable materials management. Embarking on new directions is rarely easy, but working together can help Washington continue to be a leader in moving beyond waste and toxics.**



# FRAMEWORK AND FOUNDATIONS

## State Solid and Hazardous Waste Plan Purpose and Vision

[Chapter 70.95](#) and [Chapter 70.105](#) Revised Code of Washington (RCW) require the Washington Department of Ecology (Ecology) to develop a state solid and hazardous plan, and update it regularly. Since 2004, this plan has been called the Beyond Waste Plan and it is updated every five years.

The state plan guides the management of waste and materials in the state and directs local governments as they develop local solid and hazardous waste plans. The state plan supports the waste management hierarchy established in the solid and hazardous waste statutes, which identifies waste reduction as the highest priority. The state's 30-year vision to eliminate most wastes and toxics and use remaining waste as resources supports this hierarchy.

In preparing this plan update, Ecology consulted local governments, businesses, citizens, and environmental organizations across the state and provided multiple opportunities for commenting. Visit [Ecology's website](#) for more information on the update process and comments received.

In the 2004 state plan, Ecology envisioned a better future for waste in Washington, to be realized by 2035. The year 2035 was chosen because then-Governor Gary Locke adopted a strategy to make Washington State sustainable in one generation, or 30 years.

Implementing this vision is an essential element for the state to become sustainable. The plan vision builds on waste hierarchies adopted in the solid and hazardous waste laws in the mid-1980s ([RCW 70.95](#) and [RCW 70.105](#)).

The hierarchies place waste reduction as the highest priority, followed by recycling, and then safe disposal. We have made progress towards this vision but still have more to do.

## Sustainable Materials Management and the State Waste Plan Update

Sustainable materials management looks at the full life cycle of materials from the design and manufacturing phase, through the use phase, to the end-of-life phase when the material is either disposed or recycled. The goal is to reduce negative environmental and health impacts (including climate impacts) by managing materials that become waste through all stages of their life cycle.

In 2004, [EPA](#) adopted a framework for sustainable materials management, to address “the movement of materials through the economy and the environment from extraction to end of life.”<sup>1</sup>

The plan vision aligns with the sustainable materials management direction EPA asked states to adopt. According to EPA, sustainable materials management is essential to conserving our natural resources to meet both today's needs and those of future generations. **“The overall outcomes from a sustainable approach to materials management:**

- **Reductions in the volume and toxicity of material at all phases of the life cycle, across every sector of the economy.**
- **Improvements in manufacturing supply chain efficiencies, resulting in increased competitiveness for American business.**



• **Incorporation of sustainable materials management within the regulated community that levels the playing field by reducing energy and materials use, as well as improving environmental results.<sup>2</sup>**

Previous state solid and hazardous waste plans (the Beyond Waste Plan) had a similar life cycle viewpoint. In this update the state is more broadly adopting the sustainable materials management approach. Oregon, Washington's neighbor, was the first state to use this framework as the basis for their state waste management plan, calling it their materials management plan. It states:

"The materials management approach includes waste prevention and discard management, while seeking to reduce environmental impacts by managing materials through all stages of their life cycle. It identifies impacts and actions to address those impacts across the full cycle of materials and products as they move through the economy from raw material extraction to product design and manufacture, transport, consumption, use, reuse, recycling, and disposal.<sup>3</sup>"

The sustainable materials management approach aligns well with Governor Jay Inslee's proposed direction for toxics in the state: "Today, our bigger concern [as opposed to permitted sources of pollution] is uncontrolled release of chemical pollutants that come from diffuse, large unregulated sources—from the brakes on cars to the flame retardants in our furniture.<sup>4</sup>"

Governor Inslee's proposed solutions include removing toxic chemicals from consumer products in the design and manufacturing phase to reduce human exposure during the use of the product and avoid environmental impacts at the end of a product's life.

The Governor's concern reflects the general direction society is taking in regards to toxics in products. All levels of government are considering different approaches and possible solutions to the increasing concern about this issue. One possible solution is for state and local governments to purchase less toxic products, as their substantial purchasing power can help drive markets.

"Sustainable materials management (SMM) is an integrated approach toward managing material life cycles to achieve both economic efficiency and environmental viability. Material life cycles include all human activities related to material selection, exploration, extraction, transportation, processing, consumption, recycling, and disposal.

Strategies for SMM can be separated into two categories: dematerialization and detoxification...

Dematerialization refers to the reduction of material throughput in an economic system...Detoxification refers to the prevention or reduction of adverse human or ecological effects associated with materials use."

From "A Framework for Sustainable Materials Management" by Joseph Fiskel, 2006, August- JOM

Why Use a Sustainable Materials Management Approach?

The sustainable materials management approach focuses on waste prevention as a way to reduce harmful effects on environmental health and climate effects of materials while strengthening the economy. This approach emphasizes the importance of looking at the full life cycle of materials: design and manufacturing, use, and end-of-life. We need to identify more sustainable ways to design products that use less energy, water, and toxics. The adverse environmental and health impacts of extraction, production, and use can be far greater than those associated with disposal when the product becomes a waste.

Available resources are declining worldwide, while the demand for resources continues to grow. As more people consume more resources in the form of products and materials, it causes more pollution, including greenhouse gases and other toxic releases. Using resources faster than the planet can renew them limits the ability of all people to meet their basic needs now and in the future.

As the demand for finite resources continues to grow, we are putting increased pressure on our environment, and often on the communities that extract or manufacture these resources. Since the industrial revolution, our society has been operating on the assumption that resources are abundant, readily available, and cheaply disposed. This is no longer the case.

The linear use of resources where we extract materials, use them once, and then throw them away is not sustainable. Not only will we run out of key materials, but the throw-away society continues to pollute our

environment with waste and toxics. Instead, we can use our resources in a circular model, as illustrated by the Sustainable Materials Management Cycle.

Sustainable materials management can also create more jobs. A recent study found that waste disposal creates the fewest jobs per ton of waste compared to recycling and composting. According to the study, achieving a 75 percent waste diversion rate could create more than one million jobs<sup>5</sup>.

Removing toxics from products is vital to protect human health and the environment. The manufacture and use of some products often unnecessarily exposes people to toxics, and recycling or disposal of these products can then cause the toxics to be released into the environment. Removing toxics from the manufacture of products then supports reuse and recycling. Managing materials sustainably:

- Conserves the resources we all depend on.
- Helps us live within our resource means.
- Reduces harmful environmental and climate effects from materials extraction, use, and disposal.

Furthermore, sustainable materials management helps promote sustainable development and environmental justice. Currently, members of disadvantaged communities are more likely to face higher levels of exposure to waste and toxics, through their work or neighborhoods, than upper or middle class communities.

The table below shows how Ecology’s current work fits into the Sustainable Material Management Cycle. While we have projects in each part of the cycle, most of our work is spent on end-of-life activities. Moving to a materials management approach will require some shifting of resources.

Design and Production	Use and Reuse	End-of-Life Management
<ul style="list-style-type: none"><li>• Compliance with Toxics in Packaging, Children’s Safe Products Act, Better Brakes, and other product laws</li><li>• Food waste prevention</li><li>• Green chemistry</li><li>• Alternatives Assessment Guide</li><li>• Comprehensive lean and engineering assistance to businesses</li></ul>	<ul style="list-style-type: none"><li>• Pollution prevention planning</li><li>• Environmentally preferred (green) purchasing</li><li>• Technical assistance and information on safe use of chemicals and toxic products</li><li>• Support re-use networks</li><li>• Local Source Control Partnership</li></ul>	<ul style="list-style-type: none"><li>• Pollution prevention planning</li><li>• 1-800-Recycle Hotline</li><li>• E-Cycle and LightRecycle extended producer responsibility programs</li><li>• Solid waste facility assistance</li><li>• Hazardous waste (HW) compliance</li><li>• Permitting HW facilities</li><li>• Most recycling, including transporters, organics and moderate risk waste assistance</li></ul>



# Why Use a Sustainable Materials Management Approach?



Our society has been operating on the assumption that resources are abundant, readily available, and cheaply disposed

## THIS IS NO LONGER THE CASE

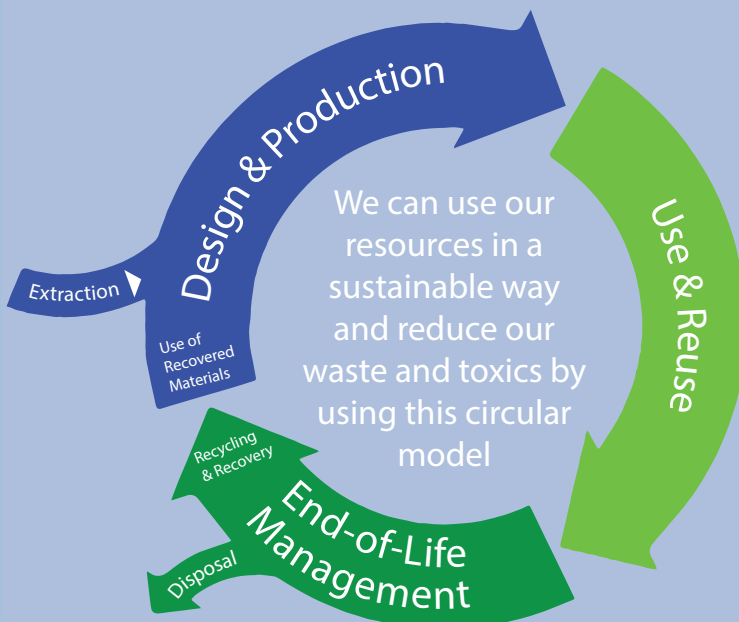


Not only will we run out of key materials, but our throw-away society continues to pollute our environment

Disadvantaged communities are more likely to face higher levels of exposure to waste and toxics than upper or middle class communities



REMOVING TOXICS FROM PRODUCTS IS VITAL TO HUMAN HEALTH AND THE ENVIRONMENT WE ALL DEPEND ON



*Using resources sustainably:*



## Where We Are Now: Waste Management in Washington

Washington has come a long way from the open burning dumps of the 1960s. This is due to the hard work of solid waste collection companies, other businesses, local and state government, and dedicated citizens. We now have well-run landfills and a comprehensive recycling infrastructure for many products. Overall, more than 85 percent of Washington residents live in areas that provide access to curbside recycling for single-family homes, and most other areas have access to drop-off recycling facilities. Composting programs, including curbside collection, drop-off programs, and affordable backyard compost bins and education, are available to a large percentage of the state's population. Our recycling, composting, and waste collection programs are some of the most progressive and successful in the country. The state collects nearly half of its municipal solid waste for recycling.

Much progress has also been made on the proper management and reduction of hazardous waste in Washington. Large, regulated businesses have up-to-date pollution prevention plans and more companies are complying with the state's dangerous waste regulations. Regulated businesses in the state have reduced their generation of hazardous waste by more than 50 percent since 2000.

### Current Trends in Solid and Hazardous Waste

Recycling and diversion of solid waste from disposal has increased overall, but the recycling and diversion rate has leveled out over the past few years, as shown in the solid waste graph (opposite, top). With the increase in disposal in 2013 and the slight decrease in recycling and diversion, the diversion rate dipped slightly; however, we are still diverting more solid waste than we dispose of. Per capita trends for solid waste generated and recycled are similar to that for total tons, though disposal has increased less on a per capita basis.

Solid waste includes all discards from homes and businesses, as well as waste from manufacturing

and construction. Moderate risk waste is included in this graph as well, and includes moderate risk waste collected at local government facilities. Data is available in our [annual report](#). It does not include contaminated soils from environmental cleanups and other non-divertible wastes such as asbestos, which average about ten percent of all waste. Solid wastes are either sent to a landfill, incinerated, or diverted to other uses such as recycling and reuse.

Recycling includes, but is not limited to:

- curbside-collected materials such as cans, bottles and newspapers
- commercial recyclables collected, such as metal and cardboard
- construction and demolition debris
- organic materials such as food and yard waste
- electronics

Other uses that divert materials from landfills include energy markets, such as anaerobic digesters, retreading (tires), and reuse.

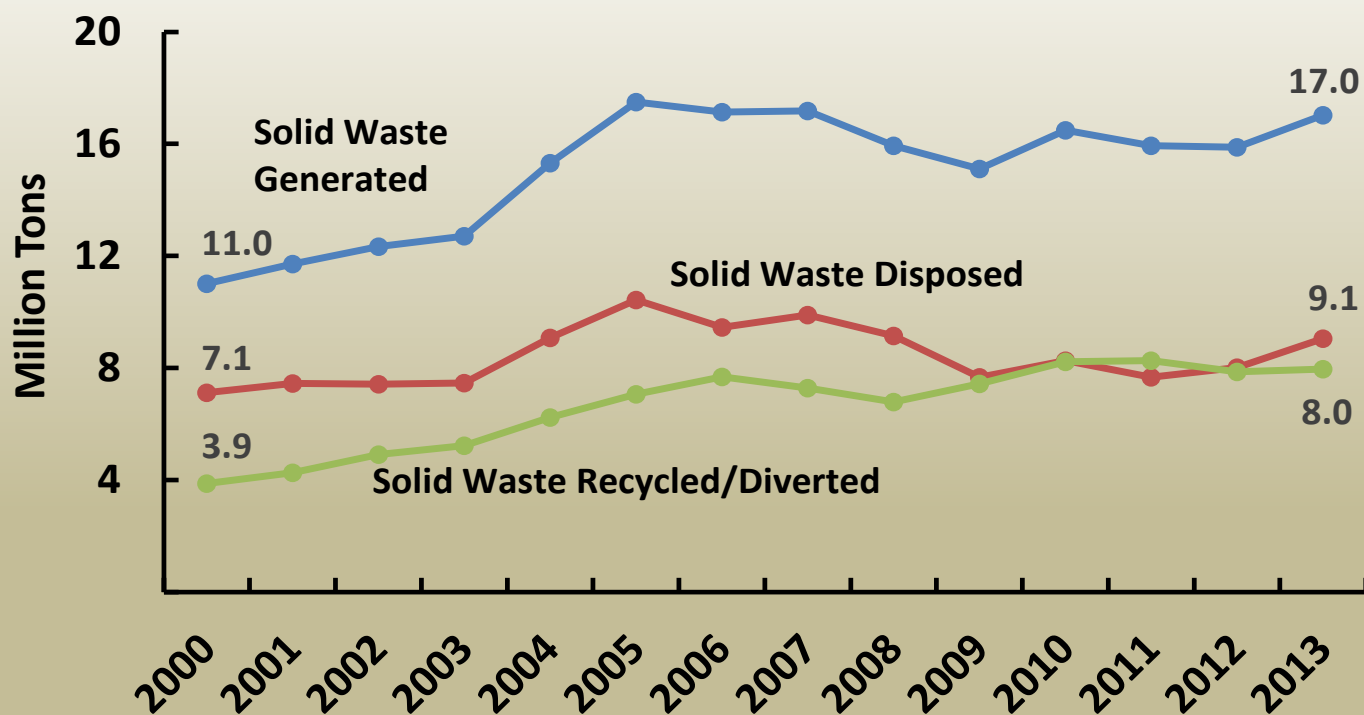
The generation of "recurrent hazardous waste" has decreased almost 50 percent between 2000 and 2013, as shown in the hazardous waste graph (opposite, bottom). Recurrent hazardous waste is produced by regulated businesses that routinely use hazardous materials in their business practices. It reflects approximately 1,000 businesses that generate more than 2,640 pounds each of hazardous waste per year and are required to have pollution prevention plans. It does not include the 2,800 annual reporters that are smaller waste generators or who are not required to report waste amounts. The downward trend in recurrent hazardous waste generation appears to be due in part to a variety of waste reduction strategies employed by businesses and other organizations.

While the generation of recurrent hazardous waste has declined until recently, the total amount of recurrent hazardous waste sent for recycling has remained fairly constant. About 80 percent of what is sent for recycling is emission dust from one facility.

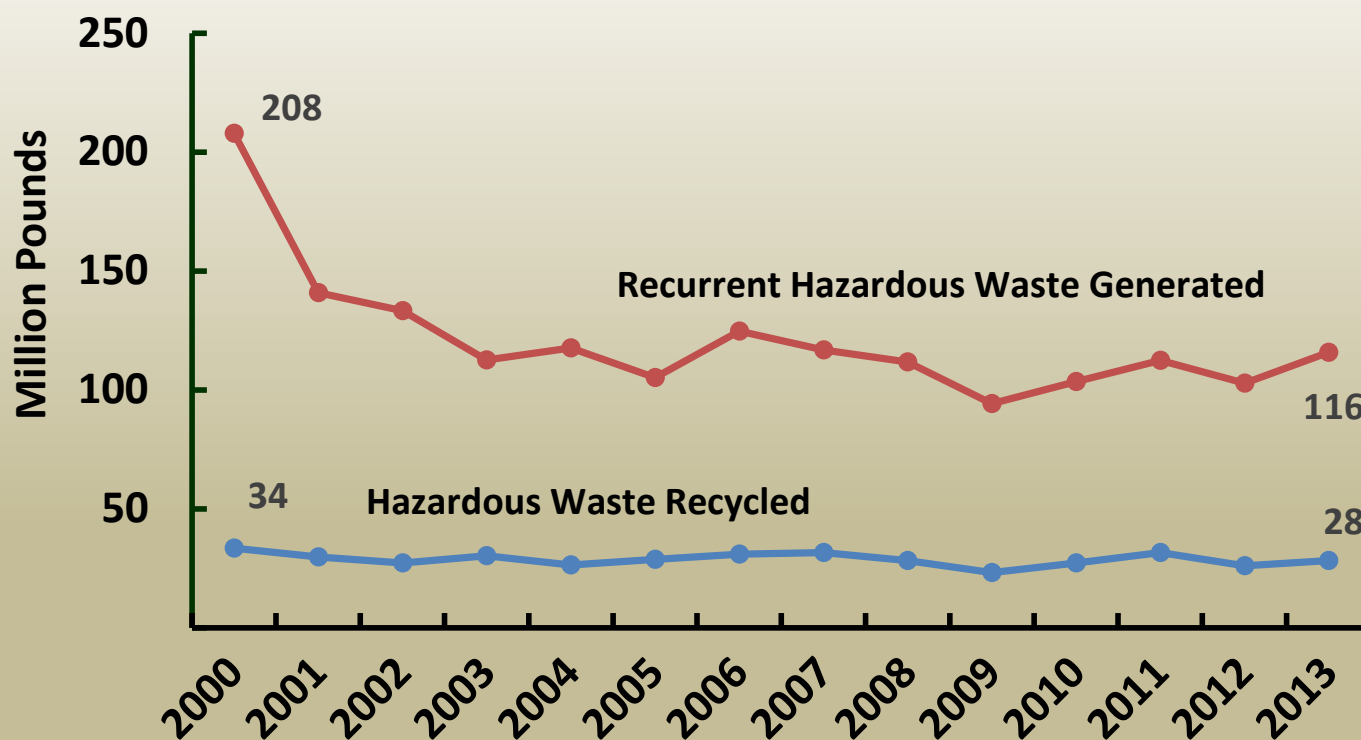
For data sources mentioned above and more information on current trends, see the [Beyond Waste Progress Report](#) and the [Solid Waste in Washington Annual Report](#).



