



WASHINGTON STATE'S  
**BEYOND WASTE**  
PROJECT

# Summary of The Washington State Hazardous Waste Management Plan and Solid Waste Management Plan



## Final Plan

Washington State Department of Ecology  
Publication Number 04-07-022  
November 2004

If you need this information in an alternate format, please call the Hazardous Waste and Toxics Reduction Program at 360-407-6700. If you are a person with a speech or hearing impairment, call 711, or 800-833-6388 for TTY.

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*“It is not possible to repeat too often that waste is not something which comes after the fact...picking up and reclaiming scrap left over after production is a public service, but planning so that there will be no scrap is a higher public service.”*

Henry Ford, 1924

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## Introduction

This document is a summary of the Beyond Waste Plan. Together with related background papers, this plan comprises the updated state Hazardous Waste Management Plan and state Solid Waste Management Plan. This shorter summary document contains all of the Beyond Waste Plan recommendations, but it does not include all the details regarding the rationale for selecting these recommendations or history behind the issues. This additional detail is included in the Background Papers, discussed below.

The Beyond Waste Plan development process included active involvement by a broad array of people representing a variety of organizations and perspectives. Although it would be impossible to acknowledge everyone who has contributed to the development of this plan, Ecology would nonetheless like to express appreciation to the many people that worked on this planning effort. While Ecology led the development of this plan, the final product represents the collaborative investment of time on the part of literally hundreds of people.

Numerous comments were received on the draft Beyond Waste Plan documents, and they are very much appreciated. Ecology has carefully considered all of the comments, and has made many changes to the documents that have significantly improved them. A summary of major comment themes, including how they have been addressed, has been prepared and is available at <http://www.ecy.wa.gov/biblio/0407035.html>.

Carrying out the recommendations contained in the plan will provide significant benefits to the people of Washington. We look forward to continuing the important collaboration begun through this project. It will take the partnership efforts of all sectors of Washington's economy and society to move "Beyond Waste."

### How to Navigate Through This Document

Ecology has designed this summary as an electronic document. As you read through this summary you will encounter electronic links that will allow you to connect to longer Background Papers on each of the sections in this summary. This summary document contains all the goals and recommendations of the Beyond Waste Plan. The Background Papers contain the same goals and recommendations, but they go into a great deal of detail not included in this document.

The sections on "Background," "Scope," and "The Five Initiatives" are common to **both** the Hazardous Waste Plan and the Solid Waste Plan. The section called "Other Hazardous Waste & Solid Waste Issues" (containing current hazardous waste and solid waste system issues) is where the two state plans diverge and focus on current issues that pertain only to hazardous waste or solid waste.

For more detailed information on this project visit Ecology's Web site at <http://www.ecy.wa.gov/beyondwaste/>. To download this document, go to <http://www.ecy.wa.gov/beyondwaste/finalplan.html> If you do not have access to the Internet, please call 1-800-RECYCLE to request printed copies of this summary document or the Background Papers referenced in this document.



### Purpose

The Department of Ecology is required by state laws Chapters 70.105 and 70.95 Revised Code of Washington (RCW), to develop and regularly update statewide hazardous waste and solid waste plans. In the past, Ecology's Hazardous Waste & Toxics Reduction Program and the Solid Waste & Financial Assistance Program have independently developed these state plans. The State Hazardous Waste Management Plan was last updated in 1994 and the State Solid Waste Management Plan was last updated in 1991. A Background Paper on the history of hazardous waste can be found at <http://www.ecy.wa.gov/biblio/0407023.html>. A Background Paper on the history of solid waste can be found at <http://www.ecy.wa.gov/biblio/0407024.html>.

Separate efforts to once again update each of these plans have been combined into what has become the Beyond Waste Project. The purpose of these plans is to provide statewide guidance for reducing the use of toxic substances, decreasing waste generation, increasing recycling, and properly managing any wastes that remain. The vision statement (see box) sums up the Beyond Waste Project direction.

*Beyond Waste Vision  
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.*

### What does going “Beyond Waste” mean?

Waste generation in Washington continues to increase. Toxic substances are more prevalent in our everyday lives now than they were just a few years ago. Currently, we try to find ways to manage our growing volumes of waste and to accept toxic substances as a necessary part of our lives. To lower the risks to people and the environment, Washington needs to shift to an approach that will significantly reduce wastes and toxic substances over time. This change of direction will require strong partnerships. All sectors of our society must actively work to reduce wastes and toxic substances while creating new business opportunities and markets. Critical partnerships among local governments, state agencies, the solid waste industry and others will be needed to accomplish the Beyond Waste vision.

“Beyond Waste” means that we stop throwing things away without thinking about it. It means we strive to stop making and using products made with potentially toxic materials because it is easy or convenient. Beyond Waste also means placing greater emphasis on a healthy environment through closer examination of short-term activities that may bring about long-term unintended impacts.

The decisions and choices we make today and every day will affect the air, water, food, and health of the environment and people now and for generations to come. Our children and

grandchildren deserve to inherit a healthy and safe environment. We can move toward that goal with the realization that masses of wastes and commonplace toxic substances are dangerous and unnecessary.

## Why should we move “Beyond Waste”?

Over the years, Washington’s government, businesses and citizens have put considerable effort into making positive changes in waste management practices, yet problems still remain. Solid waste generation is increasing, but recycling rates are lower than 10 years ago. Toxic substances remain prevalent in our environment as evidenced by mercury in fish, polychlorinated biphenyls (PCBs) in orcas, and the flame-retardant polybrominated diphenyl ether (PBDE) in human breast milk.

In spite of these documented dangers, many people perceive that the existing waste management system is working very well and there is no need to fix what isn’t broken. This perception is generally founded on one (or more) of five misconceptions about the current hazardous waste management system, solid waste management system, or toxic materials in general. One or more of these misconceptions can foster a false impression that everything needed to protect the people and the environment of Washington from hazardous materials, solid wastes, and hazardous wastes is being done now. These misconceptions are summarized below.

For a complete discussion of these misconceptions including examples, citations of statistics, and studies, please see *The Future of Waste and Toxins in Washington* at <http://www.ecy.wa.gov/biblio/0404015.html>.

## Some misconceptions about Washington’s current waste management system

### Misconception

#### Existing laws and regulations provide adequate protection from toxic chemicals

The existing regulatory system does reasonably well when it comes to managing certain toxic wastes from industrial facilities. Through enforcement of state and federal laws, hazardous waste from industrial sources is tracked, reported, and managed according to requirements and standards that are vastly improved from thirty years ago. Still, many toxic chemicals are released into the environment through:

- Permitted discharges.
- Exclusions to regulations.
- Non-point source pollution.
- Problems associated with hazardous waste management.

## **Misconception**

### **If a product is on the shelf, it is safe**

When we purchase a product, most of us assume that it has been tested and declared safe for the intended purpose. What consumers may not know, however, is that:

- There are unknown quantities of chemicals incorporated into consumer goods, and many have not been tested or approved by any regulatory authority for their effects on human health.
- These chemicals can leach or otherwise be released through use, disposal, or incineration, and can persist in the environment.
- Children and infants are at greater risk of harm from exposure because of their low body weights, high metabolism rates, and the tendency to put things in their mouths.

The use of chemicals is proliferating, and there is no systematic assessment of their effect on human health and the environment.

## **Misconception**

### **Landfills solve the waste problem**

As long as there is waste, landfills will continue to provide an important service. Modern landfill regulations were developed in the 1990's to protect against possible groundwater contamination from toxic leaks and to collect and extract dangerous gases. While the new state-of-the-art landfills offer a vastly improved degree of environmental protection over earlier landfill designs and waste management practices, permanent disposal in landfills does not provide an adequate solution to our resource and waste management problems of the future because:

- Permanent disposal of potentially useful materials means our economy must rely on extracting increasing amounts of diminishing natural resources.
- Hazardous substances are present in many wastes being disposed.
- Subsidies and hidden impacts distort the complete costs of landfilling, perpetuating the belief that it is economically advantageous to dispose of materials, rather than reclaim them.