## Solid Waste Generated, Recycled/Diverted and Disposed in Washington: 2000-2013



## Hazardous Waste Generated & Recycled in Washington: 2000-2013



Increasing emphasis is being placed on products, especially those that contain toxic chemicals. In the past decade, at least eight Washington State laws have banned or limited toxics in products. Two additional laws created producer take-back programs for products with toxic components. This increase in laws addressing toxics in products reinforces the need to take a life cycle approach to encourage better design of products.

#### **Recent Laws Addressing Toxics in Products:**

- Mercury reduction, [RCW.70.95M](#) (2003)
- Electronic product recycling, [RCW 70.95N](#) (2006)
- PBDE flame retardants, [RCW 70.76](#) (2007)
- Children's safe products, [RCW 70.240](#) (2008)
- Lead wheel weights, [RCW 70.270](#) (2009)
- Brake friction material, [RCW 70.285](#) (2010)
- BPA in sports bottles, [RCW 70.280](#) (2010)
- Mercury-containing light recycling, [RCW 70.275](#) (2010)
- Copper boat paint, [RCW 70.300](#) (2011)
- Coal tar sealant, [RCW 70.295](#) (2011)
- PCBs in Products, State Purchasing, [RCW 39.26](#) (2014)

Although we have safer landfills, good waste collection systems, and many recycling opportunities, we need to continue to reduce waste. We also need to address the overuse of resources, toxic releases to the environment, and toxic substances used in products. Our state solid and hazardous waste plan considers where we want Washington to be in 2035 and establishes goals and actions to get us there.

### **Current Trends in Washington Population and Demographics**

Waste generation trends are influenced by population and demographics. As of this writing, there are 6.9 million people in the state. By the end of this five-year planning period, state population is projected to reach almost 8.5 million. More people means more waste, and increased demand for waste management services.

To meet cultural and language needs, we need to account for changing demographics in providing those services. The Office of Financial Management (OFM) estimated that 27 percent of the state's population in 2010 was made up of people of color, up

from 20 percent in 2000. The Washington Hispanic population is the fastest growing, representing 11 percent of the population in 2010<sup>6</sup>.

Currently, the majority of residents in Franklin and Adams counties are Hispanic. Washington is also one of the top ten states with the largest and fastest growing populations of residents with limited English proficiency<sup>7</sup>. African American, Native American, Alaskan Native, Asian, and Pacific American populations have all increased in the last decade. Waste service providers will need to make the cultural and language needs of those with limited English proficiency a greater priority.

### **What Washington Will Look Like in 2035**

Visionary goals for 2035, adapted from the 2004 and 2009 state waste plans and revised for this plan update, are listed below. They depict Washington's future if we are successful in implementing this and future state plans.

#### **Sustainable materials management is commonplace.**

Reuse and recycling of plastics, metals, glass, wood, organics, and other materials is widespread and supported by robust markets. Recyclable materials are source-separated from waste, and contamination is minimized.

#### **Safe products, buildings, and services are designed for human, economic, and environmental health and are readily available.**

Products, buildings, and services minimize hazardous materials throughout their life cycles and green chemistry is the norm. Most toxic threats to human health and the environment from hazardous materials have been eliminated. Consumer demand for effective, environmentally preferable products, buildings, and services is widespread. Products that present a risk from toxic components are managed in a product stewardship system.

#### **A stable and long-term solid waste financing system supports and enables the transition to sustainable materials management.**

Full costs for managing products, materials, and wastes from design and manufacture to end-of-life, are accounted for in both product prices and disposal. Funding for waste



reduction and recycling programs does not solely rely on waste disposal fees.

**State regulations and infrastructure support the reduction and eventual elimination of waste and toxics.** Local waste management plans and pollution prevention plans focus on sustainable materials management and toxics reduction. Solid and hazardous waste management facilities promote convenient reuse and recycling, where appropriate, in addition to safe disposal, and are in compliance with state and local regulations.

**Washington businesses thrive and provide sustainable jobs.** Businesses, employees, and communities prosper in the domestic and global marketplace as they eliminate waste and replace hazardous materials from products and services with safer ones. Consumer confidence increases, while risk and liability to consumers, waste management workers, and others decreases.

**State and local government measurement systems for waste and toxics have improved.** Data gaps have been identified, their significance determined, and important gaps have been filled. Existing data collection now provides useful information for stakeholders. Data is used to direct programs and priorities.

**Greenhouse gas emissions (GHGs) have decreased due in part to wiser management of material resources.** Reduced consumption as well as increased reuse and recycling of resources are recognized as

keys to conserving energy use and reducing associated GHG emissions. Innovative uses for organic materials help sequester carbon in soils, create bio-energy, and provide food for thriving plants. Less methane and leachate will be generated due to reduced disposal of organic materials in landfills.

**Environmental equity and justice is achieved for all Washington residents.** Health disparities have been eliminated from exposures to toxics through people's jobs, communities, and homes. This includes equitable access for all residents to solid and hazardous waste services.

## Progress on the 2009 State Plan

At this writing, the Beyond Waste Plan, first published in 2004, is ten years into implementation. Much progress was made during the first five years of the plan. Of the original 74 milestones, 25 were completed and progress was made on 38 others. The plan was revised in 2009 and expanded to 93 milestones. The 2008 recession reduced financial resources to work on implementing the plan, and during the 2011-2013 Biennium, budget restrictions further limited work. Of the 93 milestones, 5 were completed. Significant or some progress was made on 54 others.

### Progress on the 2009 State Solid & Hazardous Waste Plan Milestones

Plan Section	Number of Milestones	Completed	Significant or Some Progress	Little or No Progress
Industries Initiative	17	0	9	8
Small Volume Hazardous Materials & Waste Initiative	15	0	7	8
Organics Initiative	13	0	8	5
Green Building Initiative	11	0	8	3
Measuring Progress Initiative	7	2	4	1
Current Hazardous Waste Issues	11	2	9	0
Current Solid Waste Issues	19	1	9	9
Total	93	5	54	34

# Progress on the 2009 State Plan resulted in the following accomplishments:

**Some toxic substances have been eliminated from products sold in Washington** due to legislation restricting use of certain chemicals. This includes toxics found in vehicle brakes, tire wheel weights, drink bottles, parking lot sealants, packaging, furniture and mattresses, and some children's products.

**A Green Chemistry Center with a working board and staff was established in Washington** through EPA grant funding. The new [Green Chemistry Center](#) will facilitate research, commercialization, technical assistance, and education in green chemistry and engineering.

**Washington's highly successful extended producer responsibility program for electronics, E-Cycle**, which started in January 2009, recently celebrated five years of service and has recycled more than 250 million pounds of TVs, computers, and monitors.

**There is increased support and interest in environmentally preferred purchasing (EPP), or green purchasing.** In Washington, this includes an EPP provision in a purchasing reform bill and a prohibition of purchases of products containing polychlorinated biphenyls (PCBs). A joint contract with Oregon allows all government agencies in both states to purchase green janitorial supplies.

**Ecology promoted green building**, provided technical assistance, and worked to remove barriers to constructing more sustainable buildings. Washington continues to be a national leader in the green building arena in part because of these efforts.

**More than 80 percent of local solid or hazardous waste plans include, or are planning to add, concepts and programs for waste reduction and recycling** that support the state's vision to reduce or eliminate most waste and toxics. Many local governments use Ecology-managed grant funds to implement these programs.

**More Washington businesses and governments are addressing hazardous substance reduction in their pollution prevention plans** and are increasingly aware of toxics in products. As a result of the improved hazardous substance information in the plans, Washington can better target areas to assist businesses in reducing toxics in products and processes.

**Extended producer responsibility legislation was passed for lights that contain mercury.** As a result, a [producer-established recycling program](#) began January 2015, and included 261 drop-off locations and one curbside program by April 1, 2015. This program allows residents and businesses to recycle fluorescent lights, keeping highly toxic mercury out of landfills and the environment.

**Businesses are better at preventing releases of dangerous waste into the environment.** They understand the regulations better due to the greater number of compliance visits. The chance of finding a significant violation dropped ten percent as the number of visits increased by 20 percent in 2011-2012.

**Composting and other methods of recycling organic material continue to increase.** More organics are now diverted than disposed of in landfills. State grant programs and efforts of local governments, composting companies, residents, and businesses contributed to this shift.

**Ecology established the Local Source Control (LSC) Partnership.** Local government staff assist small businesses in their communities with proper dangerous waste management and stormwater pollution prevention. Between 2010 and 2014 small businesses corrected more than 9,000 potentially harmful environmental practices that were identified by LSC staff during site visits.

For more information on progress, go to the [Beyond Waste Status Report](#), May 2014, the [Summary Status Report](#), or view the annual [Beyond Waste Progress Report](#).



# Plan Update Process and Structure

As with the development of past plan updates, Ecology consulted with local governments, businesses, citizens, and environmental organizations across the state. Through meetings and an online survey, we gathered input on what stakeholders wanted in the plan update before we drafted any content. We used this input to create a first draft, which we circulated for public comment. Then we used those comments to revise the second draft. Comments on the second draft were then used to create this final plan update. Comments can be viewed on the [website](#).

We listened carefully, received many ideas and suggestions, and worked hard to use this input. We followed the direction of our guiding statutes, especially in areas where stakeholder input conflicted. Two key things we heard from stakeholders were to better represent the current system, and to focus on the full life cycle of materials and products, not just on waste at end of life. The materials management approach helps us do both of these things while supporting the waste hierarchy in our guiding statutes.

## Plan Structure: Past and Present

In the [2004](#) and [2009](#) versions of the State Solid and Hazardous Waste Plan (Beyond Waste), Ecology concentrated on five initiatives to best pursue the plan vision. Also included were current issues with solid and hazardous waste management. In this 2014 update, we revised this structure, as illustrated in this table:

This new structure reflects changing times and concerns. Our goals are to simplify, be more inclusive, and make the plan easier to use. Some of our work has changed due to reduced funding or shifting priorities. An example is green building: encouraging overall green building practices has changed to a narrower focus on building materials. Another example is the increasing emphasis on toxics in products.

The new plan sections broadly address major areas and list goals and actions.

- Managing Hazardous Waste and Materials addresses regulated hazardous waste, pollution prevention plans, and MRW.
- Managing Solid Wastes and Materials deals with a variety of solid waste and materials work.
- Reducing Impacts of Materials and Products describes activities to improve the materials that eventually become components of products or waste, by emphasizing what is used and produced.
- Measuring Progress addresses data needs.
- Providing Outreach and Information identifies outreach and information needs for both solid and hazardous waste and materials.

While the initiative structure has changed, the key concepts of reducing wastes and toxic substances, as well as safely handling wastes, remain. In addition, Washington State’s interest in climate change, the health of Puget Sound and other Washington waters, and the need to reduce toxic threats has increased in the past five years. Therefore, the state waste plan continues to connect to these key issues, and to be about more than just waste.

2014 State Waste Plan Sections	2004 & 2009 State Waste Plan Sections
<ul style="list-style-type: none"><li>•Managing Hazardous Waste and Materials (includes MRW)</li><li>• Managing Solid Wastes and Materials (includes building materials)</li><li>•Reducing Impacts of Materials and Products (includes some MRW, building materials)</li><li>•Measuring Progress</li><li>•Providing Outreach and Information</li></ul>	<ul style="list-style-type: none"><li>•Industries Waste (regulated hazardous wastes)</li><li>•Small Volume Hazardous Materials and Wastes (MRW)</li><li>•Organic Materials</li><li>•Green Building</li><li>•Measuring Progress</li><li>•Current Hazardous Waste Issues</li><li>•Current Solid Waste Issues</li></ul>

## Plan Goals and Actions

The 2015 state waste plan update contains 53 goals with 177 supporting actions. The goals reflect where we would like to be in five years, and the actions are steps to help us get there. Most of the goals and actions are meant to provide direction for Ecology, working with our stakeholders. However, the actions are also intended to provide guidance to other governments, organizations, and the private sector, and may be carried out by others as well as Ecology. A few can only be accomplished by entities other than Ecology. Therefore, the goals and actions are written broadly for application to many audiences.

To show how the work in the plan connects to the Sustainable Materials Management Cycle, we used icons to indicate which part of the cycle the goals relate to: Design, Use, End-of-Life Management or Systemwide (opposite page).

The goals and actions stem from stakeholder input as well as staff expertise. They represent steps to move us into a future of less waste and toxics, while working to keep the current system functioning well.

Many of the goals and actions are in addition to and build onto our existing and ongoing work. Performing the work in the plan is resource dependent. The plan update is intended to provide a flexible list of options that support movement toward the plan's vision.

## Priorities for the Plan

The following priorities will move us closer to the vision and ensure the current system works well. To work effectively on some of these priorities, we will need restored or additional funding.

### **Move upstream by increasing focus on manufacturing and use, not just end-of-life issues.**

- Gather data that address the full life cycle of materials from manufacture, use, and discard.
- Promote environmentally preferred purchasing and independent, third-party certifications and labels.
- Enable more reuse of materials and products.

### **Reduce toxic threats in products and industrial processes.**

- Encourage less toxic products and industrial processes through better design.
- Promote the use of alternatives assessments and green chemistry to find safer substitutes to toxics in products.
- Increase local partnerships to work on toxics source control.
- Encourage product stewardship programs for toxic or hard-to-handle products.
- Restrict the use of the most toxic chemicals where safer alternatives exist.

### **Increase efficiency of recycling (including organic processing) systems, and maximize effectiveness of existing solid and hazardous waste infrastructure.**

- Address curbside recycling contamination and material recovery facility system loss.
- Provide enforcement to reduce sham recycling.
- Ensure clean and marketable end-products from organics and recyclables.
- Increase capacity and diversity of recycling (including organics processing) infrastructure.
- Focus on facility compliance, technical assistance, and enforcement.

### **Mitigate climate change.**

- Increase use of processed organics to sequester carbon.
- Increase reuse, recycling, and waste reduction.
- Prevent food waste.

Ecology will further prioritize work in program planning efforts, based on internal resource availability, initiatives by key stakeholders, and opportunities to partner with other projects and organizations. We will work on the highest priorities as resources allow. We will also be guided by our key principles and strategies listed in the next section.



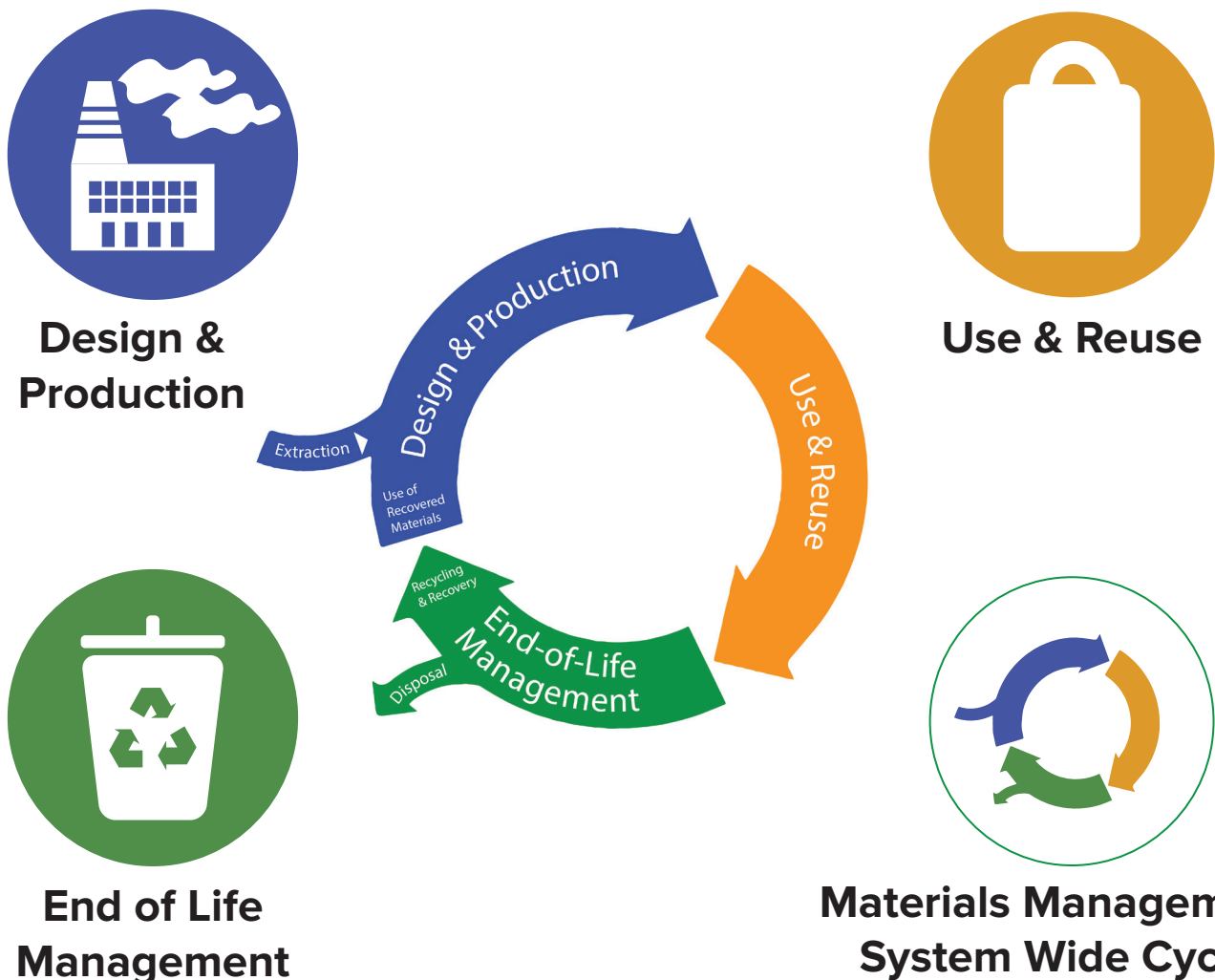
## Key Principles and Strategies

Key principles and strategies are fundamental for the success of the plan's implementation and should guide implementation of plan goals and actions.

- Build on what's already working, such as maximizing the use of existing infrastructure.
- Focus solutions on designing sustainable products and processes.
- Take advantage of momentum and complementary actions.
- Create collaborative partnerships with a variety of players.
- Work to remove barriers, develop pilot projects, and change behavior with incentives.

- Lead by example in government, especially through research, purchasing power, and model demonstration projects.
- Minimize unintended consequences of actions. When considering actions, take into account human and environmental health, environmental justice, economic viability, and quality of life.
- Evaluate programs and measure progress.
- Strive for continuous improvement.

## Guide to the Different Parts of the Materials Management Cycle:



# PLAN GOALS AND ACTIONS

## Managing Hazardous Waste and Materials

### Introduction

Properly managing hazardous materials and wastes helps protect our environment. Improperly managed hazardous wastes can lead to contaminated sites. Cleaning up these sites is expensive for businesses and taxpayers.

Most of the authority to regulate hazardous waste in the state falls under the auspices of Ecology's [Hazardous Waste and Toxics Reduction \(HWTR\) Program](#).

The program activities are arranged into three main subject areas: pollution prevention, compliance with regulations, and permitting/corrective action at facilities that manage hazardous wastes.

Washington law uses the term “dangerous waste.” Federal law uses the term “hazardous waste.” Washington’s definition of dangerous waste includes some wastes that are not included in the federal definition. In this plan when speaking generally we use the term hazardous waste. When referring to regulatory actions, we use the term dangerous waste.

Even small amounts of dangerous waste can cause big problems. Local governments, under the authority of state laws and regulations, primarily manage small quantities of dangerous wastes created by businesses or households. This waste is also called moderate risk waste (MRW).

### State Regulatory Structure: Laws and Their Implementation

#### Pollution Prevention

Washington’s Waste Reduction Act ([Chapter 70.95C RCW](#)) passed in 1990. Businesses or public agencies that generate 2,640 pounds or more of recurrent hazardous waste annually, or report toxic releases as part of the federal Toxics Release Inventory (TRI) requirement, must prepare pollution prevention plans. They must submit the plans to Ecology for approval.

The plans must identify opportunities to reduce the use of hazardous substances or the generation of

dangerous hazardous wastes. However, implementing these opportunities is voluntary and does not always occur. Pollution prevention plans often address only those dangerous hazardous wastes that are the easiest to reduce rather than those that are the most toxic.

Overall, the Pollution Prevention Program makes good economic sense. Since 2005, Washington businesses have saved an estimated \$56 million due to pollution prevention planning implementation. That amount may be low, because businesses are not required to report cost savings. Hazardous waste generation has decreased since the Pollution Prevention Program began, but the rate of decline has slowed down in recent years.

#### Compliance and Compliance Assistance

State authority for managing dangerous waste derives from the federal [Resource Conservation and Recovery Act or RCRA](#) (1980) and the state Hazardous Waste Management Act, [Chapter 70.105 RCW](#) (1976). The state Dangerous Waste Regulations ([Chapter 173-303](#) Washington Administrative Code [WAC]) are the foundation of Ecology’s compliance efforts. Businesses must file an annual report with Ecology if they generate more than 220 pounds of dangerous waste in any month or 2,640 pounds per year. These businesses classify as medium or large quantity generators (MQGs and LQGs), depending on the amount of dangerous wastes they generate.

Ecology employees conduct formal inspections of and informal visits to dangerous waste generators, centered on the regulations. Ecology is responsible for inspecting more than 1,000 businesses that are medium and large quantity generators. In addition, Ecology inspectors must respond to referrals from local government and complaints from the public.

[Business compliance with regulations](#) has increased over the last few years. This is partly because increased staffing of compliance inspectors has allowed for more frequent inspections, which has resulted in greater compliance.

#### Permitting and Corrective Action

Ecology issues waste management permits to facilities that treat, store, or dispose (TSD) of dangerous waste.

These facilities help industries and local government safely manage and dispose of their dangerous waste. The permits ensure that facility design, construction, maintenance, and operations protect people and the environment. A dangerous waste management or TSD facility must meet the conditions of its permit and comply with state and federal regulations during its operation, when it ceases operating, and when it closes. Under a process called “corrective action,” releases of dangerous wastes are cleaned up from TSD facilities during operation.

Washington currently has 14 active TSD facilities. When these facilities close, Ecology ensures they have a required closure plan in place to handle the end of their waste management activities effectively. Environmental contamination found at any time before closure requires a corrective action cleanup plan.

Ecology also oversees closure and necessary cleanup at active and former facilities. TSD facilities, mostly located near Puget Sound, are often contaminated and require some form of cleanup. Corrective actions are currently going on at 41 sites. These properties are cleaned up under the requirements of [RCW 70.105D](#) Hazardous Waste Cleanup Act—Model Toxics Control Act. There is good progress on [cleaning up contamination at TSDs](#).

### **Small Volume Hazardous Materials and Wastes**

The Hazardous Waste Management Act ([RCW 70.105](#)) and the Solid Waste Management Reduction and Recycling Act ([RCW 70.95](#)) authorize the regulation of MRW. Two types of waste fall under MRW: household hazardous waste (HHW) and small quantity generator (SQG) waste. Household residents generate HHW. Businesses that produce less than 220 pounds of dangerous waste per month generate SQG wastes. [RCW 70.105](#) also requires local governments to write hazardous waste management plans to address these wastes. These are often included with the local solid waste plans.

There are more SQGs than LQGs and MQGs. Although SQGs collectively generate a significant amount of dangerous waste, Ecology employees are not required to and typically do not inspect SQGs, due to staffing constraints. However, local governments have the authority to oversee and assist these SQGs. That is why Ecology asked for and

received authorization from the 2008 Legislature to establish the [Local Source Control Partnership \(LSC\)](#). Through LSC, local inspectors are hired to visit SQGs and provide technical assistance. LSC inspectors have completed more than 17,000 technical assistance visits, helping SQGs properly manage and reduce wastes. Currently, the LSC program is limited to some Puget Sound counties and Spokane, but some counties or cities run their own technical assistance programs for SQGs. Ecology is interested in expanding the LSC Partnership, especially for the counties bordering the Columbia River.

LSC assists with the management of SQG wastes, but not HHW. For HHWs, local governments operate fixed collection facilities, collection events, or both. They rely heavily on state grant funds to operate these sites. Some of these facilities also take SQG wastes, or the business may contract with a private company to collect their waste. Other options to get rid of some types of MRW include the large network of businesses that collect used oil, antifreeze, and batteries; and the state’s [LightRecycle](#) (mercury-containing bulbs) and [E-Cycle](#) (some electronic waste) programs.

The term “moderate risk waste” can be misleading. These wastes are not necessarily moderate in risks to human health and environment or moderate in quantity, when the number of households and small business sources are considered. Therefore, it is important to have programs in place to manage these wastes.

While firm data is not available, it is believed that current MRW collection programs only manage a small portion of HHW and SQG wastes. Estimates from 2002 found 16 percent of household hazardous wastes were taken to MRW facilities, and as little as one percent of SQG waste was managed in the MRW system. While these are old estimates, there is no reason to suspect they have changed substantially. Unless managed through a program described above, most MRW is commingled with other solid wastes and then landfilled or incinerated. While there is no federal or state law banning the landfill disposal of most MRW, some local governments discourage this activity through ordinance. Collecting more MRW is desirable, but local governments are having increased difficulty paying for MRW facilities and programs.



## Future Direction: What's Next?

In the past, Ecology's efforts with pollution prevention planning focused on assisting businesses and government facilities to reduce waste. In the future, more focus will be on getting facilities to include safer substitutes for toxics in their processes.

Ecology has used lean techniques to streamline its hazardous waste compliance efforts. These efforts have been very successful in achieving more frequent and effective inspections and have subsequently led to higher compliance rates. Hopefully, with increased technical assistance and educational efforts, compliance rates will continue to increase in the future.

Ecology may receive directives to keep certain toxics out of products and industrial processes, changing the focus of inspectors' jobs over time. There may also be efforts where specific highly toxic chemicals are the focus for reduction or substitution. With such focus, inspectors, including LSC staff, might visit a larger number of facilities or provide other outreach to encourage them to use specific safer substitutes for toxic chemicals.

In the future, TSDs may assist more with reuse or recycling of certain chemicals. Due to increased public awareness of TSD facilities, Ecology and private businesses will be more involved with community outreach efforts on the operation and closure of TSDs.

In addition to active TSDs, there are 41 corrective action sites. Ecology expects to have these 41 sites either completely cleaned up or in maintenance mode by 2020. Cleaned up properties can provide opportunities for habitat restoration, economic development, and public recreation.

While demand for hazardous waste and MRW services has grown, so has pressure on some funding sources, leading to a reduction in services in some areas. For example, many MRW programs no longer accept latex paint; others have reduced hours. It is unclear who or what programs will fill the gap between funding and demand for services. Product stewardship programs, where the products' producers pay for collection, recycling, or safe disposal of their toxic products, will continue to be promoted as one possible solution. Work to get more toxics out of products and reducing consumption of toxic products also needs to be addressed.

Reducing and managing hazardous waste and materials safely is important. It saves money, protects people and the environment, helps prevent expensive cleanups, and is good for the economy. It will take unique partnerships between Ecology, local government, and private businesses to be successful in toxics reduction and hazardous waste management efforts.

## Managing Hazardous Waste and Materials (HWM) Goals and Actions

### Pollution Prevention



**GOAL HWM 1: Hazardous waste generators will significantly reduce chemical use, waste, emissions, and costs by successfully implementing effective pollution prevention plans and other actions.**

- **Action HWM 1A:** Survey the pollution prevention planning facilities (or hold a series of interviews or focus groups) to assess what factors would encourage plan implementation. Use this survey to help determine which actions will lead to environmentally significant and effective pollution prevention plan implementation.
- **Action HWM 1B:** Increase Ecology staff focus on implementing pollution prevention opportunities that reduce the toxicity of industrial processes and products.
- **Action HWM 1C:** Develop an indicator that measures progress toward statewide pollution prevention goals on a biannual or quarterly basis.
- **Action HWM 1D:** Provide training, chemical profile assistance, and recognition to businesses and public agencies to encourage reduction of toxics in industrial processes and products. Expand the use of successful assistance programs such as [Safer Chemistry Challenge](#), [Lean and Green](#) and [Technical Resources for Engineering Efficiency \(TREE\)](#) assistance to help businesses reduce toxics.
- **Action HWM 1E:** Update the Pollution Prevention Planning rule ([WAC 173-307](#)) to:
  - Increase the list of hazardous substances that facilities will need to include in their plans.
  - Add other substances determined by Ecology's Director to present a threat to humans or the environment.
  - Make other appropriate changes, such as

eliminating obsolete language.



**GOAL HWM 2: Pollution prevention planning facilities and other industries will use cleaner, more sustainable manufacturing processes and produce**

**less toxic and more sustainable products.**

- **Action HWM 2A:** Train Ecology staff to understand business needs, improve services, and better market the benefits of pollution prevention opportunities and sustainability.
- **Action HWM 2B:** Develop and implement state or regional efforts to encourage use of safer chemical alternatives and processes, in partnership with various business associations, and interested local jurisdictions.
- **Action HWM 2C:** Encourage use of the [Global Reporting Initiative \(GRI\)](#) as a framework for advancing sustainable practices.

## Compliance and Compliance Assistance



**GOAL HWM 3: LQGs and MQGs will comply with the dangerous waste rules and remain in compliance.**

- **Action HWM 3A:** Continue to inspect every MQG and LQG at least once every three years, and make these inspections as effective as possible for both the business community and Ecology inspectors.
- **Action HWM 3B:** Research how other states publicize the compliance status of facilities and identify what actions Ecology may want to pursue on this issue.
- **Action HWM 3C:** Research how to increase compliance inspector efficiency, including examining the costs and benefits of possible tools and additional training for inspectors. Continue to gather existing data to evaluate effectiveness of inspections. As part of this research, consider how to increase Ecology's effectiveness when communicating with business owners and employees who have limited English proficiency.



**GOAL HWM 4: Communication about compliance issues will improve, so it will be easier for facilities to make corrections.**

- **Action HWM 4A:** When appropriate, conduct sector campaigns to inform select businesses

about compliance issues, pollution prevention, and safer chemical alternatives. When applicable, partner with other regulatory agencies, air authorities, local governments, small business assistance programs and the [LSC Partnership](#) on these campaigns.

- **Action HWM 4B:** Provide cost-effective training to generators of dangerous waste.
- **Action HWM 4C:** Using handouts, checklists, and other tools, encourage applicants for new business licenses to consider their material inputs and outputs and when possible, use less toxic and other environmentally preferable materials.



**GOAL HWM 5: The LSC Partnership, and other small business dangerous waste and stormwater pollution technical assistance programs, will be expanded. Fewer environmental issues will be found at facilities visited by staff.**

- **Action HWM 5A:** Align LSC and other small business technical assistance efforts with Ecology's toxics reduction strategy and chemical priorities.
- **Action HWM 5B:** Expand coordination and collaboration between state and local entities providing assistance and services to small businesses to ensure effective and efficient use of resources.
- **Action HWM 5C:** Request additional legislative funding for LSC to expand the program to other areas of the state, and to allow participating jurisdictions to sustain or increase small business technical assistance visits.

## Permitting and Corrective Action



**GOAL HWM 6: All treatment, storage, and disposal facilities (TSDs) will comply with regulations and operate safely.**

- **Action HWM 6A:** Check in with TSDs more frequently than current practices. Engage the TSDs in information sharing on compliance with regulations and how to operate in a safe manner.
- **Action HWM 6B:** Improve coordination with local fire departments and other agencies that inspect TSDs to ensure clear, consistent communication. Provide training to TSDs and other partners so they understand the various regulatory roles and how to comply with the regulations.

- **Action HWM 6C:** Ensure permits are understandable to all parties so it is clear what needs to be accomplished by the facility to achieve compliance.



**GOAL HWM 7: By 2020, 95 percent of corrective action sites permitted by Ecology will safely manage environmental contamination.**

- **Action HWM 7A:** Develop an implementation plan to reach [EPA](#) mandated goal of controlling environmental contamination at 95 percent of corrective action sites by 2020.
- **Action HWM 7B:** Develop a Memorandum of Understanding (MOU) to share information with other state agencies that jointly work with Ecology on corrective action, such as the [Washington Department of Health](#).



**GOAL HWM 8: In the next five years, Ecology will issue permits for all sites and facilities that reflect current operations and ensure facilities comply with permit conditions.**

- **Action HWM 8A:** Ensure adequate funding for permitting activities using cost recovery and other mechanisms, including funding for engineering review and records management.
- **Action HWM 8B:** Finish permit application guidance and make it available electronically. Provide permit writing training on this guidance for Ecology staff.
- **Action HWM 8C:** Prioritize followup actions for all permits.



**GOAL HWM 9: Parties interested in permitted facilities and corrective action sites will know where to find current information.**

- **Action HWM 9A:** Maintain and promote every site's corrective action information on [Ecology's website](#).
- **Action HWM 9B:** Develop an effective communication and public participation plan for every corrective action site. When appropriate, plans should include site-specific messaging.
- **Action HWM 9C:** Train Ecology corrective action site managers on communication skills and suitable ways to share information with interested parties and the public. Ensure the public has

access to appropriate staff.

- **Action HWM 9D:** Ensure meaningful access, including increased attention to limited English proficiency audiences, in the development and delivery of corrective action communications. Review available demographic and environmental data to identify and prioritize work in areas with cumulative impact concerns. Encourage local jurisdictions to look at cumulative effects of multiple permits when siting new facilities.
- **Action HWM 9E:** Develop an electronic system for submitting, storing, and providing public access to corrective action forms.



**GOAL HWM 10: Dangerous waste facilities and used oil processors will offer safe recycling.**

- **Action HWM 10A:** Ensure each facility has an adequate closure plan and financial assurance. When appropriate, encourage additional recycling instead of waste disposal. Encourage the development of material management plans for discards, residuals, and byproducts.

## **Small Volume Hazardous Materials and Wastes (MRW)**



**GOAL HWM 11: Until toxic substances are phased out of products, and use of hazardous materials declines, [MRW](#) collection will be maximized.**

- **Action HWM 11A:** Encourage reuse and recycling of as much MRW as appropriate. Look for opportunities to increase reuse and recycling as new technologies and markets develop for MRW materials. Reduce contamination of MRW to increase recycling options.
- **Action HWM 11B:** Working with local government health departments, waste collection companies, and state waste and recycling associations, research models for curbside collection of some common MRW items and see if they are protective of human health and the environment, efficient, financially sustainable, and easily replicable.
- **Action HWM 11C:** In cooperation with stakeholders, evaluate the existing collection system's ability to capture certain MRW materials and explore options to increase collection and recycling, including curbside collection and retail



take-back.