## **Misconception**

### **Recycling solves the waste problem**

Just as landfills continue to provide an important service, yet are not the ultimate waste solution, the same is true of recycling. Current recycling programs have demonstrated progress in collecting and sorting materials, but they do not successfully address long-range problems of waste accumulation and resource depletion because:

- Most products are not designed for recycling, so it can be difficult and expensive to recover and reprocess materials.
- Virgin material subsidies and the external costs not accounted for in our disposal practices put recyclable materials at an economic disadvantage compared to virgin materials.

- Many companies that call themselves recyclers are actually waste-trading – exporting the materials to other venues where they are subsequently landfilled or recycled under hazardous environmental or working conditions.

Recycling is a vital component of diverting material from disposal facilities and reducing the demand for virgin materials, but the current system is not wholly effective.

### **Misconception**

#### **Eliminating waste and toxics will be bad for the economy**

Waste is a result of poor product design, failure to efficiently use resources, and subsidized markets that encourage waste. Addressing these inefficiencies presents a tremendous opportunity to add value to our existing economic base and create new viable markets. Eliminating wastes and toxics will benefit the Washington economy because:

- Existing businesses can save money.
- New jobs will be created (reuse, remanufacturing, and recycling industries).
- Businesses will be able to compete more effectively in the global economy.

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# Beyond Waste

## A Collaborative Approach

### Scope

Ecology identified five initiatives, or areas of focus, to work on first in pursuing the Beyond Waste vision. The updated State Hazardous Waste Plan and State Solid Waste Plan are the mechanisms for implementing these initiatives. The state plans will guide both state and local governments as well as the private sector and the public in decision-making that will have major effects on waste management and waste generation for many years to come.

This summary of the State Hazardous Waste Plan and State Solid Waste Plan has been prepared through consultation with the State Solid Waste Advisory Committee, businesses, local government representatives, the solid waste industry, environmental organizations, and others.

Ecology is committed to continuing to work collaboratively on the Beyond Waste Plan with people and organizations interested in issues related to waste, environmental protection, economic vitality, and health. Beginning in 2000, numerous meetings and discussions produced comments and ideas on the plans. Before drafting the plans, Ecology talked with businesses, local governments, citizens, environmental organizations and others to develop important actions that are included in this plan. Partnerships are the key to achieving the goals of Beyond Waste. Collaboration among governments at all levels, the private and non-profit sectors, academia, and communities will be needed to implement the recommendations in the Beyond Waste Plan.

This document provides summaries of the five key initiatives. These initiatives focus on reducing wastes and toxic substances in Washington. In short, successful implementation of these five initiatives will:

1. Significantly reduce most wastes and the use of toxic substances in Washington's industries.
2. Significantly reduce small-volume hazardous wastes from businesses and households.
3. Expand the recycling system in Washington for organic wastes such as food wastes, yard waste, and crop residues.
4. Reduce the negative impacts from the design, construction, and operation of buildings.
5. Develop a system to measure progress in achieving our goals.

In addition to these five initiatives (contained in pages 11 through 37), a number of issues that affect today's solid waste and hazardous waste management system are also addressed in the Beyond Waste Plan. Moving Beyond Waste and toward reusing resources and reducing toxic substances will take many years. In the meantime, we must maintain or improve our current waste-handling system. The Beyond Waste Plan includes recommendations on current hazardous waste and solid waste system issues

(contained in pages 39 through 56), in addition to the five initiatives. All of the recommendations are important to moving the Beyond Waste agenda forward.

Each initiative includes several recommendations. Some of these recommendations are short-term in nature and results will be apparent quickly, while others will take longer to accomplish – up to 30 years. Some actions will begin sooner than others. Some actions will require legislative authorization or new funding sources from the outset and others may eventually need legislative authorization and/or funding if voluntary implementation efforts are not successful. Some actions will require new partnerships between the private sector, government, and other organizations while other actions can be accomplished only by entities other than Ecology. However, the common goal of all these recommendations and the Beyond Waste Plan in general is to provide statewide guidance for reducing the use of toxic substances, decreasing waste generation, recycling more materials, and properly managing any wastes that remain. For more specifics on implementation of the Beyond Waste Plan recommendations, please see the Implementation Plan beginning on page 57.

The initiatives, recommendations, and actions proposed in this document are first steps toward a goal. That goal is the Beyond Waste vision. As with most plans, once implementation begins conditions may change or adjustments may be needed. Ecology will regularly evaluate progress on the Beyond Waste recommendations to determine if adjustments or corrections are needed. These mid-course corrections will begin with an evaluation of our success in attaining the five-year milestones listed at the end of each initiative. Ecology is committed to updating the Beyond Waste Plan as needed so that it remains current as a statewide guide for collaborative actions to significantly reduce wastes and the use of toxic substances.

The transition to a society that focuses on reducing the use of toxic substances and decreasing waste generation will involve change in many areas. The Beyond Waste vision states that the transition to Beyond Waste “...will contribute to economic, social and environmental vitality.” Ecology believes that Washington’s economic vitality will strengthen through the actions outlined in the Beyond Waste Plan. Economic challenges and uncertainty will undoubtedly occur. However, many businesses have already experienced net cost savings as they have instituted principles and practices consistent with Beyond Waste. On the whole, an economy that views wastes as inefficient and minimizes the use of toxic substances can only prosper as these values continue to gain momentum and impact the marketplace, as they have in recent years.

Beyond Waste proposes to take bold steps that may be challenging in the short term, but economically sustainable for the long term. The key principles and strategies that are the basis for making those changes are described below.

## **Key Principles and Strategies**

Ecology identified and developed a series of possible starting points that would move Washington toward the Beyond Waste vision. From that list, five initiatives were selected

and are essential components of the Beyond Waste Plan. Ecology then determined what principles and strategies should be common to the five initiatives selected for implementation through the Beyond Waste Plan. Below is a list of principles and strategies determined to be fundamental for the success of these initiatives.

1. Incentives, especially financial incentives, are key tools in implementing Beyond Waste.
2. Achieving the Beyond Waste vision will require a different way of doing business. While regulations are needed, they are not necessarily the best or the only way to achieve Beyond Waste.
3. Increase the focus on waste prevention. Toxic substances should be eliminated wherever possible.
4. Choose activities with the goal of creating the least damaging ecological footprint possible.
5. Change the mindset, as individuals and as a society, from the idea that waste is “normal” or “necessary.” Raise public awareness about toxic materials in everyday products and their effects on human health and the environment.
6. Work with product designers and manufacturers to encourage the development of product lines that conserve energy and water and eliminate unnecessary materials and waste in production. In addition, work with designers and manufacturers to produce products that are least or non-toxic, reusable where possible, and highly recyclable.
7. Create partnerships among government, business, organizations, and citizen groups from every sector across the state, as they are crucial to decision-making and achieving the Beyond Waste goals.
8. Use actions recommended under each initiative to advance the goals of the other initiatives whenever possible.
9. Measure progress regularly in each initiative to determine course corrections needed to meet the goals.
10. Use state government leadership as an important lever to make progress toward the goals, especially through its purchasing power and also through model and demonstration projects.
11. Work to build on and increase existing momentum toward waste reduction and toxic substance elimination.
12. Conduct pilot projects on recommendations to test the feasibility of and gain support for full-scale implementation.
13. Whenever possible, remove barriers that would stand in the way of reducing wastes and reducing the use of toxics.
14. Build on current Environmental Justice efforts to ensure that those risks that cannot be eliminated are borne equitably by all sectors of our society.





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## The Five Initiatives

The recommendations in the five initiatives, described below, are mutually beneficial. Each initiative has recommendations that may be affected by the actions proposed in other initiatives, but all recommendations are intended to complement and support the actions and goals of all five initiatives.