- **Action HWM 11D:** In coordination with local governments and collection companies, increase education and outreach efforts to residents and small businesses about MRW services, safe handling, and disposal options, as well as less toxic alternatives.
- **Action HWM 11E:** As part of the [WAC 173-350](#) update, identify regulatory barriers and recommend changes that could maximize collection opportunities for MRW materials.



**GOAL HWM 12: MRW locations and programs will provide increased services for residents, businesses, and underserved communities.**

- **Action HWM 12A:** Increase collection efficiencies by encouraging MRW facilities and events to be “one-stop shops” for disposal, reuse, recycling, product stewardship, and other take-back programs as appropriate.
- **Action HWM 12B:** Actively support both existing and new product stewardship programs for toxic or hard-to-handle materials as a way to increase collection and recycling opportunities across the state.
- **Action HWM 12C:** Study and promote options to increase MRW services in areas that are underserved, and for multi-family residents, minority populations, and small businesses.



**GOAL HWM 13: Facilities that collect MRW will be properly permitted (if required) and in compliance with applicable laws and rules.**

- **Action HWM 13A:** Ecology staff provide ongoing technical assistance to health departments and facilities that collect MRW, including local government facilities, and retail locations and collection centers under product stewardship programs. Encourage local health departments to conduct routine inspections of all MRW facilities. Conduct inspections of other locations as required.
- **Action HWM 13B:** Ecology staff review facility permits and related documents, and facilitate communication about regulatory issues through listservs and meetings.
- **Action HWM 13C:** Clarify current MRW facility design and operational requirements through the [WAC 173-350](#) rule update process.

# Managing Solid Wastes and Materials

## Introduction

Solid waste has undergone a shift in past decades. In the past, the main focus was on safely managing landfills. Today, people are more aware that products they use and solid waste management affect human and environmental health. Areas of concern range from recycling and waste management to the need to manage materials before they become waste.

Materials management, which includes reduction, recycling, and safe disposal of waste, provides significant benefits. These include reducing greenhouse gas emissions, protecting water resources, and conserving natural resources. Additionally, there are benefits to the economy as reducing waste and recycling saves money and creates jobs.

Solid waste is a broad term that includes waste types from a variety of activities. These waste types include municipal solid waste (from households and businesses), organic materials (yard debris and food waste), and construction and demolition debris (C&D).

Washington's current solid waste system consists of programs and services provided to residents and organizations by the solid waste industry, manufacturers, government, and non-governmental organizations. These programs and services aim at managing wastes from residents and businesses, and are quite successful at protecting the environment and transforming waste into resources.

Primary responsibility for regulating and overseeing management of solid waste in Washington resides with local governments ([RCW 35.21](#), Cities and Towns, Miscellaneous Provisions; and [RCW 36.58](#), Counties, Solid Waste Disposal). Counties, jurisdictional health departments and cities share that responsibility. Laws, regulations, and local codes provide direction. Ecology's [Waste 2 Resources \(W2R\)](#). Program provides assistance to and oversight of recycling, composting, waste reduction, and disposal programs. Activities include advising on solid waste handling facility performance, landfill monitoring, providing guidance on local waste plans, and funding cleanup, waste reduction, and recycling projects with grants.

Key partners in managing solid waste in Washington are the solid waste collection companies regulated by the [Washington Utilities and Transportation Commission \(WUTC\)](#), as per [RCW 81.77](#), Solid Waste Collection companies. These companies play a major role in collecting and hauling waste, recyclables and organics, and in operating transfer stations, landfills, waste-to-energy, composting, and recycling facilities.

## State Regulatory Structure: Laws and Their Implementation

### Solid Waste System Issues

The main statute governing solid waste is [RCW 70.95](#) - Solid Waste Management - Reduction and Recycling Act. In 1984, an amendment added the waste management hierarchy, which placed waste reduction as the highest priority for managing waste, followed by recycling, and then responsible disposal. In 1989, Washington passed the "[Waste Not Washington Act](#)," which established a 50 percent recycling goal. In 2011, the state met this 50 percent recycling goal. See the [Progress Report](#) and the [Solid Waste Annual Report](#) for the most recent data. Now that the goal is achieved, there are questions as to what the new goals should be.

Historically, financing the solid waste system has relied primarily on solid waste disposal fees or tipping fees. Financial needs include the cost of meeting existing regulatory requirements, long-term care of landfills, and recycling and waste reduction programs. Local governments in particular are concerned about how to sustain funding for programs when the goal is to reduce waste disposal, the source of most funding.

[RCW 70.95](#) requires counties to prepare local solid waste plans. These plans are a linchpin of Washington's solid waste system. Cities can choose to sign onto the county plans or they can create their own. Local plan requirements include information about disposal, financing systems, and recycling, as well as composting and waste reduction programs, as applicable. A 2010 update of RCW 70.95 increased planning requirements for recyclable materials, construction and demolition debris, organic materials, reuse, and waste reduction strategies.

Local plans must be complete and in good standing to receive grant money from Ecology's [Coordinated](#)

[Prevention Grant \(CPG\) program](#). These grants are an important part of local funding for planning and implementation of recycling, reduction, toxics prevention, and solid waste enforcement programs. Use of grants is authorized in [RCW 70.95](#) and [RCW 70.105](#) – Hazardous Waste Management. The source of the grant funds is the Model Toxics Control Account (MTCA), established through [RCW 70.105D](#), which specifies the use of MTCA funds for local waste plans and programs.

### **Solid Waste Materials and Infrastructure**

Washington's present solid waste system is very successful in many ways, with modern solid waste facilities, advanced recycling, and some waste reduction programs. Private and public infrastructure has shown flexibility to expand and diversify in response to changing demands of the marketplace, changing technologies, and evolving policies. The waste and recycling streams constantly evolve, so flexibility is vital.

Washington is a national leader in curbside recycling programs. Approximately 85 percent of people in single-family homes have access to curbside recycling collection and the rest have access to drop-box recycling. Providing access is required through the local planning requirements in [RCW 70.95](#). While most residents of single-family homes have access to curbside recycling programs, there are still many opportunities to increase recycling collection service to multi-family housing, public spaces and businesses.

Many curbside programs now collect commingled materials, where one container holds all recyclable materials. Modern material recovery facilities, or MRFs, sort these materials. Commingling materials can lead to higher collection rates since the convenience leads to more participation. It can also result in more contamination (non-recyclable items in bins) and more residual waste, when recyclable materials end up in the wrong bale and are sent to the wrong end-user.

Sham recycling, where businesses that claim to collect materials for recycling and instead dispose of them, is a serious concern. Construction and demolition waste, which makes up roughly one-third of the solid waste generated in Washington, is a common target for sham recycling. In 2005, the Washington Legislature added requirements for transporters of

recyclable materials to [RCW 70.95](#). Registration and recordkeeping are required for all transporters of recyclables, and delivering recyclables for disposal is prohibited ([WAC 173-345](#)).

The Waste Reduction, Recycling and Litter Control Act (WRRLCA) - [RCW 70.93](#) provides funding for litter pickup by Ecology Youth Corps, local governments, and some state agencies. It also provides funding for waste reduction and recycling programs at Ecology. Since the recession of 2008, a sizable portion of the WRRLCA account has been diverted to other state agencies, leaving no funding for litter prevention and reducing Ecology's efforts at litter pickup, waste reduction, and recycling work.

Most solid waste handling facilities are regulated under [WAC 173-350](#) – Solid Waste Handling Standards, which is currently being updated to improve definitions, and clarify design and operational standards for a number of facility types.

Municipal solid waste landfills are regulated under [WAC 173-351](#), which was also updated recently. Over the past 40 years, solid waste disposal has become much safer and far more protective of health, habitat, and natural resources. There are 15 operating municipal solid waste landfills in the state. For disposal amounts and information, see the [Progress Report](#) and the [Solid Waste Annual Report](#).

### **Organic Materials and Infrastructure**

Organic materials include yard debris, discarded food, and other “wastes” that come from plant and animal sources. These materials make up an estimated 30 percent of Washington's municipal waste stream. There are many benefits from keeping organic materials out of landfills and turning them into useful products, such as compost, bioenergy, or biofuel. The laws and rules governing organics management are found primarily in [RCW 70.95](#) and [WAC 173-350](#).

As early as 1989, [RCW 70.95](#) encouraged grants and studies to launch composting operations. In 2002, a new goal was added to [RCW 70.95](#) to eliminate yard debris in landfills by 2012, in areas where alternatives are available and effective.

While an increasing number of alternatives exist, this material has not yet been eliminated from landfills.



Many local governments established a variety of programs to divert organic materials from disposal, from backyard composting to curbside collection, with delivery to commercial composting facilities. Including food waste and compostable packaging in organics collection programs is increasing. Food waste can create issues with odors at composting facilities and compostable packaging can lead to contamination. In 2013, the organics section of the Solid Waste Handling Rule ([WAC 173-350](#)) was updated to address some of these concerns.

The need for an expanded and diversified organics processing infrastructure is recognized. In 2009, a new section was added to [RCW 70.95](#) to encourage anaerobic digestion of manure and pre-consumer food waste by allowing for permit exemptions. There are now eight of these digesters operating in the state.

We now divert more organic materials than we dispose; however, while 59 percent is diverted, 41 percent of these potential resources are still landfilled or incinerated. See the [Progress Report](#) for more information.

### **Future Direction: What's Next?**

Waste composition is always changing. This change is referred to in the industry as the “evolving ton.” How we manage these materials to maximize their value from a life cycle or materials management cycle standpoint must evolve as well.

There is growing recognition that a recycling rate may not be the best or only goal. New goals and measures will likely focus on all phases of recycling, as well as waste reduction.

As we make progress toward increased recycling and reduced waste, a stable and long-term financing system must be in place to ensure successful continued delivery of solid waste programs. More research is needed to find alternative funding mechanisms that can meet the needs of both urban and rural areas of the state.

Waste reduction and reuse efforts are small but growing, as the many reuse websites illustrate. We must plan for programs and infrastructure to support and encourage even greater waste reduction and reuse in Washington.

While recycling is highly successful in Washington, there is much more to do. Reducing contamination in recycling and organics must be addressed. Ecology has convened workgroups around the state to explore these issues and propose solutions, and these efforts will likely grow. Another emerging concern is that packaging materials, which make up much of our residential recycling programs, are changing at a faster rate than recycling programs or facilities can adapt. Discussion among all the players in the system, including packaging designers and manufacturers, is needed.

Problems with sham recycling are leading to more united efforts by state and local government to stop this illegal practice. Concerns about flow control and the hunt for cheap disposal are closely connected to this issue.

Demand for converting excess organic materials into resources such as compost, bioenergy, and biofuels will likely increase, given the many benefits of the end-products. The need to address barriers and issues will also increase.

In a world of diminishing resources, the push to turn waste into resources will continue to grow. But while we strive for less waste overall, disposal facilities will be a critical element of Washington's system of managing solid waste for the foreseeable future. Therefore, efforts to ensure safe and legal disposal remain a priority.

Washington has long been a leader in innovative waste management and will continue to lead. The state will need to expand programs and infrastructure to fill in gaps and support appropriate new technologies.

## **Solid Waste and Materials Goals and Actions (SWM)**

### **Solid Waste System Issues**



**GOAL SWM 1: Ecology and its partners will identify additional mechanisms for financing recycling, diversion, and waste reduction programs. People will better understand the costs and benefits of recycling. Tip**

fees will better reflect full costs of managing the waste system, including long-term care and closure of waste facilities.

- **Action SWM 1A:** Research solid waste system finance options via universities, other states, and utility experts in the face of reduced waste and associated tip fees. With stakeholder input, explore current options as well as search for new ideas. Prepare financing recommendations from current knowledge while working toward finding long-term funding solutions.



**GOAL SWM 2: The state will adopt new statewide quantitative goals that encourage waste reduction, quality recycling (including for organic materials) and highest and best use of materials, based on environmental and health criteria.**

- **Action SWM 2A:** Working with stakeholders, establish continuous improvement goals for waste reduction, reuse, and recycling (including for organic materials) that promote highest and best use of materials, based on economic, environmental and human health criteria, and account for regional differences across the state.
- **Action SWM 2B:** Encourage local governments to add goals in local plans appropriate to their jurisdiction.



**GOAL SWM 3: Local governments will have current solid and hazardous waste plans and grants that support their waste management needs and work toward reducing waste and toxics, in accordance with local resources.**

- **Action SWM 3A:** Update the planning guidelines to clarify less burdensome and more flexible planning options to maintain useful, comprehensive plans, and help keep plans current.
- **Action SWM 3B:** Provide planning and grant assistance to help local governments implement programs that are effective at managing their waste streams, meet the needs of local residents, and support the waste management hierarchy including reducing the volume and toxicity of waste, while recognizing geographical differences, challenges and opportunities.

## Solid Waste, Materials and Infrastructure



**GOAL SWM 4: Waste generation will be reduced throughout the system by both businesses and residents.**

- **Action SWM 4A:** Provide more technical assistance to businesses for reducing solid waste generation through [Lean and Green](#), [Technical Resources for Engineering Efficiency \(TREE\)](#) assistance, [Pollution Prevention Planning](#), [Environmentally Preferable Purchasing](#), and other efforts.
- **Action SWM 4B:** Increase cooperative planning with EPA's [West Coast Climate and Materials Management Forum](#), local governments and others, to address waste, materials, and climate. Promote reduced consumption, reuse, creation of more durable products, and use of less wasteful alternatives.
- **Action SWM 4C:** Research and support growing reuse, repair and sharing networks and opportunities.
- **Action SWM 4D:** Advance building salvage and building material reuse to reduce construction and demolition waste by promoting design for deconstruction principles, sharing model contract language that requires salvage, and other related efforts.
- **Action SWM 4E:** Encourage effective and accountable grant-funded projects that help reduce or prevent waste and toxics.



**GOAL SWM 5: End-use of curbside and other recyclables collected will measurably increase; recycling system loss will measurably reduce.**

- **Action SWM 5A:** Lead efforts to develop, maintain, and update best management practices designed to yield the highest value within the recycling stream. Focus on minimizing contamination, cross-contamination, and other system loss issues. This will help improve the quality of materials going to end markets from materials recovery and other recycling facilities. Gather and analyze information on collection, recovery, use, residuals, and end-use manufacturing. Incorporate findings into [WAC 173-350](#) rule update as appropriate.
- **Action SWM 5B:** Work with trade organizations,

solid waste collection companies, local governments, and other stakeholders, to create and disseminate guidelines to local governments and service providers for what and how materials should be collected in recycling programs. Strive for a consistent base of recyclable materials for curbside with a tiered list to accommodate community differences. Address challenging items like plastics and glass.

- **Action SWM 5C:** As part of the [WAC 173-350](#) rule update, work on regulatory definitions related to solid waste, recycling, and recyclables.



**GOAL SWM 6: The Northwest will have a stronger, more robust recycling infrastructure, with stable and varied end-markets.**

- **Action SWM 6A:** Using the facilities database inventory, map recycling (including construction and demolition [C&D]) infrastructure, assess market options, and share information on recycling opportunities.
- **Action SWM 6B:** Study recycling development councils in the northeastern or southeastern United States to explore the benefits of establishing a similar model in the Northwest.
- **Action SWM 6C:** Work with state and national trade groups ([Washington Refuse and Recycling Association](#), [Recycling Partnership](#), [Carton Council](#)) to gain resources and knowledge on improving MRF capacity and capability for MSW and construction materials throughout the state.
- **Action SWM 6D:** Expand and create new markets for C&D materials to increase recovery of materials for reuse and legitimate recycling. Build partnerships within the C&D recycling and salvage industries, and host market development summits to explore opportunities throughout the state.
- **Action SWM 6E:** Use state and local government purchasing power to increase use of products with recycled content and other environmentally responsible attributes.



**GOAL SWM 7: Waste and recycling collection systems will be better used and more efficient. More collection and recycling locations and options will exist statewide for currently recycled materials and products as well as those not yet being recycled.**

- **Action SWM 7A:** Evaluate the “hub and spoke”

recycling model for rural areas, starting with traditional curbside materials.

- **Action SWM 7B:** Examine models and opportunities to increase efficiencies of collection services, which will encourage more recycling and safe disposal.
- **Action SWM 7C:** Increase collection efficiencies by encouraging transfer stations to be “one-stop shops” for disposal, reuse, recycling, product stewardship and other take-back programs, as appropriate.



**GOAL SWM 8: Underserved communities and areas with environmental justice concerns will have increased recycling collection services. This includes multifamily, limited English proficiency, minority populations, rural areas, public spaces, and commercial entities.**

- **Action SWM 8A:** Support efforts to provide recycling and waste reduction materials in Spanish and other languages via sharing resources, grants, and other avenues.
- **Action SWM 8B:** Study and promote options to increase recycling services in areas that are underserved, and for multi-family and commercial entities. Support local efforts and share resources.



**GOAL SWM 9: Ecology will undertake an effective, comprehensive, litter prevention campaign and another litter survey.**

- **Action SWM 9A:** Work with stakeholders to revive a litter prevention campaign and complete a litter survey when adequate funding is restored through the WRRLCA account. Target the most heavily littered materials for prevention efforts.
- **Action SWM 9B:** Analyze effectiveness of our litter programs. Research litter programs run by other states and other organizations to look for ways to optimize cleanup and prevention efforts.
- **Action SWM 9C:** Using litter survey data, evaluate the litter tax based on who pays, what items are most littered, and recommend changes to the tax structure or its administration.



**GOAL SWM 10: Focus on marine debris will increase.**

- **Action SWM 10A:** Study and promote policies to address marine debris, especially



land-based sources of marine debris; partner with the Marine Debris Task Force and [Puget Sound Partnership](#).



**GOAL SWM 11: Sham recycling and improper disposal will decrease.**

- **Action SWM 11A:** Work with local governments, solid waste collection companies, other transporters, and the [Washington Utilities and Transportation Commission \(WUTC\)](#) to address sham recycling. Communicate more with local governments and recycling businesses about recycling laws, requirements, and options for enforcement. Clarify definitions and terms, and track data from transporter recordkeeping.
- **Action SWM 11B:** Work with WUTC to ensure implementation of the Transporter Law provisions, with more enforcement by Ecology and others.
- **Action SWM 11C:** Discourage private property disposal on single family farms and residences by encouraging jurisdictional health departments to use local ordinances to restrict this practice. Explore changing statute and rules. [[RCW 70.95.240\(2\)\(a\)](#); [WAC 173-350-020\(8\)](#); and [WAC 173-351.770 \(4\)\(b\)](#)]



**GOAL SWM 12: Solid waste handling facilities (permitted and permit-exempt facilities) will operate in compliance with all regulatory criteria.**

- **Action SWM 12A:** Provide ongoing technical assistance to facilities and health departments to help facilities comply with regulations and minimize adverse environmental impacts.
- **Action SWM 12B:** Update the rule ([WAC 173-350](#)) for solid waste handling facilities to clarify classification of inert landfills, limited purpose landfills, and other facilities so that disposed materials reach the appropriate type of facility.
- **Action SWM 12C:** Inspect select exempt recycling facilities to verify conditionally exempt status. Find ways to increase oversight of exempt facilities including requesting additional resources.
- **Action SWM 12D:** As part of the [WAC 173-350](#) solid waste handling standards rule update, work with jurisdictional health departments and other stakeholders to determine how to best address criteria and oversight for exempt facilities.



**GOAL SWM 13: Landfills will comply with applicable solid waste rules, including:**

- **Landfills with contamination will be acceptably cleaned up or in the process of cleanup.**
- **Landfills in post-closure care will be maintained according to a post-closure plan, which includes defined actions for reaching the end of post-closure care.**
- **Landfills will have adequate financial assurance for closure and the predicted post-closure care period.**
- **Action SWM 13A:** Develop a practical training module (beyond existing industry training options) for jurisdictional health departments to increase their expertise at regulating, permitting, and closing landfills, as well as monitoring financial assurance accounts.
- **Action SWM 13B:** Evaluate landfill monitoring data and determine whether increased technical or regulatory assistance is needed to bring non-compliant facilities into compliance.
- **Action SWM 13C:** Work with the [Toxics Cleanup Program \(TCP\)](#) to provide local governments more funding and other assistance for cleaning up contaminated landfills.
- **Action SWM 13D:** Assist landfill operators to help landfills reach the end of the post-closure care period successfully.



**GOAL SWM 14: Staff (both local and state) will be able to assess if closed and abandoned landfills (CALFs) and illegal dumpsites pose a serious health threat and will have tools to address those threats as they arise.**

- **Action SWM 14A:** Continue to encourage and support local work on identifying, evaluating, and prioritizing CALFs and illegal dumpsites. Track CALFs in the solid waste facilities database.
- **Action SWM 14B:** Increase coordination with TCP to provide local governments more funding and other assistance for cleaning up contaminated CALFs and illegal dumpsites. Help local governments identify other funding sources for addressing CALFs and illegal dumpsites.



**GOAL SWM 15: State and local governments will have a better understanding of solid waste energy and material recovery technologies.**

- **Action SWM 15A:** Increase staff expertise in solid waste energy and material recovery technologies, such as pyrolysis, gasification, and others, to provide technical assistance on managing solid wastes in line with the state's waste management hierarchy.

## Organic Materials Infrastructure



### **GOAL SWM 16: Ecology and stakeholders will create a beneficial use hierarchy for residual organic material processing and uses.**

- **Action SWM 16A:** Work with stakeholders to craft a recommended hierarchy for recycled organic materials that promotes organics diversion, greenhouse gas reduction, soil carbon sequestration, water conservation, and a full range of beneficial end uses, from compost to biofuels. Address the different needs, challenges, and opportunities across the state.
- **Action SWM 16B:** Working with stakeholders, continue to measure and share the impacts of organics management and how the impacts are connected to climate change.



### **GOAL SWM 17: Less food will enter the disposal system; more discarded food will be managed according to EPA's [Foodwaste Hierarchy](#).**

- **Action SWM 17A:** As a member of EPA's [Food Recovery Challenge \(FRC\)](#), promote the programs and tools available in both FRC and [Food Too Good To Waste \(FTGTW\)](#) to agencies, businesses, and local governments as applicable. Share success of local governments that offer FTGTW to their residents.
- **Action SWM 17B:** Encourage the use of grants to fund food waste prevention programs. Promote EPA's programs when updating local solid waste plans or writing grants as applicable.
- **Action SWM 17C:** Work with hunger prevention organizations and others to increase the amount of edible, non-standard, discarded food sent to distribution programs and other beneficial uses.
- **Action SWM 17D:** Develop metrics for reporting how much edible food moves from "wasted" to "consumed" or other beneficial end uses (food waste prevented and reduced).



### **GOAL SWM 18: The use of soil amendments derived from recycled organics will increase, reducing the need for synthetic fertilizers, pesticides and herbicides.**

- **Action SWM 18A:** In conjunction with integrated pest management and other sustainable landscaping programs, promote the use of soil amendments derived from recycled organic materials as a means to improve plant and soil vitality and reduce the need for synthetic fertilizers, pesticides, and herbicides.
- **Action SWM 18B:** Increase the use of soil amendments derived from recycled organics in agricultural and other applications by researching and overcoming financial and other barriers.



### **GOAL SWM 19: Agriculture, landscapes, and home gardens will need less water due to increased use of compost and other soil amendments derived from**

#### **recycled organics.**

- **Action SWM 19A:** Work with stakeholders to support the use of quality, recycled organic soil amendments (such as compost and biochar) to increase soil organic matter and moisture-holding capacity, protect soil and plants against drought conditions, and reduce water use and runoff.



### **GOAL SWM 20: The value of recycled organics as storm and surface water filtration media will be better understood, resulting in increased use.**

- **Action SWM 20A:** Work with institutions of higher learning, storm and surface water professionals, and others to determine the ability of compost, biochar, and other recycled organics to reduce toxics and suspended solids in various applications.
- **Action SWM 20B:** Promote the use of processed organics, such as compost and biochar, in stormwater filtration applications where appropriate.



### **GOAL SWM 21: Soil organic carbon sequestration using recycled organics will increase based on research recommendations.**

- **Action SWM 21A:** Document soil organic carbon sequestration potential in agricultural soils through use of recycled organics.



**GOAL SWM 22: More diversified organics processing infrastructure will exist in the state.**

- **Action SWM 22A:** Support scalable, localized systems for managing food and yard residuals, including small-scale anaerobic digesters and other suitable organic processing technologies.
- **Action SWM 22B:** Support expansion of current organics processing technologies such as, anaerobic digestion at industrial sites and wastewater treatment plants; possibly include the addition of food residuals for energy recovery. Work with Public Works Assistance Account and Clean Water State Revolving Fund Loans to increase opportunities.
- **Action SWM 22C:** Support efforts to integrate multiple organic processing technologies such as anaerobic digesters, nutrient recovery systems, gasifiers, and other systems at composting facilities.
- **Action SWM 22D:** Evaluate barriers to broadening the use of anaerobic digesters for managing collected manure and food wastes. Support more diversion of pre- and post-consumer food wastes to anaerobic digesters.
- **Action SWM 22E:** Encourage the use of grant funds ([Coordinated Prevention](#) and [Public Participation](#) grants) for proven and viable diversified organics management technologies that generate beneficial end products.



**GOAL SWM 23: Composting facilities will produce clean end products.**

- **Action SWM 23A:** Work with collection service providers, composters, local governments, and other stakeholders to research and promote better selection of feedstocks, including compostable food service products, as well as better source separation at all points of collection.
- **Action SWM 23B:** Support and promote producer and consumer actions and activities to increase the successful composting of food scraps while minimizing contamination in feedstock and outgoing compost.
- **Action SWM 23C:** Identify ways the compost industry can significantly improve composting operations.
- **Action SWM 23D:** Support local government efforts to collect food and yard debris at the curb

that is free of physical contaminants.

- **Action SWM 23E:** Support ongoing efforts to better understand the processing systems, tools, methods, and mixtures that can help eliminate major odors at compost facilities.



**GOAL SWM 24: Diversified end-use markets will be in place for recycled organic products.**

- **Action SWM 24A:** Support higher education research and development projects that enhance diversification of end-use markets for discarded organics.
- **Action SWM 24B:** Support diversification of uses for woody debris generated by forest, agricultural, manufacturing, and construction and demolition activities, such as bioenergy, biochar, and soil amendments.
- **Action SWM 24C:** Promote the use of compost produced in Washington.



**GOAL SWM 25: The [Biosolids Regulatory Program](#) will have sufficient resources to ensure that biosolids are beneficially used.**

- **Action SWM 25A:** Promote and support efforts to increase the understanding of land application of biosolids. Educate the public about the use of biosolids as a soil amendment.
- **Action SWM 25B:** Facilitate the treatment, production, and beneficial use of biosolids for more land application and less incineration and landfilling.
- **Action SWM 25C:** Support peer-reviewed research on a broader array of chemicals and heavy metals in finished biosolids, as well as soil carbon sequestration potential.
- **Action SWM 25D:** Use electronic databases and geospatial systems to help manage biosolids data.
- **Action SWM 25E:** Support collection of nutrient data from soils after applications of biosolids.



# Reducing Impacts of Materials and Products

## Introduction

Toxic chemicals contained in products and used in industrial processes are getting into people and the environment. These chemicals are released during use or at end-of-life, impacting the environment and human health.

Reducing toxic chemicals used in products and industrial processes helps protect the health and safety of workers, households, and communities. Designing processes and products that use fewer toxics means less dangerous waste, less need for government regulation, improved worker and consumer safety, a cleaner environment, and therefore lower economic costs. For these reasons, at the direction of the [Washington State Legislature](#), Ecology is working with other state agencies such as the Departments of [Health](#) and [Enterprise Services](#) to develop a framework to reduce the most problematic chemicals and find safer alternatives. In addition, agencies are also working to purchase safer products whenever feasible.

Reducing the amount of waste produced conserves valuable resources and saves money. People are concerned about toxics in products and wasteful or non-recyclable packaging, and are calling for products that are less toxic, less wasteful, more durable, or more recyclable.

There are also significant climate impacts from materials use. According to [EPA](#), approximately 42 percent of U.S. greenhouse gas emissions are associated with the provision of goods and food. This includes the energy used to produce, process, transport, and dispose of the food we eat and the goods we use. Carefully considering the materials we use helps mitigate impacts to our climate.

## State's Regulatory Structure: Laws and Their Implementation

The Washington State Legislature passed several laws restricting or requiring reporting of the use of toxic chemicals in certain products, most of them in the last few years. Those laws focus on specific product types and chemicals known to be problematic for human health and the environment, such as:

- [The Children's Safe Product Act \(CSPA\)](#) ([RCW 70.240](#)) requires manufacturers of children's products sold in Washington to report if their product contains a chemical of high concern to children and why they use that chemical in the product.
- [The Toxics in Packaging law](#), ([RCW 70.95G](#)) limits levels of lead, mercury, cadmium, and hexavalent chromium used in product packaging.
- [The Better Brakes law](#) ([RCW 70.285](#)) restricts the use of several heavy metals and asbestos in automotive brake pads and shoes.

Other laws limit particular chemicals in certain products:

- Lead is banned from [wheel weights](#) ([RCW 70.270](#)).
- [Bisphenol A \(BPA\)](#) ([RCW 70.280](#)) is banned from bottles and cups for children, as well as sports bottles.
- [Polybrominated diphenyl ether \(PBDE\)](#) flame retardants ([RCW 70.76](#)) are banned from a wide array of uses.
- A ban of copper from anti-fouling paints for recreational boats ([RCW 70.300](#)) will take effect in 2018.

In addition, there are two extended producer responsibility (EPR) programs:

- [E-Cycle Washington](#), the state's electronics recycling program for computers and TVs, has been in operation since January 1, 2009 ([RCW 70.95N](#)).
- The mercury-containing lights EPR law was passed in 2010 and the program, [LightRecycle Washington](#), began on January 1, 2015 ([RCW 70.275](#)). This program will help keep mercury, a highly-toxic metal, out of the environment.

The solid waste statute ([RCW 70.95](#)) also mentions the importance of reducing and managing waste from products. The law references packaging and consumer products in the very first line of its intent. It also deals with particular products that were troublesome at the time it was written (tires, vehicle batteries) and references the need for study of others (packaging, polystyrene, diapers). Concern for many of these products, and others, continues today.

The waste reduction statute ([RCW 70.95C](#)) encourages "*voluntary efforts to redesign industrial, commercial, production, and other processes to result in the reduction or elimination of waste by-products...*" Waste reduction is defined here to include all in-

plant practices that reduce, avoid, or eliminate the generation of wastes or the toxicity of wastes, prior to generation.

[Environmentally preferable purchasing \(EPP\)](#) is the procurement of goods and services that cause less harm to humans and the environment than competing goods and services that serve the same purpose. Washington has a broad mandate for EPP activities that includes laws and executive orders that direct state agencies to purchase environmentally preferred products. [RCW 43.19A](#), Recycled Product Procurement has been in place since 1991.

The state law on procurement of goods and services ([RCW 39.26](#)) recently added that in determining the most responsive and responsible bidder, an agency may consider best value criteria, including whether the bid considers human health and environmental impacts. In 2014, a section was added to this law that prohibits polychlorinated biphenyls (PCBs) in goods the state purchases. Purchasing laws have also long referenced the consideration of life cycle costs. In addition to state directives, local governments and other political subdivisions frequently adopt EPP practices to help reduce their impact on Washington's environment and human health.

Ecology is responsible for ensuring compliance with many of the laws addressing products and toxic chemicals in products. Ecology routinely [tests products](#) to determine if manufacturers are complying with laws addressing chemicals of concern. Testing has focused on—and found—several classes of toxic chemicals:

- PCBs
- toxic metals, including lead, mercury, cadmium, antimony, and cobalt
- phthalates (used to make plastic softer)
- parabens (used as preservatives in personal care products and cosmetics)
- volatile organic chemicals, including formaldehyde
- flame retardants, including PBDEs and potential substitutes

The presence of a chemical in a product does not necessarily mean it's unsafe. However, some chemicals have been banned for specific uses because they are unsafe (BPA in baby bottles, and heavy metals, such as lead, in packaging). When Ecology finds a chemical in

a product that is restricted or that a manufacturer has failed to report, the manufacturer is notified.

For the two state EPR programs, Ecology works closely with the product stewardship organizations selected by manufacturers to implement the collection and recycling programs. Bills are regularly introduced to the Legislature to establish additional product stewardship programs, such as for paint and batteries.

There is increasing focus by consumer product companies on addressing sustainability or recyclability of packaging or other products. Ecology hopes to become more involved with these efforts. There is also increased focus on products deemed wasteful by some, such as plastic bags. Some local governments have taken action, such as instituting plastic bag bans. State legislators continue to introduce bills related to products seen as wasteful, though none have passed in recent years.

In some cases, Ecology works with other state, local, or federal agencies to implement laws and directives. Ecology will work with other state agency purchasing programs to evaluate products and identify those with the fewest toxic chemicals. For example, new purchasing policies favor products without PCBs that were inadvertently generated during production. Ecology also provides technical assistance to public and private entities to increase support for and availability of environmentally preferred products and services.

While product-related laws target just a few problems, implementation of these laws will make significant impacts in some areas. For example, when Washington's [Better Brake Law](#) is fully implemented, it will prevent the release of approximately a quarter million pounds of copper in Washington State. Copper often finds its way into waterbodies, harming fish and polluting water.

Better informed consumers make better choices, so Ecology is working to provide information about toxics in consumer products and environmentally preferable purchasing. This includes sharing results of product testing programs with policy makers, product manufacturers, and consumers.

## Future Direction: What's Next?

Knowing when and how chemicals are used in products helps Ecology better understand where safer alternatives are needed. By sharing data from testing and reporting, Ecology is encouraging manufacturers to find safer alternatives to toxic chemicals for their products and processes. Successful progress in this area will take a unique partnership between the state and private businesses. The growing demand for products that do not contain toxic chemicals drives innovation in business and industry. This creates opportunity for Washington businesses to lead the nation in reducing toxics in products and compete in tomorrow's marketplace.

The need to take action to address toxics in products will likely continue to receive state legislative attention, due to growing public concern about the topic and the lack of progress on federal reform of the [Toxic Substances Control Act \(TSCA\)](#). Some interest groups may propose legislation calling for specific restrictions on certain chemicals in products. There may also be more comprehensive legislation proposed to promote green chemistry and encourage safer alternatives. We will see continued focus on chemicals that impact vulnerable populations and sensitive environments.

Since other states and countries are continuing to expand extended producer responsibility programs, it is likely there will be more legislation introduced in Washington State. Potential products include paint, batteries, carpet, sharps, and pharmaceuticals.

Interest in EPP is expanding, especially as a way to address toxics in products. It is likely there will be more legislation or executive orders requiring EPP. There is great opportunity for market transformation from government and other procurement efforts. Public concern about packaging and non-recyclable or wasteful products will continue and solutions will be sought. One way to address this is ongoing dialogues with those making the products to encourage better design.

Reducing impacts of materials and toxics is receiving a lot of legislative attention and will most likely see many changes over the next five years.

## Reducing Impacts of Materials and Products (RIMP) Goals and Actions



**GOAL RIMP 1: Ecology and others will increase knowledge about chemicals of concern.**

- **Action RIMP 1A:** Assess chemical hazards of a variety of chemicals, prioritizing those that impact vulnerable populations or sensitive environments.
- **Action RIMP 1B:** Gather information about chemicals through environmental monitoring, and through biomonitoring in collaboration with the [Department of Health](#).
- **Action RIMP 1C:** Encourage the Legislature and the federal government to expand chemical disclosure requirements under the [Emergency Planning and Community Right to Know Act \(TIER II\)](#), [Toxics Release Inventory](#), [Toxic Substance Control Act](#), and other laws.
- **Action RIMP 1D:** Encourage government purchasing policies that require manufacturers bidding for state and local contracts to disclose toxic ingredients.