A great deal of detailed information has been prepared by Ecology on the five initiatives that are common to both the State Hazardous Waste Plan and the State Solid Waste Plan. The following pages are a summary of the detail in each of the five initiatives and the proposed recommendations for action.

### Initiative #1

#### Moving Toward Beyond Waste with Industries

For brevity's sake, this summary document does not include the numerous citations used to develop these initiatives. A detailed Background Paper on the **Industries Initiative** including all appropriate citations can be accessed at <http://www.ecy.wa.gov/biblio/0407025.html>.

#### Introduction

The goal of the Industries Initiative is to maintain the economic vitality of Washington State industries as we reduce wastes and toxic releases, and to increase the use of recyclable materials. This can only be accomplished through cooperation and partnerships between Ecology and industry.

To date, business and government have made great strides together in reducing waste generation and improving waste management. However, there are still many opportunities to foster business competitiveness and protect human health and the environment.

Redesigned processes and products will result in reduced costs for industry, less need for government regulation, improved conditions for workers, and a better environment. The adoption of more efficient production methods for goods and services will position Washington businesses to be leaders. This will increase the ability of Washington's businesses to sell to other national and international firms that have already adopted such practices and are requiring their suppliers to do the same. Ultimately, this will enhance economic vitality in the state.

For the purposes of this initiative, the term "industries" includes the sectors of Washington's economy (public agencies as well as private companies) that produce

goods and services for businesses and citizens. Industrial activity generates a significant portion of the solid waste and most of the hazardous waste generated in Washington and managing these wastes costs Washington industries millions of dollars each year. If this initiative is successful, Washington's industries will greatly reduce these costs, making them more competitive. Ultimately, the 1.1 million tons of solid waste disposed, 0.2 million tons of hazardous waste generated and almost 16,000 tons of toxic chemicals released by industry each year will no longer be in our environment.

This initiative was selected as one of the keys to Beyond Waste for three main reasons:

1. Significantly reducing wastes and hazardous substances from Washington industries should, over time, increase competitiveness with out-of-state businesses and strengthen the state economy.
2. Most toxic wastes are generated by industry in the course of providing consumer products and services. These wastes are costly to manage and pose high risks to human health and the environment.
3. Many Washington industries already have working relationships with Ecology staff, especially through the pollution prevention (P2) planning program. These well-established relationships will be springboards for working together to reduce waste and increase competitiveness for businesses.

This initiative focuses not only on reducing wastes in industry, but also on reducing/eliminating the use of hazardous substances, such as toxic chemicals in Washington's industrial processes. Hazardous wastes are difficult to recycle. In addition, hazardous substances used in manufacturing often result in hazardous substances in the products themselves. These products carry with them an environmental and sometimes public health risk before, during and after their use.

## **Today's Reality**

Washington State's population is projected to grow dramatically to 7.8 million by 2025. Hazardous wastes, toxic releases from manufacturing processes, and product consumption will also increase. This will increase the potential for human exposure to toxic chemicals and environmental degradation. At the same time, most industries will be looking for ways to increase their market share and reduce costs to stay competitive in an increasingly global marketplace. It is a very tough time for businesses in Washington. This was the recurring theme expressed at Ecology's Hazardous Waste Generator focus groups in 2003.

Washington's economy is in the midst of change. Manufacturing jobs are diminishing and, as the population increases, there will be additional growth with service industries. These changes affect the type of wastes generated and hazardous substances used. Based on projected employment, some traditional industries, such as aerospace and aluminum production, are expected to continue to decrease. Other sectors are expected to increase such as chemical manufacturing, petroleum refining, government, services, electrical/electronic equipment production, wholesale trade, and industrial machinery/equipment.

## Goals: What Washington will look like in 30 years

The following are 30-year goals for the Industries Initiative:

### ■ Safe Products and Services

Most threats to human health and the environment due to hazardous materials have been eliminated. The products and services produced in Washington are designed to minimize hazards throughout their life-cycles. Nearly all products are less toxic, and consumer demand for effective, environmentally friendly products is widespread. Products formulated with hazardous materials are handled as carefully as hazardous waste.

### ■ Economic Vitality

Washington businesses and other sectors thrive in the domestic and global marketplace as hazardous materials are systematically eliminated from products and services. Consumer confidence has increased, risks and liabilities have decreased, and costs for managing wastes are reduced. Washington businesses, and the products and services they provide, are designed to maximize pollution prevention and sustainability principles.

### ■ Sustainable Materials Management

Consumers demand sustainable products and services that Washington businesses design and provide. Protecting human health and the environment is paramount. A well-operating infrastructure for safely and responsibly managing hazardous materials exists.

Measuring progress toward achieving these 30-year goals is discussed in Initiative #5 – Measuring Progress Toward Beyond Waste, found on page 33.

## Proposed Actions

The following are recommendations to be undertaken over the next five years for the Industries Initiative to succeed:

### Recommendation IND1 — Focus on sector work

Focus Ecology's hazardous waste and toxic substance use reduction efforts on businesses in selected industry sectors. Focused efforts and partnerships with industry sectors will encourage hazardous waste generators to make changes that will lead to significant environmental protection and will result in sustainable industrial practices.

### Recommendation IND2 — Specific sectors to focus on

Work on the following sectors:

- ✓ Finish work on the existing Cleaner Production Challenge, which focuses on the metal-finishing sector.
- ✓ Finish implementing key recommendations of the Washington State Mercury Chemical Action Plan, including mercury-related issues with auto switches and lights, and in hospitals.
- ✓ Sectors that are consistent with Ecology's next chemical action plan, which is PBDE, a class of flame-retardants.
- ✓ The general government sector (including federal, state, and local government) with

emphasis on greenhouse gases, persistent bioaccumulative toxins (PBTs), and environmentally preferable purchasing.

- ✓ Other industries, institutions, wastes, and hazardous substances being considered include hospitals, colleges and universities, auto recyclers, and industries that produce or use lead, greenhouse gases, biodiesel, used oil, polyvinyl chloride (PVC) plastics or solvents, and/or construction and demolition wastes.

**Recommendation IND3 — Develop a standardized process for sector work**

Develop a standardized process to clarify and guide how sectors will be selected in the future and how sector work will be conducted. Whenever possible, sector projects will emphasize multi-media approaches and address both pollution prevention and compliance issues.

**Recommendation IND4 — Develop specific tools for sector work**

Use the right mix of specific tools to implement sector work on a case-by-case basis as needed, such as:

- ✓ Targeted consumer education.
- ✓ MOUs (memoranda of understanding) with trade associations or organizations.
- ✓ Environmentally preferable purchasing (EPP).
- ✓ Environmental Management Systems (EMS) template for specific industries.
- ✓ Pilot projects to test a regulatory approach that is more closely linked to environmental performance.

**Recommendation IND5 — Modify the Pollution Prevention Planning program to dovetail with the Beyond Waste vision**

Modify the Pollution Prevention (P2) Planning program activities and program direction to dovetail more closely with the Beyond Waste vision, since it is a key tool for implementing the Industries Initiative. Some of the possible ways to do this are:

- ✓ Make P2 plans more effective.
- ✓ Tie in P2 data tracking with Beyond Waste data tracking efforts.
- ✓ Encourage earlier P2 planning that emphasizes designing that includes recycling in products and processes, and excludes the use of toxic substances in products and processes.

**Recommendation IND6 — Expand information on Ecology’s Web site**

Encourage all hazardous waste generators in Washington to reduce toxics contained in their products, as well as wastes generated in making their products, and to properly manage the remaining wastes. The Hazardous Waste & Toxics Reduction (HWTR) Program Web site will be expanded to include more detailed information on specific waste streams and processes, with an emphasis on best management practices. Multi-media approaches will be emphasized.