**GOAL RIMP 2: The acceptance and use of environmentally preferable products and services within residential, commercial, and institutional sectors will increase.**

- **Action RIMP 2A:** Increase governmental agencies' purchase of environmentally preferable products and services (least toxic products, recycled-content, durable, reused, and other environmentally responsible attributes, including low greenhouse gas emissions and product take-back), through cooperation with the [Department of Enterprise Services](#), executive order, or law.
- **Action RIMP 2B:** Promote the use and benefits of environmentally preferable products and services for public and private sectors, coordinating education and outreach activities with partners.
- **Action RIMP 2C:** Support efforts to develop measurement and tracking systems for green purchases.
- **Action RIMP 2D:** Promote awareness and increased purchases of products with independent third-party labels, certifications and disclosures,



such as [EPA's 'Safer Choices'](#). Ensure labels are effective, credible, and transparent.



**GOAL RIMP 3: Collection, reuse, and recycling of toxic or hard-to-handle products will increase through additional product stewardship programs.**

- **Action RIMP 3A:** Track and strategically support extended producer responsibility (EPR) programs and other producer-led initiatives for toxic or hard-to-handle wastes. This will help ensure sustainable financing for end-of-life management, increase convenience and collection rates, promote the highest and best use of materials, and create drivers for improved product design.
- **Action RIMP 3B:** Work with stakeholders to advance product stewardship programs that use and complement existing collection and waste management infrastructure, encourage living wages, and cover fair and reasonable costs.
- **Action RIMP 3C:** Working with stakeholders, explore ways to use EPR or other product stewardship strategies to engage manufacturers to design and make products that are less toxic, less wasteful, more reusable, and recyclable.



**GOAL RIMP 4: Manufacturers will increasingly design products and packaging with recycled content and for durability, reuse, and recycling.**

**Opportunities to address packaging-related issues with producers will be maximized.**

- **Action RIMP 4A:** Research incentives and other options to increase use of and promote recycled content in products and packaging, and to make products and packaging easier to reuse and recycle. Partner with trade associations and manufacturers to address design.
- **Action RIMP 4B:** Monitor and participate in national efforts to improve symbols, messages, and claims regarding the recycling or compostability of packaging.
- **Action RIMP 4C:** Work with manufacturers and other groups focused on recycling challenges for product packaging and more sustainable packaging.



**GOAL RIMP 5: Manufacturers and other users of chemicals will significantly reduce the presence of persistent, bioaccumulative toxics (PBTs) and other toxics in products.**

- **Action RIMP 5A:** Use technical assistance and incentives to encourage businesses to conduct safer alternative assessments for priority chemicals. Pursue authority to require alternative assessments under certain circumstances. Recommend restrictions of chemical use when assessments show safer alternatives exist. Consider ingredient disclosure as a way to promote less toxic or safer products.
- **Action RIMP 5B:** Advance green chemistry and responsible use of nanotechnology by supporting the implementation of the [Green Chemistry Roadmap](#). Establish the [Green Chemistry Center](#) as a permanent, fully-funded organization that successfully helps Northwest businesses use less toxic chemicals in their products and industrial processes.
- **Action RIMP 5C:** Support reform of the [Toxic Substances Control Act \(TSCA\)](#) and associated regulations.
- **Action RIMP 5D:** Develop Ecology staff skills to help manufacturers and other users of chemicals reduce unnecessary toxics in products and industrial processes, and influence design of more sustainable products and processes.
- **Action RIMP 5E:** Increase the recyclability of products and packaging by reducing the use of toxic components. Enforce toxics in products and packaging laws and regulations. Reduce toxic threats by reducing or eliminating the presence of toxic materials in recyclable and recycled products.



**GOAL RIMP 6: Non-point sources of toxic pollution will be reduced, improving and protecting water and air quality, and preventing additional**

**contaminated sites.**

- **Action RIMP 6A:** Implement toxic reduction initiatives for chemicals of concern.
- **Action RIMP 6B:** Ensure the agency's toxics reduction strategy is adequately represented and given priority in the [Puget Sound Action agenda](#).
- **Action RIMP 6C:** Identify actions to reduce PBTs and other chemicals of concern through the [Chemical Action Plan \(CAP\)](#) process. Within

the CAP process, select chemicals to address, write new CAPs, and work with stakeholders to implement CAP recommendations.

- **Action RIMP 6D:** Revise [WAC 173-333](#) to update the list of chemicals in the regulation and to streamline the CAP process. Update Ecology's toxics reduction strategy and identify priority chemicals.
- **Action RIMP 6E:** Secure funding, such as through the [National Estuary Program \(NEP\)](#), for toxic reduction activities in major water bodies, including Puget Sound and the Columbia River Basin; participate in the Columbia River Toxics Workgroup.

# Measuring Progress

## Introduction

The saying goes, “What gets measured, gets managed.” At all levels of government, officials use data to evaluate the effectiveness of programs and initiatives. Data tracking and analysis also help determine future directions and are useful when building budgets. Without careful data collection and analysis of costs and benefits, it is more likely that government-sponsored programs will be mistakenly established or eliminated. Performance measures are a natural outcome of data collection programs. It is important to develop thoughtful, effective performance measures along with data collection programs to better manage solid and hazardous waste systems.

When the [Beyond Waste Plan](#) was adopted in 2004, it included a measuring progress initiative. A critical component of this initiative was the development of the [Beyond Waste Progress Report](#), a series of indicators that show progress toward the plan’s vision to reduce waste and toxics. Since then, Ecology has updated the Progress Report annually. While the indicators show some progress, it is clear there is much more to do. In addition, Ecology has worked to improve data tracking and analysis.

Most of the data that local government, private companies, and Ecology collect is legislatively mandated. This data largely forms the backbone for the Beyond Waste Progress Report. It is also used in other data efforts, such as the “[Solid Waste in Washington](#)” annual report.

## State’s Regulatory Structure: Laws and Their Implementation

State law and rule requirements generally drive Ecology’s data collection and analysis. Regulations often require tracking to help gauge performance and show that changes are working as intended. Other data drivers exist, such as program performance goals and individual project needs. Following are the most comprehensive mandates for data collection and reporting related to hazardous and solid waste:

- [Toxics Release Inventory](#). (Federal [Emergency Planning and Community Right-to-Know Act](#)) Federal law requires this inventory but the state manages it. Businesses that use certain

chemicals above a certain amount are required to report their chemical releases, if any, to the state. Ecology collects this information on behalf of the Washington State Emergency Response Commission. The federal government has developed computer models that use this data to determine risks to communities.

- [RCW 70.105 - Hazardous Waste Management](#). Under the authority of this law, Ecology uses automated data systems to track amounts of dangerous waste generated each year and proper transport, treatment and disposal. We use this data to estimate dangerous waste generation for the state.
- [RCW 70-95C - Waste Reduction](#). This law requires pollution prevention plans from facilities that generate more than 2,640 pounds of dangerous waste per year or are required to report as part of the national Toxics Release Inventory. Ecology uses the data in the pollution prevention plans to assist facilities with reducing their use of dangerous materials. ([pollution prevention assistance webpage](#))
- [RCW 70.95 - Solid Waste Management - Reduction and Recycling](#). Ecology is required to track and report the quantity of materials collected for recycling by local governments and private companies. The law also gives the state the authority to collect other solid waste collection and disposal data, including MRW data. These data are used to estimate solid waste generation for the state, and to determine the state’s annual recycling rate.
- [RCW 70.93 - The Waste Reduction, Recycling and Litter Control Act \(WRRICA\)](#). Provides funding for litter pickup by [Ecology Youth Corps](#), local governments, and some state agencies. Amounts of litter picked up are tracked and reported. When there is sufficient funding, periodic litter surveys are completed.
- [RCW 70.240 - Children’s Safe Products Act](#). This law requires manufacturers of children’s products sold in Washington State to report if their product contains a chemical of high concern to children. They also must explain why they use the chemical in their products.
- [RCW 70.285 - Better Brakes Law](#). This law restricts the use of several heavy metals and asbestos in automotive brake pads and shoes. Manufacturers are required to report concentrations of copper, nickel, zinc, and antimony in brake friction materials currently sold in Washington.



## Future Direction: What's Next?

There is increasing pressure at all levels of government to show results. The Legislature and the Governor are highly interested in the effectiveness of state programs. Performance measures are increasingly used to determine levels of funding, staffing, and changes in program activities.

Ecology's partners are also interested in the data we collect and use it in their own organizations for a variety of purposes. Local governments want meaningful data to evaluate their programs. State data assists these efforts, especially with data from state waste composition studies. Private companies and nonprofit organizations are also interested in a variety of information, such as the toxicity of wastes and products.

Technology is making data collection more efficient and data sharing easier. This trend will undoubtedly increase public access to government data so others can perform their own analyses.

There is growing demand for more creative and understandable visual displays of data; for example, using infographics. There are also trends to use more data in public outreach on various social media, such as on Twitter, Facebook, blogs and websites. Infographics and the use of social media encourage more linking of different types of data for comparison purposes.

Over time, we expect to see more emphasis on data collection and analysis. Ecology and others, including local government, will have to think strategically about where to focus their data collection and analysis efforts since they can be expensive and resources are limited.

## Measuring Progress (DATA) Goals and Actions



**GOAL DATA 1: Ecology will use data to evaluate efficiency, effectiveness, and environmental justice concerns of various Ecology activities.**

- **Action DATA 1A:** Assess and strive to improve data accuracy. Compare Washington's data to other states' data as a way to benchmark effectiveness. Publish the results.
- **Action DATA 1B:** Evaluate how to maximize the effectiveness of technical assistance and

compliance efforts. Use the data in support of strategic outreach for education, compliance, and environmental benefit. Continue to use positive case studies to educate others and recognize successful programs.

- **Action DATA 1C:** Research data on distribution of services to underserved communities and areas with environmental justice concerns, such as populations with limited English proficiency.
- **Action DATA 1D:** Update and merge data and indicators from and for the [Beyond Waste Progress Report](#), the [Office of Financial Management](#), and other data sources so we can better present and compare data, and more efficiently evaluate program effectiveness.
- **Action DATA 1E:** Establish an internal clearinghouse of dangerous waste and toxics reduction data to increase staff effectiveness with technical assistance and compliance efforts.
- **Action DATA 1F:** Complete solid waste facility inspections to evaluate reporting compliance, material use and reuse, and other requirements such as conditional exemptions.
- **Action DATA 1G:** Connect data to staff work plans, stakeholder needs, and agency measures. Develop measures that track resource needs and stakeholder requests for assistance.
- **Action DATA 1H:** Increase the electronic posting of data via the state's [data.wa.gov](http://data.wa.gov) website and similar public access oriented resources. Market data through a variety of platforms and publicize data more frequently. Develop more and innovative ways to strategically communicate and display data.



**GOAL DATA 2: Ecology will research and share knowledge of chemicals of concern, and use this knowledge to direct work on reducing toxics.**

- **Action DATA 2A:** Develop a report on toxics used in industrial processes or found in products used in Washington State. The report would provide a broad overview of current knowledge and gaps in knowledge about the use of chemicals of concern.
- **Action DATA 2B:** Develop measures on how well the state is reducing toxics in products. Focus on products regulated under state law, such as [Better Brakes](#), [Children's Safe Products Act](#) and other applicable laws where Ecology is testing products to determine compliance.

- **Action DATA 2C:** Add information about the toxicity of industrial processes and products in the [Pollution Prevention Plan](#) database (Turbo Plan). Such information would include a built-in chemical hazard assessment for various chemicals.
- **Action DATA 2D:** Share more information about facility and company practices regarding releases of pollution and reduction of toxics, using [Ecology's website](#) and social media.
- **Action DATA 2E:** Increase sharing of chemical hazard and [product testing data](#) between states and individuals by using open data sites.
- **Action DATA 3F:** Measure and evaluate residuals, contamination, cross-contamination, and other system loss issues at recycling, compost, C&D diversion, or other recovery facilities. Follow up, evaluate, report, and continue to research recycling destination data and other available information to determine the extent of material use statewide.



**GOAL DATA 3: Tracking measures will be in place for the flow of materials from manufacture and purchase through discard.**

- **Action DATA 3A:** Complete a waste characterization study every four years, including potential sector analyses for C&D, MRW, organics, products, and packaging. Coordinate state studies with waste characterization studies done at the local level.
- **Action DATA 3B:** Increase knowledge of trends in emerging wastes by using the waste composition study and the [Consumer Environmental Index \(CEI\)](#) model, and by working with partners to gather additional sales data and information. In addition, use the CEI to assess key impacts in the production, use, reuse, and end-of-life phases.
- **Action DATA 3C:** Encourage manufacturers to complete self-evaluations on their own products and processes, such as life cycle assessments and footprint projects.
- **Action DATA 3D:** Create an interactive map linked to the solid waste facilities database, showing recycling and disposal facilities, including C&D recycling and diversion facilities, reported materials, and destination of materials.
- **Action DATA 3E:** Research economic and environmental impacts of disposal, recycling, reuse, and waste reduction including job creation, greenhouse gas emissions, and toxic releases. Work with [WUTC](#) and others to gather collection service cost data. Analyze data for opportunities to reduce waste and its impacts and increase recycling. Use data to prioritize focus on problem waste types or areas of opportunity such as C&D recycling and diversion.

# Providing Outreach and Information

## Introduction

Providing outreach and information to stakeholders on solid and hazardous waste management issues is critical to the success of this plan. We need outreach to keep stakeholders informed of rules, laws, trends, and research. We must also inform the public and encourage them to perform desired actions, such as recycling.

Based on input, outreach is wanted by the public, those we regulate, and those we provide technical assistance to. In this age of social media and digital communication, we have more ways to share information. Audiences are changing as demographics of our state change. Although funding is limited, the need and demand continues to grow for outreach and information.

## State's Regulatory Structure: Laws and Their Implementation

Many statutes acknowledge the importance of outreach for both solid and hazardous waste and materials.

[RCW 70.95](#) - Solid waste management reduction and recycling calls for education by both the state and local governments. Education is to be provided on “the need to reduce, source separate, and recycle solid waste,” as well as to “promote the concepts of waste reduction and recycling.” It also establishes the [1-800-Recycle](#) information line, a phone and online directory, to help guide people to recycling locations.

Similar intent is found in [RCW 70.93](#) - the Waste Reduction, Recycling and Litter Control Act (WRRLCA). In addition to increasing public awareness of the need for waste reduction and participation in recycling, this statute also calls for educational programs to control and remove litter.

In [RCW 70.105](#) – Hazardous Waste Management, local governments are required to have a plan for providing “ongoing public involvement and public education in regard to the management of moderate risk waste.” Education covers risks from improper use and disposal, methods of proper handling and disposal, and ways to reduce waste.

[RCW 70.105D](#) – Hazardous waste cleanups; the Model Toxics Control Act allocates grant funding for local governments to provide outreach (and other programs) that is included in their plans. This statute also provides grant funds for non-governmental groups to deliver outreach and education.

The Waste Reduction statute - [RCW 70.95C](#) the waste reduction statute, called for an office of waste reduction to encourage reducing wastes and use of hazardous substances. It also established school awards for waste reduction and recycling.

Ecology has not had significant funds or staffing for agency sponsored education and outreach activities since the early 1990s. The recession of 2008 led to further funding cuts for education and outreach. The litter campaign, a waste reduction newsletter, and the Toxic Free Tips program were all discontinued. Funding for the recycling hotline was cut in half. Resources to resume most of these activities have not been restored. During these times of reduced staffing levels, Ecology has relied on its many partners such as local government, businesses, and non-governmental organizations to implement much of the needed outreach and education on waste-related programs.

In addition to the above statutes, the extended producer responsibility (EPR) laws for mercury-containing lights ([RCW 70.275](#)) and electronics ([RCW 70.95N](#)) include outreach requirements for producers and, to varying degrees, for Ecology. As part of these EPR programs, producers must fund outreach.

Ecology is committed to providing equitable and meaningful access to programs, activities, and decisions for people with limited English proficiency. This is an important part of Ecology's commitment to environmental justice and meeting federal obligations under [Title VI of the Civil Rights Act of 1964](#).

An Environmental Justice Coordinator, Environmental Justice Committee, and four multilingual interpretation and translation teams support Ecology's ongoing work to promote equity and non-discrimination under Title VI. Effort is increasing along with a growing demand for language access services. As the Spanish-speaking population grows, opportunities for outreach also grow. We are now preparing materials for Spanish-language radio stations and magazines.



## Future Direction: What's Next?

The complexity and variety of both solid and hazardous waste and materials are increasing; therefore communication needs will continue to grow. Efforts to reduce waste and toxics and encourage reuse and repair require clear, effective communication to promote changes in behaviors. Public concern about toxics is growing. People want to know risks and alternatives to limit exposure to toxics in their environment and in products. Outreach work in this area will be needed. Growing opportunities and demand for digital outreach, including more webinars and social media, are areas we can take advantage of.

Funding and staffing needs for education will need to increase in the next five years as we implement the recommendations in this plan. It will be necessary to find creative ways to address ongoing outreach needs, including partnerships with service providers and producers. Previously unused or under-used outreach techniques, such as community-based social marketing, will become more important as we learn to apply them. This is especially pressing given the state's increasing population growth overall. Further, Washington's population of residents with limited English proficiency is one of the largest and fastest growing in the United States. Therefore, ensuring equitable access to information and resources for a diverse audience will be imperative.

## Providing Outreach and Information (INFO) Goals and Actions



**GOAL INFO 1: The majority of regulated businesses will understand how to comply with the [Dangerous Waste Regulations](#), why it is important to implement their [pollution prevention plans](#), and act accordingly. They will also understand that waste must be tackled during the design phase, not at the end-of-life phase, and when possible, will reduce waste before it is created.**

- **Action INFO 1A:** Improve Ecology's website through usability testing and include more industry-specific information on the dangerous waste regulations, compliance, and implementing [pollution prevention plans](#).

- **Action INFO 1B:** Conduct dangerous waste workshops that include videos at Ecology's regional offices.
- **Action INFO 1C:** Develop a communication strategy to inspire businesses to address the social and economic benefits of environmental compliance, pollution prevention, and sustainable consumption. Such a strategy will take into consideration community-based social marketing and will consider incentives to encourage behavior change.



**GOAL INFO 2: Small businesses will understand how to safely handle hazardous substances and waste.**

- **Action INFO 2A:** Working with others, identify gaps and develop a comprehensive small business outreach program for state and local jurisdiction's [LSC Partnership](#) and other small business programs. Consider how best to work with vendors and others to help distribute this information.
- **Action INFO 2B:** Publicize chemical hazard assessment results in [Shoptalk](#) and other venues.
- **Action INFO 2C:** Tailor small business outreach to other languages and cultures as needed.



**GOAL INFO 3: The public and others will have reliable, culturally effective information regarding toxics in products, how to avoid them, and how to properly**

**dispose of them.**

- **Action INFO 3A:** Increase the sharing of data, including product testing data, with other agencies, states, and the public. Share results of product testing and case studies demonstrating successful replacement of toxic substances in products with safer alternatives.
- **Action INFO 3B:** Provide information on Ecology's website about toxics in products, safer alternatives, and proper disposal. Options include updating Toxic-Free Tips and partnering with the Department of Health.
- **Action INFO 3C:** Encourage ingredient disclosure and labeling of consumer products to identify toxic or safer ingredients.
- **Action INFO 3D:** Seek grant funds and promote the use of grant funds to educate students, teachers (preschool through college), and the public on less toxic products and related topics.

**GOAL INFO 4: Ecology, in cooperation with others, will design culturally effective communication strategies and provide meaningful access to solid and hazardous waste and materials activities.**

- **Action INFO 4A:** Evaluate and strengthen Ecology's public outreach activities to ensure diverse audiences have meaningful access to solid and hazardous waste services, information, and input on policy directions.
- **Action INFO 4B:** Determine which communication strategies are most effective in reaching diverse audiences.
- **Action INFO 4C:** Continue prioritizing vital documents for translation and referencing demographic resources (U.S. Census and State-based data) to better understand and provide underserved communities and areas with environmental justice considerations with equitable services and support.



**GOAL INFO 5: Ecology will work cooperatively with others to develop and distribute statewide positive, culturally effective, educational messages on the benefits of composting and using compost.**

- **Action INFO 5A:** Create statewide educational messages for local governments and others to use. Determine effective means of distribution, which might include using Ecology's website and Washington State University Extension offices.
- **Action INFO 5B:** Increase emphasis on backyard composting. Continue to support backyard composting programs, like Natural Yard Care, through grants. Promote composting information on Ecology's website and local government websites. Work with local governments to develop a way to measure the impact of backyard composting on reducing organic materials going to landfills and demands on processing facilities.



**GOAL INFO 6: Ecology and partner organizations will engage in educational efforts, including culturally effective messaging, that promote waste reduction, recycling, and safe disposal and complement local, regional, and national efforts.**

- **Action INFO 6A:** Educate the public, students, businesses, and government on the benefits, practices, and economics of waste reduction and recycling. This includes the costs and benefits of

recycling, and the connections between waste, resources, materials, and climate.

- **Action INFO 6B:** Provide more communication, trainings, and technical assistance to local governments, waste and recycling businesses, and others on recycling, reuse, and reduction best management practices, and other pertinent information. Increase use of case studies to educate about and recognize successful programs.
- **Action INFO 6C:** Partner with WUTC to build upon opportunities for solid waste collection companies to educate their customers through existing requirements as found in [WAC 480-70-361](#).
- **Action INFO 6D:** Partner with trade organizations, solid waste collection companies, local governments and other stakeholders to develop best management practices, messages, labels, and images for curbside recycling outreach that can be adapted statewide to increase successful use of curbside recycling services.
- **Action INFO 6E:** Develop and implement a communication strategy on overconsumption so the public understands that recycling (including for organics) is not enough to solve the problem of waste. Include the connections between waste, resources, materials, and climate.
- **Action INFO 6F:** Improve websites through usability testing and make better use of social and other media for key strategic messages.

Sustainable materials management is essential to conserving our natural resources to meet both today's needs and those of future generations.



## VISION FOR MOVING WASHINGTON BEYOND WASTE AND TOXICS:

We can transition to a society where waste is viewed as inefficient, and where most wastes and toxic substances have been eliminated. This will contribute to economic, social and environmental vitality.



# GLOSSARY

This glossary is intended to provide definitions for terms and acronyms that may be unfamiliar.

## **AD / Anaerobic Digestion**

The process of using bacteria to break down organic wastes in a low oxygen environment, resulting in a biogas rich in methane as well as liquid and solid residues.

## **Alternatives Assessments**

A set of tools that manufacturers, product designers, businesses, governments, and other interested parties can use to make better, more informed decisions about the use of toxic chemicals in their products or processes.

## **Bioenergy and Biofuels**

A renewable energy or fuel source made from biomass, including agricultural crops or residues, wood wastes and residues, animal wastes, and other waste materials.

## **Biomass**

Recently living organisms or their metabolic by-products. Biomass is available on a renewable basis (as opposed to fossil fuels, which are derived from long-dead biological material). Biomass can be derived from dedicated energy crops and trees, agricultural food and feed crops, agricultural crop wastes and residues, wood wastes and residues, aquatic plants, animal wastes, municipal wastes, and other waste materials.

## **Biosolids**

A semisolid product resulting from wastewater treatment processing of municipal sewage sludge that can be beneficially recycled and meets all requirements under RCW 70.95J.

## **By-product Synergy**

The principle that one industry's waste can be another's resource, and working together to match unwanted by-products as resources for new products and processes. This simple idea has great potential for reducing waste and toxics, as well as cutting operating costs.

## **CEI / Consumer Environmental Index**

A measure of how consumption patterns influence pollution. The CEI uses expenditure patterns and calculates the cumulative environmental impacts from consumer choices. This includes impacts from manufacturing and the total supply chain.

## **Consumption**

The use of a resource, product or material, typically following the production stage but prior to end of life.

## **Corrective Action**

A process to guide the cleanup of unauthorized releases at dangerous waste management facilities.

## **CPG /Coordinated Prevention Grant**

Ecology grants that help local governments develop and implement their hazardous and solid waste management plans. These grants are awarded once each biennium.

## **Dangerous Waste**

Washington State law uses the term dangerous waste while federal law uses the term hazardous waste. Washington's definition of dangerous waste includes some wastes that are not included in the federal definition (for example, solid corrosive dangerous waste, listed PCB waste).

## **Dangerous Waste Regulations**

These regulate dangerous waste in Washington State under WAC 173-303. They are based on the federal Resource Conservation and Recovery Act (RCRA). The Department of Ecology implements and enforces the dangerous waste regulations.

## **Diversion**

Waste diverted from landfills, which includes materials reused and burned for energy in addition to those that are recycled.

## **E-Cycle Washington**

Washington's extended producer responsibility program for computers, monitors, laptops, tablet computers, televisions, portable DVD players and e-readers.

### **End-of-Life**

The point at which a product or material is no longer useful to the person possessing it and is discarded for disposal or recycling.

### **Environmental Justice**

The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, rules, and policies.

### **EPA / Environmental Protection Agency**

The federal agency that leads the nation's environmental science, research, education, and assessment efforts. Created in 1970, EPA's mission is to protect human health and the environment.

### **EPP / Environmentally Preferable Purchasing**

Also known as green purchasing or sustainable procurement, is the procurement of products or services that cause less harm to human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or services.

### **EPR / Extended Producer Responsibility**

A mandatory type of product stewardship that includes, at a minimum, the requirement that the manufacturer's responsibility for its product extends to post-consumer management of that product and its packaging.

### **Feedstock**

Materials needed to produce a product in a manufacturing or other process, including recycling, composting and other waste processing activities. Feedstocks can be virgin raw (new) materials or secondary (recovered or recycled) materials from the same or another process.

### **Green Chemistry**

The invention, design, and application of chemical products and processes to reduce or to eliminate the use and generation of hazardous substances.

### **Hazardous Waste**

A waste with properties that make it dangerous or potentially harmful to human health or the environment. Hazardous waste takes many physical forms and may be solid, semi-solid, liquid, or even contained gases. Washington State uses the term dangerous waste to include some wastes that are not in the federal definition of hazardous waste (for example, solid corrosive dangerous waste, listed PCB waste).

### **Highest and Best Use**

The use of a material which maximizes energy and natural resource savings while minimizing environmental emissions, risk, and damage to human health and the environment.

### **HHW / Household Hazardous Waste**

Household products that contain corrosive, toxic, ignitable, or reactive ingredients. This includes any waste that exhibits the properties of dangerous waste, but is exempt from the Washington Dangerous Waste Regulations because it is generated by households.

### **HWTR / Hazardous Waste Toxics Reduction**

The Hazardous Waste Toxics Reduction Program of the Washington State Department of Ecology.

### **Independent Third Party Certifications**

Third-party certification means an independent organization has reviewed the claims made for a product or process and independently determined compliance with specific standards.

### **IPM / Integrated Pest Management**

Programs that use current, comprehensive information on the life cycles of pests and their interaction with the environment. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.

### **LQG / Large Quantity Generator**

A facility that generates 2,200 pounds or more (or more than 2.2 pounds of certain types of wastes) of dangerous waste per month.

### **Lean and Green manufacturing**

A manufacturing and production philosophy that emphasizes systemic elimination of waste from all

aspects of an organization's operations. Waste is viewed as any use or loss of resources that does not lead directly to creating the product or service a customer wants on demand.

### **LightRecycle Washington**

Washington's extended producer responsibility program for mercury-containing lights, including fluorescent tubes, compact fluorescent lights, and high-intensity discharge lights.

### **Life Cycle**

Consecutive and interlinked stages of a product or service system, from the extraction of resources to the final disposal.

### **LCA / Life Cycle Assessment (or Analysis)**

A systematic process to assess the environmental aspects and potential environmental impacts associated with products, processes, or services, through production, usage, and disposal.

### **Marine Debris**

Man-made waste that has been accidentally or intentionally released into a storm drain, lake, ocean, or other waterway. Marine debris is often classified as land-based or ocean-based; estimates are that up to 80 percent of marine debris comes from land-based sources.

### **Materials**

The substance or substances of which a thing is made or composed. The full range of materials that come from and return to the Earth such as wood, minerals, fuels, chemicals, agricultural plants and animals, soil, and rock.

### **Materials Management**

A systemic approach to using and reusing materials more productively over their entire lifecycle. Materials management is focused on knowing and reducing the lifecycle impacts across the supply chain; using less material inputs (reduce, reuse, recycle); and using less toxic and more renewable materials.

### **MRF / Material Recovery Facility**

A facility that collects, compacts, repackages, sorts, or processes for transport recyclable materials collected from curbside and other programs, for marketing to secondary processors, recyclers, or end-users.

### **Meaningful Access**

The ability for all people to use services comparable to those enjoyed by members of the mainstream population. One key aspect to achieving this is eliminating communication barriers. Used in reference to environmental justice issues.

### **MQG / Medium Quantity Generators**

A facility that generates between 220 pounds and 2,200 pounds of dangerous waste per month.

### **MRW / Moderate-Risk Waste**

The combined hazardous waste stream made up of small quantity generator (SQG) waste and household hazardous waste (HHW). This term is unique to Washington State.

### **Non-Point Source Pollution**

Pollution that occurs when rainfall, snowmelt, or irrigation picks up pollutants from air or land and deposits them into rivers, lakes, and coastal waters or introduces them into groundwater. These pollutants come from common, wide spread activities in urban and rural areas.

### **Organics (Organic Materials)**

Substances and products of biological origin that have the potential to be returned to the soil, turned into biofuels, bioenergy, or other products. Organic materials include landscaping and yard waste, food waste, manures, crop residues, wood, soiled/low-grade paper, and biosolids.

### **P2 / Pollution Prevention**

The use of processes or practices that reduce or eliminate the use of hazardous substances and the generation of wastes at the source.

### **PBTs / Persistent Bioaccumulative Toxics**

Persistent, bioaccumulative toxics (PBTs) are a distinct group of chemicals that threaten the health of people and the environment. They remain in the environment for a long time without breaking down (persistent); build up in the bodies of people and animals (bioaccumulate); and have toxic effects on people, wildlife, and fish (toxic). Examples of PBTs include methylmercury, PCBs, DDT, and dioxin.

### **PCBs / Polychlorinated Biphenyls**

PCBs are a group of 209 manmade compounds.



Historically, PCBs were mostly used in electrical equipment, but there were other uses of PCBs such as plasticizers, wax and pesticide extenders, and lubricants. PCBs build up in the environment and are known to cause cancer in animals. Although federal law banned the manufacture of PCBs since 1977 and restricted some uses of PCBs, there is still inadvertent production of PCBs during manufacturing or in certain cases, they may be intentionally added below regulated levels.

#### **PPG / Public Participation Grant**

Ecology grants that provide funding to citizen groups and not-for-profit public interest organizations to provide public involvement in monitoring the cleanup of contaminated sites and prevent pollution by reducing or eliminating waste at the source.

#### **Product**

Something made or created by human or mechanical effort or by a natural process.

#### **Product Stewardship**

A system where those who produce, sell, use, or dispose of a product assume responsibility for the product's environmental, health, social, and economic costs throughout the product's life cycle. The producer has the greatest ability to minimize adverse impacts, but other stakeholders share responsibility. Product stewardship can either be voluntary or required by law. Extended producer responsibility is a form of mandatory product stewardship.

#### **RCRA / Resource Conservation and Recovery Act**

The federal law passed in 1976 that set standards for managing hazardous wastes and encouraging recycling over disposal. RCRA also includes the federal standards for solid waste landfills.

#### **Regulated Generators**

Includes large quantity generators (LQGs) and medium quantity generators (MQGs) of dangerous waste.

#### **Sham Recycling**

The collection of materials under false or illegal claims for the perceived purpose of recycling where the materials are instead disposed or indefinitely stockpiled rather than legitimately recycled.

#### **SQG / Small Quantity Generator**

A business, organization, industrial facility, or other type of establishment that creates 220 pounds or less of dangerous waste per month. The term Conditionally Exempt Small Quantity Generator (CESQG) can also be used. Dangerous waste generated by a SQG is exempt from the dangerous waste regulations if certain conditions are met.

#### **Sustainable Materials Management (SMM)**

The use and reuse of materials in the most productive and sustainable way across their entire life cycle. SMM conserves resources, reduces waste, reduces toxic chemicals, slows climate change, minimizes the environmental impacts of the materials we use throughout the material life cycle, and assures we have sufficient resources to meet today's needs and those of the future.

#### **Sustainability**

Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

#### **Toxics**

A general term that refers to hazardous or toxic chemicals, substances, materials or wastes that have the properties to cause or contribute to illness, injury, or other negative health effect in humans, animals, or other living things.

#### **TSCA / Toxic Substances Control Act**

The Toxic Substances Control Act of 1976 provides EPA with the authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. TSCA addresses the production, importation, use, and disposal of specific chemicals. Certain substances are generally excluded from TSCA, including food, drugs, cosmetics, and pesticides.

#### **TSD / Treatment, Storage, or Disposal facility**

A facility that has authorization from Ecology to conduct dangerous waste management treatment, storage, or disposal activities.

#### **Underserved**

Communities or areas that traditionally have received limited solid or hazardous waste services. This can include rural areas, multifamily housing, small

businesses, public spaces, as well as populations with limited English proficiency or other environmental justice concerns.

#### **W2R / Waste 2 Resources**

The Waste 2 Resources Program, formerly the Solid Waste Financial Assistance Program, of the Washington State Department of Ecology.

#### **Waste Conversion Technologies**

Includes pyrolysis, gasification, and hydrolysis, but not combustion. Some also consider the biologic process of anaerobic digestion a conversion technology.

#### **Waste Energy Recovery Technologies**

This includes waste conversion technologies. Energy recovery from waste is the conversion of waste materials into useable heat, electricity, or fuel through a variety of processes, including combustion, as well as gasification, pyrolysis, and anaerobic digestion. This process is sometimes called waste-to-energy (WTE).

#### **Waste Management Hierarchy**

Priority methods for managing solid and hazardous waste established in Washington laws RCW 70.95 (solid waste) and RCW 70.105 (hazardous waste). While the hierarchy differs slightly between the two laws, both place reducing waste as the highest priority, followed by recycling, and safe disposal.

## **Endnotes**

<sup>1</sup>[Sustainable Materials Management: The Road Ahead, U.S. Environmental Protection Agency, June 2009.](#)

<sup>2</sup>[RCRA's Critical Mission the Path Forward, U.S. Environmental Protection Agency, June 2014](#)

<sup>3</sup>[Materials Management in Oregon: 2050 Vision and Framework for Action, Oregon Department of Environmental Quality, 2012.](#)

<sup>4</sup>[Ensuring Safe, Clean Water for Healthy People and a Strong Economy: Updating Washington's water quality standards to meet today's toxic threats, Jay Inslee Policy Brief, July 2014](#)

<sup>5</sup> More Jobs, less Pollution: growing the recycling Economy in the U.S. ; Tellus Institute with Sound Resource Management, 2011

<sup>6</sup>[Total Population by Race, Age, Sex and Hispanic Origin: 2010](#), Washington State Office of Financial Management.

<sup>7</sup>[LEP Data Brief: Limited English Proficient Individuals in the United States: Number, Share, Growth, and Linguistic Diversity](#), Migration Policy Institute (2011). National Center on Immigrant Integration Policy.