### **Recommendation IND7 — Form a work group on low-interest loans**

Form a work group to explore how to provide low-interest loans or other financing to businesses and other organizations for innovative pollution prevention or other environmental improvements, such as redesigning products to minimize the use of hazardous substances. Other state and agency programs, including the existing Cascadia revolving fund, that have successful financing mechanisms and/or low-interest loan programs will be examined, as well as funding needs and legal issues.

### **Recommendation IND8 — Negotiate the state agreement with EPA**

The HWTR Program will work with the Environmental Protection Agency (EPA) to negotiate the state/EPA agreement (which partially dictates Ecology's workload and provides financial support for much of the program's compliance work) to focus more on meeting the Beyond Waste Plan goals, including sector work.

### **Recommendation IND9 — Collaborate with affected parties to explore changes to hazardous waste fees and taxes**

Work in collaboration with affected parties to explore the feasibility of restructuring the existing hazardous waste fees and taxes, including the planning fee, and the hazardous substance tax to provide incentives for reducing hazardous wastes and substances.

### **Recommendation IND10 — Explore ways to implement Beyond Waste incentives**

Work with affected parties to recommend ways to implement financial and regulatory incentives and approaches to encourage hazardous waste generators to adopt Beyond Waste behaviors. Some possible incentives and approaches are as follows:

- ✓ **Performance results:** Reduce "regulatory burdens" for businesses that adopt environmentally beneficial results that are above and beyond current requirements.
- ✓ **Green technology:** Accelerating adoption of environmentally beneficial technology primarily in the public sector.
- ✓ **Product stewardship:** Collaborating with producers/manufacturers to take responsibility for minimizing their product's environmental effects.
- ✓ **Product certification/labeling:** Certifying the environmental performance of products by an independent third party.
- ✓ **Recognition programs:** Recognizing businesses that volunteer and meet certain waste-reduction criteria (and the recognition is used as a marketing incentive).
- ✓ **Tax or fee incentives including rebates and advance fees:** Using state/local tax code to indirectly encourage a desired behavior.
- ✓ **Eliminate subsidies:** Removing current payments that directly or indirectly encourage use of toxic substances and virgin materials.
- ✓ **Fees:** Charging fees on a relative scale to pay for government oversight – polluters pay on a sliding scale, based on type or amount of pollutant/waste.
- ✓ **Phase out highly toxic substances using memorandums of agreement:** Developing a memorandum of agreement between Ecology and affected parties to phase out certain highly toxic substances.

- ✓ **Assistance in redesigning an organization's product or process:** Providing assistance to companies in redesign efforts, to the benefit of the company and the environment.

### **Recommendation IND11 — Encourage new businesses to adopt sustainability practices**

In cooperation with the Washington State Department of Community Trade and Economic Development (CTED), Ecology should work with new businesses locating in the state to encourage them to adopt pollution prevention and sustainability practices into their facility and product design.

### **Recommendation IND12 — Encourage waste handlers to become materials brokers**

Provide technical assistance to waste handling firms so they can become materials brokers and transcend the current treatment, storage and disposal model to support greater material reuse and recycling. The goal is for these "second generation" treatment facilities to reclaim and recover waste for beneficial value and to stock reusable materials for redistribution and reuse. As this evolves, examine Ecology's regulatory controls and permitting authority to ensure that materials that are also hazardous substances are managed properly.

### **Recommendation IND13 — Support EPA's "Beyond Waste-type" efforts**

Support EPA's efforts to develop and move forward on:

- ✓ The Beyond RCRA plan.
- ✓ Resource Conservation Challenge.
- ✓ Performance Track.
- ✓ Waste Minimization Partnership Program.
- ✓ Innovation in permitting and compliance assistance.

### **Recommendation IND14 — Promote sustainability in product development**

Participate with key organizations and institutions to promote sustainability in product development. Assist such organizations and institutions with their research into selected existing and proposed alternative products for their toxicity, recyclability, reusability, water consumption, energy use and waste resulting from manufacturing and use. Using this research, Ecology will develop and provide technical assistance to businesses and other interested parties on sustainable product development. In addition, Ecology will work with others, to explore the viability of establishing a research and educational institute in conjunction with the state's university system to address sustainable product design and manufacturing.

## **Five-year Milestones: What we will achieve**

The following are milestones for the first five years of the Industries Initiative:

- ✓ Most of the companies participating in the Cleaner Production Challenge have an overall 10-25 percent reduction in wastes, including a 50-90 percent reduction of water consumption and wastewaters and 30-60 percent reduction of hazardous sludge. (It is Ecology's intent that specific numerical goals be set for any future sector work.)

- ✓ A chemical action plan for poly brominated diphenyl ethers (PBDE) has been agreed to and is being implemented to reduce threats posed by these toxic flame-retardants.
- ✓ The Washington State Mercury Chemical Action Plan has been fully implemented for hospitals, auto switches and lamps, resulting in significantly less mercury in the environment.
- ✓ Government is leading by example, with significantly less waste generation and less use of toxic substances at the local, state and federal levels. The mandated federal agencies are actively implementing their Environmental Management Systems (EMS) and the required state agencies are actively implementing their sustainability plans. The state contract for hazardous waste management and disposal reflects a preference for waste recycling/reclamation when not in conflict with minimizing long-term liability.
- ✓ Another sector project has been chosen and work has been started on it.
- ✓ If in the next two years another PBT chemical is chosen for an action plan by Ecology in compliance with the proposed PBT rule, that plan has been developed, and at least partially implemented.
- ✓ The Hazardous Waste & Toxic Reduction Program Web site includes much more information about best management practices, including alternatives, for key wastes and substances.
- ✓ Most pollution prevention plans comprehensively address hazardous substance use.
- ✓ Most of the major new businesses locating in Washington State have been designed to minimize wastes and toxics.
- ✓ Most hazardous waste handlers in Washington have taken noticeable steps toward becoming brokers of materials to encourage more reuse and recycling by those who generate hazardous waste.
- ✓ With the support of stakeholders, additional incentives have been identified to implement Beyond Waste which may include changes to hazardous waste fees and taxes.
- ✓ An adequately-funded low-interest financing program for the upfront capital costs for preventing pollution and for technologies to reduce wastes and toxics is in place, and some businesses have obtained loans.
- ✓ EPA and Ecology have been working together to implement Beyond Waste.

## Initiative #2

### Reducing Small-Volume Hazardous Materials and Wastes

For brevity's sake, this summary document does not include the numerous citations used to develop these initiatives. A detailed Background Paper on the **Small-Volume Hazardous Materials Initiative** including all appropriate citations can be accessed at <http://www.ecy.wa.gov/biblio/0407026.html>.

## Introduction

The goal of this initiative is to accelerate progress toward eliminating the risks associated with products containing hazardous substances. Specifically, this initiative encompasses products and substances commonly used in households and in relatively small quantities by businesses. The term *moderate-risk waste* (MRW) is used in Washington to classify hazardous wastes from households and small quantities from businesses, although this can be misleading because these wastes are not necessarily moderate in their risks to human health and the environment. Also, the distinction between a hazardous waste and a hazardous product is artificial, since both carry potential risks. The term moderate-risk waste, or MRW, is familiar to many; it is, therefore, used throughout this initiative to refer to wastes, as well as products or substances before they actually become “wastes.”

Reducing risks from these wastes and products involves more than ensuring safe handling and disposal. It also means increasing MRW recycling and reducing the use of hazardous substances in products. Reducing the toxicity and waste associated with products and services, and managing products at the end of their life, are solutions that need contributions from industry, manufacturers, retailers, and consumers.

This initiative was selected as one of the keys to Beyond Waste for three main reasons:

1. MRW affects everyone. Small-volume hazardous materials and wastes are everywhere and people come into contact with them daily. Chronic and occasional exposure to chemicals in our homes and businesses can be a significant health risk as well as very costly to businesses and society due to increased costs associated with health care, environmental degradation, insurance, and liability. In addition, acute exposures to chemicals in homes and businesses have increased as the sale and use of these products have increased.
2. The current management system is not affordable for the future. The current management system for wastes from households and businesses generating small quantities relies on taxes and fees. This system cannot sustain itself over the long run. Most of these monies pay for special collection, treatment, and disposal programs to keep MRW out of municipal solid waste landfills and incinerators, and away from illegal disposal, yet only a small percentage of all MRW that is generated is actually captured. It is difficult to foresee how the public sector can afford to provide the level of service for a truly effective system. The future needs to include product stewardship, waste reduction, recycling, and convenient collection/drop-off opportunities that do not rely primarily on public systems and finances.
3. Great strides are possible. Many opportunities exist today to work toward reducing and eliminating the risks associated with these products and materials. Momentum is building for less harmful alternatives to be offered and used, and for more of these products and materials to be reused and recycled. Several regional and national initiatives are already under way and can be advanced through the Beyond Waste Project.



## Today’s Reality

The existing regulatory system for moderate-risk wastes focuses on waste management. These wastes are conditionally or categorically excluded from the state *Dangerous Waste Regulations*. Little attention is given to the hazardous materials themselves, unless they are used in very large quantities.

Household hazardous waste (HHW) is any waste created by discarding a “hazardous household substance.” Hazardous household substances are defined by state statute (RCW 70.105.010(17)). The broad categories of hazardous household substances are listed in the table below.

**Hazardous Household Substance Types\***

Type	Example
Repair and Remodeling	Adhesives, oil-based paint, thinner, epoxy, stripper
Cleaning Agents	Oven, deck, and toilet cleaners; degreasers
Pesticides	Wood preservatives, mole killer, herbicides, pesticides
Auto, Boat and Equipment Maintenance	Batteries, paint, gasoline, oil, antifreeze, solvents
Hobby and Recreation	Photo & pool chemicals, glaze, paint, white gas
Miscellaneous	Ammunitions, fireworks, asbestos

\* Local jurisdictions may include additional hazardous substances as a result of local hazardous waste planning processes.

The remainder of the moderate-risk waste stream comes from non-household generators of small quantities of hazardous waste, commonly referred to as conditionally exempt small quantity generators (CESQGs). In 1990, Ecology estimated there were approximately 240,000 CESQGs in Washington. These businesses generate up to 220 pounds per month or per batch for most hazardous wastes. CESQG wastes include the same substances as HHW, but also may include some additional commercial-type wastes that would be less likely to be found in HHW. Some examples are: commercial quantities of copier and photo processing wastes; high-strength cleaning and production chemicals; and strong oxidizers, acids, and bases.

In 2002, 24.1 million pounds of MRW (HHW and CESQG, combined) were collected in the publicly sponsored system. Of that, 22.7 million pounds was HHW. HHW is estimated to represent approximately 1 percent of the total municipal solid waste stream. One percent would equal 144 million pounds in 2002, which is far more than the 22.7 million pounds that were collected. Therefore, only about 16 percent (22.7/144) of all HHW in 2002 was collected through HHW collection programs. The remaining 84 percent of the HHW generated in 2002 may have entered landfills, solid waste combustors, sanitary sewers, stormwater systems, or may have been dumped on the ground.

The CESQG waste stream is less well quantified, but experts estimate that it is probably at least as large as the HHW waste stream. If it is the same size as the HHW waste stream (144 million pounds), then the 1.4 million pounds of CESQG waste collected in 2002 (24.1 million

*pounds of MRW minus 22.7 million pounds of HHW equals 1.4 million pounds of CESQG waste)* would represent only 1 percent of the total CESQG waste stream. The remaining 99 percent of the CESQG waste stream is unaccounted for.

It is estimated that the current MRW collection system is managing a small percentage of the wastes from HHW and CESQG sources. It is unlikely that the collection system can manage all MRW with the current level of resources. Local and state resources are challenged to fund the current level of HHW services. For the CESQG waste stream, most programs provide services for a fee and so some additional capacity might be available to serve this client base by the generation of fee-based revenues.

Although MRW collection is inadequate compared to the volumes generated, it does divert hazardous materials from the municipal waste streams and provide numerous benefits. MRW collection provides an opportunity for waste reduction education, allows for the recovery of materials as resources, reduces the toxicity of solid waste landfills and wastewater systems, helps the public avoid improper disposal practices, and protects waste processing equipment and handlers from exposure to hazardous materials.

## **Goals: What Washington will look like in 30 years**

The following are 30-year goals for the Small-Volume Hazardous Materials Initiative:

### **■ Safer Products and Services**

Most threats to human health and the environment have been eliminated by minimizing chemical hazards associated with the life-cycles of products and services. Products and services that are less toxic are available to meet consumer demand, and highly-hazardous products are generally unavailable.

### **■ Efficient Materials Management**

Human health and the environment are well protected. Reuse and recycling are optimized for any remaining hazardous materials still in use as producers, retailers, government, consumers, the solid waste industry, and other sectors have collaboratively developed a system for safely and responsibly managing hazardous materials.

### **■ Greater Economic Vitality**

Economic sectors in Washington thrive in the domestic and global marketplace as hazardous materials are systematically eliminated from products and services. New programs and technologies are developed to manage the remaining hazardous materials more effectively and efficiently. Consumer confidence has increased, risks and liabilities have decreased, and costs for managing wastes are reduced.

Measuring progress toward achieving these 30-year goals is discussed in Initiative #5 – Measuring Progress Toward Beyond Waste, found on page 33.

## Proposed Actions

The following are recommendations to be undertaken during the next five years for the Small-Volume Hazardous Materials Initiative to succeed:

### **Recommendation MRW1 — Prioritize substances to pursue**

Develop a prioritized approach to identify and eliminate MRW hazards that enter the municipal waste stream. Through collaboration with businesses and other organizations, establish a science-based process to identify hazardous substances that are high-risk and have potential widespread environmental threats. Work that will address MRW hazards will focus on one set of substances at a time. The proposed first set of priority substances is:

- ✓ Mercury (see Recommendation MRW2).
- ✓ Polybrominated diphenyl ethers (PBDE) – flame-retardants (see Recommendation MRW3).
- ✓ Electronics (see Recommendation MRW4).
- ✓ Selected pesticides (see Recommendation MRW5).
- ✓ Architectural paints and coatings (see Recommendation MRW6).

### **Recommendation MRW2 — Reduce threats from mercury**

Help reduce and eliminate mercury by supporting and implementing the Washington State Mercury Chemical Action Plan (WSMCAP). WSMCAP, part of a statewide long-term strategy for eliminating persistent bioaccumulative toxins, or PBTs, includes actions to decrease mercury from all sources. Some significant sources of mercury are in the moderate-risk waste arena, and addressing these is crucial to the success of the overall action plan. Specific actions that support the goals of the WSMCAP include technical assistance to businesses; education to businesses, households and schools; and supporting a mercury collection, repository, and recycling infrastructure.

### **Recommendation MRW3 — Reduce threats from PBDEs**

Participate in and support development of the statewide chemical action plan to reduce threats posed by flame-retardants called polybrominated diphenyl ethers (PBDE), found in products ranging from textiles to computers. Assist with implementing this plan as it relates to the moderate-risk waste stream.

### **Recommendation MRW4 — Develop an electronics product stewardship infrastructure**

Representatives from local government, Ecology, and environmental organizations should continue to work with the electronics industry on a comprehensive product stewardship system for electronic products. It is also essential to build awareness of the hazards inherent in electronic products and wastes. With consultation from the State Solid Waste Advisory Committee (SWAC) and others, Ecology will research and develop recommendations to the state legislature for an electronic product collection, recycling, and reuse program (pursuant to ESHB 2488, adopted in 2004). This electronics infrastructure needs to include:

- ✓ Accessible and effective take-back systems for electronic products.