# Hyperlink Addresses

Below are complete link addresses found in this publication:

**Carton Council:** [www.recyclecartons.com/](http://www.recyclecartons.com/)

**Ecology 1-800-Recycle information line:** <https://fortress.wa.gov/ecy/recycle/UISearch/ServiceSearch.aspx>

**Ecology Beyond Waste Plan website:** [www.ecy.wa.gov/wasteplan](http://www.ecy.wa.gov/wasteplan)

**Ecology Beyond Waste Progress Report website:** [www.ecy.wa.gov/beyondwaste/bwprog\\_front.html](http://www.ecy.wa.gov/beyondwaste/bwprog_front.html)

**Ecology Biosolids Regulatory Program:** [www.ecy.wa.gov/programs/swfa/biosolids/reginfo.html](http://www.ecy.wa.gov/programs/swfa/biosolids/reginfo.html)

**Ecology Bisphenol A (BPA) web page:** [www.ecy.wa.gov/programs/swfa/bpa.html](http://www.ecy.wa.gov/programs/swfa/bpa.html)

**Ecology Chemical Action Plans:** [www.ecy.wa.gov/PROGRAMS/SWFA/pbt/caps.html](http://www.ecy.wa.gov/PROGRAMS/SWFA/pbt/caps.html)

**Ecology Consumer Environmental Index (CEI):** [www.ecy.wa.gov/beyondwaste/bwprogMeasure.html](http://www.ecy.wa.gov/beyondwaste/bwprogMeasure.html)

**Ecology Coordinated Prevention Grant Program (CPG):** [www.ecy.wa.gov/programs/swfa/grants/cpg.html](http://www.ecy.wa.gov/programs/swfa/grants/cpg.html)

**Ecology Data: business compliance with dangerous waste laws:** [www.ecy.wa.gov/beyondwaste/bwproghwCompliance.html](http://www.ecy.wa.gov/beyondwaste/bwproghwCompliance.html)

**Ecology Data: cleaning up contamination at TSD facilities:** [www.ecy.wa.gov/beyondwaste/bwproghwTSDCleanup.html](http://www.ecy.wa.gov/beyondwaste/bwproghwTSDCleanup.html)

**Ecology E-Cycle Washington:** [www.ecy.wa.gov/programs/swfa/eproductrecycle/](http://www.ecy.wa.gov/programs/swfa/eproductrecycle/)

**Ecology Emergency Planning and Community Right to Know Act (EPCRA – Tier II):** [www.ecy.wa.gov/epcra/index.html](http://www.ecy.wa.gov/epcra/index.html)

**Ecology Environmentally Preferred Purchasing:** [www.ecy.wa.gov/programs/swfa/epp/](http://www.ecy.wa.gov/programs/swfa/epp/)  
**Ecology Global Reporting Initiative (GRI):** [www.ecy.wa.gov/about/gri/2014/](http://www.ecy.wa.gov/about/gri/2014/)

**Ecology Green Building:** [www.ecy.wa.gov/programs/swfa/greenbuilding/](http://www.ecy.wa.gov/programs/swfa/greenbuilding/)

**Ecology Green Chemistry Center:** [www.ecy.wa.gov/programs/hwtr/p2/GreenChem/GrChemCenter.html](http://www.ecy.wa.gov/programs/hwtr/p2/GreenChem/GrChemCenter.html)

**Ecology Green Chemistry Roadmap:** [www.ecy.wa.gov/programs/hwtr/p2/GreenChem/GCRoadmap.html](http://www.ecy.wa.gov/programs/hwtr/p2/GreenChem/GCRoadmap.html)

**Ecology Hazardous Waste and Toxics Reduction Program:** [www.ecy.wa.gov/programs/hwtr/index.html](http://www.ecy.wa.gov/programs/hwtr/index.html)

**Ecology Lead Wheel Weights:** [www.ecy.wa.gov/programs/swfa/pbt/weights.html](http://www.ecy.wa.gov/programs/swfa/pbt/weights.html)

**Ecology Lean and Green:** [www.ecy.wa.gov/programs/hwtr/lean/index.html](http://www.ecy.wa.gov/programs/hwtr/lean/index.html)

**Ecology Local Source Control Partnership:** [www.ecy.wa.gov/programs/hwtr/lsp/index.html](http://www.ecy.wa.gov/programs/hwtr/lsp/index.html)

**Ecology Moderate Risk Waste:** [www.ecy.wa.gov/programs/swfa/mrw/](http://www.ecy.wa.gov/programs/swfa/mrw/)

**Ecology Pollution Prevention Assistance:** [www.ecy.wa.gov/programs/hwtr/P2/ta.html](http://www.ecy.wa.gov/programs/hwtr/P2/ta.html)

**Ecology Pollution Prevention Planning:** [www.ecy.wa.gov/programs/hwtr/p2/p3.html](http://www.ecy.wa.gov/programs/hwtr/p2/p3.html)

**Ecology Pollution Prevention Plans:** [www.ecy.wa.gov/programs/hwtr/p2/index.html](http://www.ecy.wa.gov/programs/hwtr/p2/index.html)

**Ecology Polybrominated diphenyl ether (PBDE) flame retardants:** [www.ecy.wa.gov/programs/swfa/pbt/pbde.html](http://www.ecy.wa.gov/programs/swfa/pbt/pbde.html)

**Ecology Producer-established Recycling Program:** [www.ecy.wa.gov/programs/swfa/mercurylights/](http://www.ecy.wa.gov/programs/swfa/mercurylights/)

**Ecology Product Testing database:** <https://fortress.wa.gov/ecy/ptdbpublicreporting/>

**Ecology Public Participation Grants:** [www.ecy.wa.gov/programs/swfa/grants/cpg.html](http://www.ecy.wa.gov/programs/swfa/grants/cpg.html)

**Ecology publication Beyond Waste Status Report:** <https://fortress.wa.gov/ecy/publications/SummaryPages/1404010.html>

**Ecology publication Dangerous Waste Regulations:** <https://fortress.wa.gov/ecy/publications/SummaryPages/9291.html>

**Ecology publication, Beyond Waste Plan Summary Status Report:** <https://fortress.wa.gov/ecy/publications/SummaryPages/1404024.html>

**Ecology publication, Reducing Small Volume Hazardous Wastes and Materials:** <https://fortress.wa.gov/ecy/publications/publications/0407026.pdf>



**Ecology publication, State Solid and Hazardous Waste Plan (Beyond Waste), 2004:** <https://fortress.wa.gov/ecy/publications/SummaryPages/0407022.html>

**Ecology publication, State Solid and Hazardous Waste Plan Update (Beyond Waste), 2009:** <https://fortress.wa.gov/ecy/publications/SummaryPages/0907026.html>

**Ecology publication, Waste Not Washington Act:** <https://fortress.wa.gov/ecy/publications/summarypages/FWRRLC91109.html>

**Ecology Recycling Organic Material:** [www.ecy.wa.gov/programs/swfa/organics/](http://www.ecy.wa.gov/programs/swfa/organics/)

**Ecology Safer Chemistry Challenge:** [www.ecy.wa.gov/programs/hwtr/p2/GreenChem/scc.html](http://www.ecy.wa.gov/programs/hwtr/p2/GreenChem/scc.html)

**Ecology Shoptalk Online:** [www.ecy.wa.gov/programs/hwtr/shoptalkonline/index.html](http://www.ecy.wa.gov/programs/hwtr/shoptalkonline/index.html)

**Ecology Solid Waste Annual Report:** [www.ecy.wa.gov/programs/swfa/solidwastedata/report.html](http://www.ecy.wa.gov/programs/swfa/solidwastedata/report.html)

**Ecology Technical Resources for Engineering Efficiency (TREE):** [www.ecy.wa.gov/tree/index.html](http://www.ecy.wa.gov/tree/index.html)

**Ecology Toxic Release Inventory:** [www.ecy.wa.gov/epcra/chemical\\_summary/tri\\_intro.html](http://www.ecy.wa.gov/epcra/chemical_summary/tri_intro.html)

**Ecology Toxics Cleanup Program:** [www.ecy.wa.gov/programs/tcp/cleanup.html](http://www.ecy.wa.gov/programs/tcp/cleanup.html)

**Ecology Waste 2 Resources Program:** [www.ecy.wa.gov/programs/swfa/](http://www.ecy.wa.gov/programs/swfa/)

**Ecology Youth Corps:** [www.ecy.wa.gov/programs/swfa/eyc/index.html](http://www.ecy.wa.gov/programs/swfa/eyc/index.html)

**Ensuring Safe, Clean Water for Healthy People and a Strong Economy:** Updating Washington's water quality standards to meet today's toxic threats, Jay Inslee Policy Brief: [www.governor.wa.gov/sites/default/files/policy\\_briefs/pb\\_CleanWater\\_2014.pdf](http://www.governor.wa.gov/sites/default/files/policy_briefs/pb_CleanWater_2014.pdf)

**Food Too Good to Waste (FTGTW):** [www.westcoastclimateforum.com/food](http://www.westcoastclimateforum.com/food)

**LightRecycle Washington:** [www.lightrecycle.org/](http://www.lightrecycle.org/)

**Limited English Proficient Individuals in the United States: Number, Share, Growth, and Linguistic Diversity, Migration Policy Institute (2011). National Center on Immigrant Integration Policy.** [www.migrationinformation.org/integration/LEPatabrief.pdf](http://www.migrationinformation.org/integration/LEPatabrief.pdf)

**More Jobs, Less Pollution: Growing the Recycling Economy in the U.S., Tellus Institute:** [http://docs.nrdc.org/globalwarming/files/glo\\_11111401a.pdf](http://docs.nrdc.org/globalwarming/files/glo_11111401a.pdf)

**Oregon Department of Environmental Quality:** [www.oregon.gov/DEQ/pages/index.aspx](http://www.oregon.gov/DEQ/pages/index.aspx)

**Oregon publication, Materials Management in Oregon: 2050 Vision and Framework for Action, ORDEQ:** [www.oregon.gov/deq/lq/Pages/SW/2050-Vision.aspx](http://www.oregon.gov/deq/lq/Pages/SW/2050-Vision.aspx)

**Puget Sound Action Agenda:** [www.psp.wa.gov/action\\_agenda\\_center.php](http://www.psp.wa.gov/action_agenda_center.php)

**Puget Sound Partnership:** [www.psp.wa.gov/](http://www.psp.wa.gov/)

**RCW (Revised Code of Washington) 36.58:** <http://app.leg.wa.gov/RCW/default.aspx?cite=36.58>

**RCW 35.20:** <http://app.leg.wa.gov/RCW/default.aspx?cite=35.21>

**RCW 39.26:** <http://app.leg.wa.gov/RCW/default.aspx?cite=39.26>

**RCW 43.19A:** <http://app.leg.wa.gov/RCW/default.aspx?cite=43.19A>

**RCW 70.105:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.105>

**RCW 70.105D:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.105D>

**RCW 70.240:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.240>

**RCW 70.270:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.270>

**RCW 70.275:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.275>

**RCW 70.280:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.280>

**RCW 70.285:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.285>

**RCW 70.295:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.295>

**RCW 70.300:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.300>

**RCW 70.76:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.76>

**RCW 70.93:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.93>

**RCW 70.95:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.95>

**RCW 70.95C:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.95C>

**RCW 70.95G:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.95G>

**RCW 70.95J:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.95J>

**RCW 70.95M:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.95M>

**RCW 70.95N:** <http://app.leg.wa.gov/RCW/default.aspx?cite=70.95N>

**RCW 81.77:** <http://app.leg.wa.gov/RCW/default.aspx?cite=81.77>

**Recycling Partnership:** [www.wheeliebinwaste.co.uk/](http://www.wheeliebinwaste.co.uk/)

**Title VI of the Civil Rights Act of 1964:** [www.justice.gov/crt/about/cor/coord/titlevi.php](http://www.justice.gov/crt/about/cor/coord/titlevi.php)

**Total Population by Race, Age, Sex, and Hispanic Origin:** 2010, Washington State Office of Financial Management: [www.ofm.wa.gov/pop/asr/default.asp](http://www.ofm.wa.gov/pop/asr/default.asp)

**Toxic Substances Control Act (TSCA):** <http://www2.epa.gov/laws-regulations/summary-toxic-substances-control-act>

**U.S. Environmental Protection Agency:** [www.epa.gov/](http://www.epa.gov/)

**U.S. EPA Food Recovery Challenge (FRC):** [www.epa.gov/epawaste/conserve/smm/foodrecovery/index.htm](http://www.epa.gov/epawaste/conserve/smm/foodrecovery/index.htm)

**U.S. EPA Food-waste Hierarchy:** [www.epa.gov/foodrecovery/](http://www.epa.gov/foodrecovery/)

**U.S. EPA National Estuary Program (NEP):** <http://water.epa.gov/type/oceb/nep/index.cfm#tabs-2>

**U.S. EPA publication, Opportunities to Reduce Greenhouse Gas Emissions through Materials and Land Management Practices, 2009:** [www.epa.gov/oswer/docs/ghg\\_land\\_and\\_materials\\_management.pdf](http://www.epa.gov/oswer/docs/ghg_land_and_materials_management.pdf)

**U.S. EPA RCRA's Critical Mission the Path Forward:** [www.epa.gov/wastes/inforesources/pubs/cnsrv\\_resrcs.htm](http://www.epa.gov/wastes/inforesources/pubs/cnsrv_resrcs.htm)

**U.S. EPA Resource Conservation and Recovery Act:** [www.epa.gov/agriculture/lrca.html](http://www.epa.gov/agriculture/lrca.html)

**U.S. EPA Safer Choices:** <http://www2.epa.gov/saferchoice>

**U.S. EPA Sustainable Materials Management: The Road Ahead:** [www.epa.gov/epawaste/conserve/smm/vision.htm](http://www.epa.gov/epawaste/conserve/smm/vision.htm)

**WAC (Washington Administrative Code) 173-303:** <http://app.leg.wa.gov/WAC/default.aspx?cite=173-303>

**WAC 173-307:** <http://app.leg.wa.gov/WAC/default.aspx?cite=173-307>

**WAC 173-333:** <http://app.leg.wa.gov/WAC/default.aspx?cite=173-333>

**WAC 173-350:** <http://app.leg.wa.gov/WAC/default.aspx?cite=173-350>

**WAC 173-351:** <http://app.leg.wa.gov/WAC/default.aspx?cite=173-351>

**WAC 480-70-361:** <http://app.leg.wa.gov/WAC/default.aspx?cite=480-70-361>

**Washington Better Brakes Law:** [www.ecy.wa.gov/programs/hwtr/betterbrakes.html](http://www.ecy.wa.gov/programs/hwtr/betterbrakes.html)

**Washington Children's Safe Product Act (CSPA):** [www.ecy.wa.gov/programs/swfa/cspa/index.html](http://www.ecy.wa.gov/programs/swfa/cspa/index.html)

**Washington Department of Enterprise Services:** <http://des.wa.gov/Pages/default.aspx>

**Washington Department of Health:** [www.doh.wa.gov/](http://www.doh.wa.gov/)

**Washington Office of Financial Management (OFM):** [www.ofm.wa.gov/](http://www.ofm.wa.gov/)

**Washington Refuse and Recycling Association:** [www.wrra.org/](http://www.wrra.org/)

**Washington State Legislature:** <http://leg.wa.gov/>

**Washington Toxics in Packaging Law:** [www.ecy.wa.gov/programs/hwtr/hazcom/toxpackage.html](http://www.ecy.wa.gov/programs/hwtr/hazcom/toxpackage.html)

**Washington Utilities and Transportation Commission (WUTC):** [www.utc.wa.gov/Pages/default.aspx](http://www.utc.wa.gov/Pages/default.aspx)

**West Coast Climate and Materials Management Forum:** <http://yosemite.epa.gov/r10/ecocomm.nsf/climate+change/wccmmf>

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## Local Government

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### Counties

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Clallam County WSU extension office - Meggan Uecker  
Clark County Solid Waste Advisory Committee  
Clark County Solid Waste Advisory Committee member - Allan Jeska  
Clark County Solid Waste - Pete Dubois  
Ferry County Solid Waste Advisory Committee  
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King County Solid Waste Advisory Committee  
King County Local Hazardous Waste Management Program - Staff, Lynda Ransley via Maureen Weisser  
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Kitsap County Solid Waste Advisory Committee  
Kitsap County Public Works, Solid Waste Division - Pat Campbell, Rick Gilbert

Lewis County Solid Waste Advisory Committee  
Lewis County Solid Waste - Steve Skinner  
Mason County Solid Waste - Michelle Whittaker  
Pacific County Solid Waste Advisory Committee  
Pend Oreille County Solid Waste Advisory Committee  
Pierce County Solid Waste Advisory Committee  
Pierce County Solid Waste Advisory Committee member - Chester Saito  
Pierce County Public Works, Sustainable Resources Division - Steve Wamback, Robert Dieckman  
Tacoma / Pierce County Health Department - John Sherman  
Skagit County Solid Waste Advisory Committee  
Skamania County Solid Waste Advisory Committee  
Snohomish County Solid Waste - Sego Jackson  
Snohomish County WSU Extension - Hallie Harness  
Spokane County Solid Waste Advisory Committee  
Stevens County Solid Waste Advisory Committee  
Thurston County Solid Waste Advisory Committee  
Thurston County Solid Waste Advisory Committee member – Burt Guttman  
Thurston County Environmental Health - Art Starry, Gerald Tousley  
Whatcom County Solid Waste Advisory Committee  
Whitman County Solid Waste Advisory Committee

## Other Local Government

Northwest Product Stewardship Council  
Sound Transit - Bria Knowles  
Washington State Environmental Health Directors  
Waste 2 Resources Advisory Committee

## State and Federal Government

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## **Waste and Recycling Industry**

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Washington Refuse and Recycling Association –  
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Washington State Recycling Association – Board  
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## **Other Industry**

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PACCAR Inc – Tom Nelson

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Pyramid Distributing - Bill

Northwest Environmental Business Coalition

## **Non-Governmental Organizations**

By-Product Synergy NorthWest

Cascadia Law Group - Jay Manning

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Northwest Toxic Communities Coalition - Darlene  
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## **Ecology Staff**