- ✓ Electronics recycling that does not harm human health or the environment.
- ✓ Product re-design to eliminate hazardous components, ease disassembly and recycling, and lengthen life-span.

### **Recommendation MRW5 — Ensure proper use of pesticides, including effective alternatives**

Through collaboration with the Washington State Department of Agriculture, EPA, pesticide applicators, local government, environmental organizations, and others, develop criteria to identify high-risk pesticides used by households and in other small-quantity applications (both non-agricultural and agricultural). Develop a plan to ensure proper use of high-risk pesticides in households and other small, non-agricultural applications to include promoting effective alternatives. Next, work with the Department of Agriculture and others to develop a long-term strategy for using effective alternatives to high-risk agricultural pesticides.

### **Recommendation MRW6 — Reduce and manage all architectural paint wastes**

Working with industry, establish a regional or national product stewardship infrastructure for architectural paints and coatings, including a manufacturer take-back network. Also, work to reduce architectural paint wastes and the use of toxics in such paints.

### **Recommendation MRW7 — Lead by example in state government**

State government will lead by example in reducing the use and purchase of hazardous products and services by the development and implementation of environmentally preferred purchasing (EPP) policies and practices for the following priority areas and products:

- ✓ Automotive products and vehicles (re-refined oil, alternative fuels and/or hybrid-fuel vehicles, non-mercury switches, antifreeze and batteries)
- ✓ Grounds maintenance/Integrated Pest Management (less toxic pesticides)
- ✓ Electronic products
- ✓ Building materials (including paints, carpet, fixtures, furnishings)
- ✓ Cleaning products
- ✓ Flame-retardants

### **Recommendation MRW8 — Ensure MRW and hazardous substances are managed according to hazards, toxicity and risk**

Develop a long-term approach to evaluate and, if needed, modify environmental laws and regulations that govern MRW, looking into two main areas. First, consider a graduated regulatory system governing waste that is based less on quantity and more on other risk factors such as toxicity, mobility, and persistence. These changes would be two-fold: to provide more incentive for the reduction of target risk factors, such as toxicity and to ensure that wastes that exhibit these target risk factors are subject to the highest level of care the regulatory system affords, possibly regardless of quantity. Second, evaluate moving to a more comprehensive regulatory system that removes barriers and provides incentives to reduce the same target risk factors in hazardous substances and products that contain hazardous substances.

### **Recommendation MRW9 — Fully implement local hazardous waste plans**

Ensure that all local jurisdictions have and continue to fully implement the five required elements of local hazardous waste plans through the following actions:

- ✓ Prepare a status report detailing statewide implementation.
- ✓ Develop a schedule and strategy for updating any out-of-date plans.
- ✓ Develop ways to use the existing MRW collection infrastructure to support product stewardship and additional closed-loop recycling efforts.
- ✓ Revise the local hazardous waste planning guidelines to more completely reflect the Beyond Waste goals and vision for the future.
- ✓ Provide assistance to local jurisdictions for plan updates and implementation.
- ✓ Provide for regular review of the local hazardous waste programs.

### **Recommendation MRW10 — Ensure facilities handling MRW are in compliance with environmental laws and regulations**

Ensure that facilities handling hazardous residuals operate in compliance with environmental laws and regulations. This should include encouraging as much reuse and recycling of these materials as possible. This recommendation also involves evaluating the existing compliance strategy, and creating a plan for strengthening it. Consideration should be given to:

- ✓ Providing technical assistance on a systems-wide basis.
- ✓ Addressing financial assurance requirements.
- ✓ Increasing Environmental Management Systems.
- ✓ Ensuring consistency with local hazardous waste plans.
- ✓ Using regulations to encourage additional recycling.

### **Five-year Milestones: What we will achieve**

The following are milestones for the first five years of the Small-Volume Hazardous Materials Initiative:

- ✓ A consensus-based process is in place and used to rank priority substances that are high-risk, and the next set of substances to pursue have been identified.
- ✓ Sales of mercury-containing consumer retail products have significantly decreased in the state.
- ✓ A statewide strategy has been agreed to and is undergoing implementation to reduce threats posed by polybrominated diphenyl ethers (PBDE) used as flame-retardants.
- ✓ Industry has established a nationally based, effective product stewardship program for electronic products.
- ✓ An industry led management system for leftover paint has been created, and there are at least as many collection locations to accept leftover paint across the state as there are used oil collection sites, with sites in each county.
- ✓ The growth trend in retail sales of high-risk non-agricultural pesticides has leveled off.

- ✓ All of state government and 80 percent of other entities that are members of the Washington State Purchasing Cooperative are using environmentally preferable purchasing for products and services in the following areas:
  1. Automotive products and vehicles (re-refined oil, alternative fuels and/or hybrid-fuel vehicles, and non-mercury switches).
  2. Products containing flame-retardants.
  3. Grounds maintenance (least-risk methods)/Integrated Pest Management (less toxic pesticides).
  4. Electronic products.
  5. Building materials (including recycled-content paint, carpet, fixtures, and furnishings).
  6. Safer, least-risk cleaning products.
- ✓ Local hazardous waste plans are up to date and are being fully implemented.
- ✓ All MRW facilities are in compliance with Chapter 173-350 WAC, and all treatment storage and disposal facilities handling MRW are also in compliance with Chapter 173-303 WAC.

## Initiative #3

### Increasing Recycling for Organic Materials

For brevity's sake, this summary document does not include the numerous citations used to develop these initiatives. A detailed Background Paper on the **Organic Materials Initiative** including all appropriate citations can be accessed at <http://www.ecy.wa.gov/biblio/0407027.html>.

#### Introduction

The goal of the Organic Materials Initiative is to expand and strengthen the closed-loop reuse and recycling system in Washington for organic materials. This system will convert leftover or excess organic materials into feedstock for new materials and products such as compost. The list of "organic materials" is extensive but includes substances and products of biological origin that have the potential to be safely returned to the soil, such as yard waste, food waste, manures, crop residues, soiled/low-grade paper, wood and biosolids.

This initiative was selected as one of the keys to Beyond Waste for four main reasons:

1. Organic wastes represent a significant portion, about 30 percent, of Washington's commercial and residential waste streams. They also are generated in large quantities by agricultural, forestry, and industrial operations.
2. The potential for beneficial use of organics is very high. Many organic materials are easily recycled into new products with demonstrated market value.
3. Washington is already significantly along the way toward establishing a viable organics cycle. A variety of materials including yard waste (in some regions of the state), biosolids, and paper, are currently being recovered for beneficial use.

4. Organics recycling provides significant environmental and human health benefits, in addition to reducing wastes. Practices such as burning crop wastes, storing manures, and landfill disposal have the potential to affect air and water quality.

The ultimate goal is for residual organic materials (most of which are now managed as wastes) to go to the highest and best uses possible. The benefits of a comprehensive organics recycling system include: a reduced demand for landfill space, a reduced need for added chemicals (such as fertilizers and pesticides) to agricultural lands, improved soil structure, water conservation, creation of new jobs, and reduced costs to agricultural producers.

## **Today's Reality**

Waste composition studies indicate that about 30 percent of the municipal solid waste generated by Washington residences, businesses and institutions is organic material. Comprised of food waste, yard waste, compostable paper, clean wood, and textiles, the majority of these organic materials are now landfilled or incinerated.

Recovery of organic materials in the state of Washington has grown rapidly in the past 20 years, driven by government focus on waste diversion and procurement of recycled products. Statewide, the recovery of yard debris has grown from almost nothing in 1988 to about 380,000 tons in 2002. This growth is a notable success story and provides momentum to help recover even greater quantities of yard debris and other organics.

Achieving cost-effective recovery programs is difficult and requires high participation rates, collection and transfer efficiencies, adequate processing capacity, established markets, and economies of scale. Local governments have shown that collecting yard waste from residences can operate cost-effectively, especially in highly populated areas. Systems in dispersed rural regions have more difficulty being cost-effective.

## **Goals: What Washington will look like in 30 years**

The following are 30-year goals for the Organic Materials Initiative:

### **■ Robust Markets**

Robust markets have been established for organic-based products in all sectors of the economy. There is demand for high-quality organic products in the marketplace, from soil amendments and recycled consumer goods to green energy sources.

### **■ Closed-loop Materials Management**

Organics collection and processing is optimized. A network of businesses thrives on transforming residual organic materials into beneficial products. The quantity of organic waste is reduced through changes in industrial processes and on-site management such as composting. Organic materials are transformed into beneficial products according to highest and best use.

## ■ Society Supports A Sustainable Organics Cycle

Full organics recovery and beneficial use are the norms in Washington State. Businesses and governments incorporate full organics recovery into their decisions. Economic and regulatory incentives are aligned to support this system. Recycling and reuse of organics are efficient due to minimal presence of contamination or composite products in the system. Organic products are widely and regularly used to improve soil quality in urban, suburban, and agricultural areas.

Measuring progress toward achieving these 30-year goals is discussed in Initiative #5 – Measuring Progress Toward Beyond Waste, found on page 33.

## Proposed Actions

The following are recommendations to be undertaken over the next five years for the Organic Materials Initiative to succeed:

### Recommendation ORG1 — Lead by example in state government

Washington State government will lead by example both through organics recovery programs as well as through the purchase and use of more recycled organic products. Specifically, state government will:

- ✓ Maximize its procurement of recycled organic products and its use of products that do not lead to contamination of organic materials.
- ✓ Implement on-site (or nearby) collection and processing of yard debris, food waste, and soiled paper at state government agencies. Develop best management practices for agencies and institutions for handling yard debris, food waste and soiled paper.
- ✓ “Advertise” success of demonstration projects, especially links to environmental benefits and cost savings.
- ✓ Evaluate and propose appropriate incentives that will foster priority activities for organics recovery in the commercial and institutional sectors, and also within state agencies.

### Recommendation ORG2 — Increase residential and commercial organics recovery programs

Expand and increase organics recovery programs in residential and commercial sectors, recognizing that opportunities differ between rural and urban areas of the state. Needed actions will include:

- ✓ Research and develop a package of incentives to ensure the viability of organics recycling and recovery.
- ✓ Incorporate Organics Materials Initiative goals into local-jurisdiction solid waste management plans.
- ✓ Support organics recycling through local-level waste management contracting.
- ✓ Expand food waste collection and processing for residential and commercial sectors, to include developing Best Management Practices.



- ✓ Expand or implement home composting programs in every county.
- ✓ Develop an ongoing awareness and education program about the need for and benefits of “healthy soils.”
- ✓ “Advertise” success of model projects, especially links to environmental benefits.

### **Recommendation ORG3 — Improve quality of recycled organic products**

For organic materials to continue to be valued commodities, consumers must have confidence in the quality of recycled organic products. A number of actions are needed to address the quality of recycled organic products and thereby improve consumer confidence:

- ✓ Identify quality barriers to marketability of recovered organic products, including sources of contamination. Propose strategies to address the quality barriers.
- ✓ Bring key producers and users together to develop product quality criteria that address marketability according to end use.
- ✓ Promote the use of labeling or information sheets for recycled organic products.
- ✓ Evaluate the need for changes to standards for composted material in WAC 173-350-220.

### **Recommendation ORG4 — Develop a strategy to increase industrial and agricultural organics recovery**

Develop and begin implementing a strategy to increase closed-loop recycling in the industrial (food processing) and agricultural sectors. This should include the following:

- ✓ Assess barriers, key leverage opportunities and various approaches to increasing organics reuse and recycling in the agricultural and industrial sectors.
- ✓ Develop a set of specific actions and a proposed timeline for increasing organics recovery and recycling throughout these sectors.
- ✓ Advertise success of current projects, especially links to environmental benefits.
- ✓ Research and develop a package of incentives to encourage organics recovery in the agricultural and industrial sectors.

### **Recommendation ORG5 — Propose solutions to statutory and regulatory barriers**

Identify, evaluate, and propose solutions to statutory and regulatory barriers for developing and sustaining a closed-loop organics cycle in Washington. Actions in a number of areas are needed to successfully support expansion of the organics cycle:

- ✓ Research and identify statutory and regulatory requirements that inhibit the sustained development of a successful organics closed-loop system.
- ✓ Develop a proposal for addressing these barriers, leading to a regulatory framework that supports closed-loop organics recycling.
- ✓ Develop a process to resolve existing (and future) jurisdictional conflicts among state, local and federal governmental authorities.
- ✓ Develop and institute a process for Ecology rule development and implementation that will provide for clarity and consistency, and will prevent overlapping or contradictory requirements.

- ✓ If appropriate, propose a hierarchy of highest and best uses for organic residual materials.

### **Recommendation ORG6 — Develop new products and technologies for organic residuals**

Develop a strategy for researching and developing best practices, additional products and new technologies for organics recycling. Specific actions include:

- ✓ Identify priority research needs for innovative new technologies and products that will help closed-loop organics recycling.
- ✓ Encourage and seek funding for specific projects that can serve as demonstrations and/or fulfill research needs, including biomass energy projects that involve closed-loop recycling of organic residual materials.
- ✓ Develop and promote best practices for organics collection and processing.

### **Five-year Milestones: What we will achieve**

The following are milestones for the first five years of the Organic Materials Initiative:

- ✓ State government and other large institutions use the organics recycling project at Ecology’s headquarters in Lacey as a model.
- ✓ Best management practices for organics recycling at institutions are in use and at least six organics recycling programs are operating in large institutions and government agencies.
- ✓ Home composting programs are active and successful in every county.
- ✓ Closed-loop organics recycling goals and actions have been incorporated into several local-jurisdiction solid waste management plans.
- ✓ Effective incentives for encouraging organics closed-loop recycling have been identified and pursued.
- ✓ Performance-based product labeling requirements are in place for organic products that are sold or given away.
- ✓ Most people throughout the state are aware of the ongoing “healthy soils” program, and a significant percentage of the people understand the benefits of healthy soils.
- ✓ One or more pilot projects using biomass energy technology are in operation to demonstrate the efficacy of capturing energy from organics.
- ✓ Implementation of an agreed upon strategy for increasing agricultural and industrial organics recycling is under way.
- ✓ A plan to address statutory and regulatory barriers to closed-loop organics recycling is widely supported.

## Initiative #4

### Making Green Building Practices Mainstream

For brevity's sake, this summary document does not include the numerous citations used to develop these initiatives. A detailed Background Paper on the **Green Building Initiative** including all appropriate citations can be accessed at <http://www.ecy.wa.gov/biblio/0407028.html>.

#### Introduction

The short-term goal of the Green Building Initiative is to dramatically increase adoption of environmentally preferable building construction, operation and deconstruction practices throughout the state and the region. The term green building, essentially synonymous with *sustainable building*, appears throughout this section because it is a term that is already widely used to represent both these types of practices and the buildings that result. We have borrowed the U. S. Green Building Council definition of *green design* for the purpose of describing *green building* as: "design and construction practices that significantly reduce or eliminate the negative impact of buildings on the environment and occupants in (the) five broad areas (of): sustainable site planning; conservation of materials and resources; energy efficiency and renewable energy; safeguarding water and water efficiency; and indoor air quality." The long-term goal of this initiative is for "green building" to be a mainstream and usual practice throughout the state. Increased focus on green building has been identified as one of the keys to significantly reducing wastes and reducing the use of toxic substances in our state.

This initiative was selected as one of the keys to moving Beyond Waste for four main reasons:

1. The amount of waste from buildings is significant. Construction and demolition waste made up approximately 34 percent of the solid waste generated in Washington in 2002. This represents inefficient use of valuable resources, waste management challenges and inefficient use of business capital. Reducing the amounts and negative effects of construction and demolition wastes will result in significant progress toward Beyond Waste.
2. Partnerships are already working on green building issues. Momentum is growing within industry and government to move toward green building practices. Tremendous successes have been achieved and green building practices are being embraced by companies and governmental jurisdictions across the country and in many areas of the globe. Focusing resources in this area has great potential to accelerate success.
3. Political support is strong. Green building is one of the key priorities for action from the Governor's Sustainable Washington Advisory Panel.
4. It addresses multiple problems and yields multiple benefits. The transition to building "green" will bring many benefits to public and individual health, the economy and the environment, as well as decrease the strain on natural resources and the waste management system.

## Today's Reality

The building industry has long been a strong component of Washington's economy. Since the early 1980's, the construction industry has represented about 5 percent of the gross state product in Washington. In 2000, this was \$11.3 billion of Washington's economy.

This vibrant industry has important benefits for our communities, but many do not recognize the negative effects that building design, construction activities and building use can have on the economy:

- ✓ Residential and commercial buildings used nearly two-thirds of all electricity consumed in the U.S. in 2003.
- ✓ Sixty percent of the total annual use of ozone-depleting substances in the U.S. is for building construction and building systems.
- ✓ Design and construction of buildings in the U.S. created 136 million tons of waste in 1996.
- ✓ Buildings account for 60 percent of the raw material (non-food and non-fuel) consumption in the U.S.

As much as 61 percent of the construction and demolition waste generated each year in Washington is diverted from disposal, which seems to exceed national rates. Construction and demolition debris consists mainly of wood, concrete, gypsum, roofing, glass, carpet and pad, metals, asphalt, bricks, and porcelain. However, a significant percentage of this diverted waste is downcycled, or diverted to lower-value uses. For example, a primary use of salvaged wood waste is to burn it as a fuel for industrial boilers, which is a higher value use than landfilling, but is still a consumptive use. This use of wood may be less desirable than turning wood waste into finger-jointed studs or roof trusses depending on other factors such as transportation costs to factories.

Buildings also contain potentially dangerous or hazardous substances including:

- ✓ Arsenic, chromium, lead, pentachlorophenol, or creosote pesticides in treated wood products.
- ✓ Asbestos, lead, mercury or other known toxic substances, such as polybrominated diphenyl ethers (PBDE) flame-retardants and polyvinyl chloride (PVC), as found in paints and coatings, plumbing, fluorescent lighting, batteries, thermostats, siding, flooring, insulation, vinyl, plaster, wallboard, and other materials.

## Goals: What Washington will look like in 30 years

The following are the 30-year goals for the Green Building Initiative:

### ■ Green Building Practices Are Mainstream

Green building practices and the demand for green homes and buildings is the norm in the Pacific Northwest, due in part to Washington State's leadership. Nearly 100 percent of all renovations and new construction adhere to the highest standards of green building.

## ■ **Reuse of Buildings and Recycling of Construction Materials Are Normal Business Practices**

Adapting and reusing existing buildings is a higher priority than dismantling and recycling their components. Materials are safely recycled into high-value products. Recycled and reusable building materials are commonplace and sold through all mainstream building material supply businesses. A network of businesses thrives on reusing and recycling building materials.

## ■ **Buildings and Materials Are Designed for Human, Economic and Environmental Health**

The design of buildings and construction materials has been transformed, and water and energy needs for buildings are met on-site. These buildings operate pollution free, generate no waste, and promote the health and well-being of all inhabitants. Toxic components have been phased out of building materials or recaptured for recycling, and materials are designed to be safely recycled or reused at the end of their life.

Measuring progress toward achieving these 30-year goals is discussed in Initiative #5 – Measuring Progress Toward Beyond Waste, found on page 33.

## **Proposed Actions**

The following are recommendations to be undertaken during the next five years for the Green Building Initiative to succeed:

### **Recommendation GB1 — Coordinate and facilitate partnerships to implement the green building action plan**

Establish a lead organization to promote these efforts and to coordinate their statewide implementation. Ecology can serve in this capacity unless another organization would be better able to do so. This effort includes working with partners to develop cost-effective programs, tools, and techniques to encourage green building.

### **Recommendation GB2 — Lead by example in state government**

State government needs to lead by example to promote green building. Build or renovate all state-funded buildings to Leadership in Energy and Environmental Design (LEED™) standards, or equivalent standards, for projects entering into pre-design in the 2005-07 biennium and after. Adapt state government procurement processes to ensure green building materials are purchased. Participate in established processes to ensure that green building standards continuously improve as new technologies and issues emerge, and to address concerns that are raised. Institute standards and a program for ensuring the purchase of environmentally preferable building materials.

### **Recommendation GB3 — Provide incentives that encourage green design, construction, and deconstruction and begin removing disincentives**

Provide incentives that encourage green design, construction, and deconstruction practices. Research, assess and begin instituting incentives that will increase green

building demand and participation. Also, identify and begin to remove regulatory barriers and other disincentives that serve to discourage green building practices. Encourage the lending industry to embrace green building. Additional assessment is needed to develop specific incentives that will be highly effective in expanding green building practices. This will involve considering several different types of incentives, including various economic incentives as well as permitting and regulatory incentives. It is important to recognize that different areas and circumstances call for different types of incentives to be offered.

Once regulatory and other barriers are clearly identified, a strategy for building support to remove the ones that most significantly discourage green building practices will be developed. The new provisions should encourage, rather than simply accommodate, green building practices. Provisions that prohibit – or seem to prohibit – green building practices may be found in reviews of the State Building Code, local building codes and other applicable state regulations, specifically including those related to land use, zoning, stormwater management, water resources and shoreline protection.

#### **Recommendation GB4 — Expand capacity and markets for reusing and recycling construction and demolition materials**

Identify places where additional capacity is needed for reuse and recycling of building materials, and begin planning to provide it. Current needs include increased processing capacity in eastern Washington, additional transfer stations and sites to receive construction and demolition materials, increased storage/retail capacity for reusing materials, increased recycling services in urban areas, and more facilities that can process demolition materials containing toxic materials. Within five years, expansion of the reuse/recycling infrastructure will be under way, and at least two additional facilities in underserved areas will be in operation. The use of reused and/or recycled building materials will increase by at least 25 percent within five years. Assess current markets and develop a plan to expand market capacity to manage the materials.

#### **Recommendation GB5 — Provide and promote statewide residential green building programs**

Work with leaders of existing residential green building programs to make the programs available throughout the state for local implementation. Provide and market available support, including but not limited to technical assistance, promotional materials and checklists.

#### **Recommendation GB6 — Increase awareness, knowledge and access to green building resources**

To maximize success, people must be aware of and aligned with the green building goals. This action calls for promoting the expansion of green building practices statewide through raising awareness, and teaching green design and green building. Specific actions include a comprehensive information clearinghouse, technical assistance centers, industry-specific training, and a marketing effort aimed at consumers and the building professions.

### **Recommendation GB7 — Encourage innovative product design**

Work with partners to achieve manufacturer commitment to innovative product design and life-cycle management. Focus first on product stewardship programs for carpet, paint, and mercury-containing building products and then develop criteria to identify additional products of concern for future product design efforts, such as those that contain PVC or PBDE flame-retardants. Support and actively participate in efforts to increase the availability of green building materials that consumers can feel confident in using.

### **Five-year Milestones: What we will achieve**

The following are milestones for the first five years of the Green Building Initiative:

- ✓ Washington State is a national leader in green building.
- ✓ All new state government buildings meet green building standards.
- ✓ Some economic incentives are in place and in use, and government has removed at least one major regulatory barrier to green building.
- ✓ Expansion of the reuse and recycling infrastructure is under way, and at least two additional facilities in underserved areas are in operation.
- ✓ Through increasing awareness of the benefits of green building the use of reused and/or recycled building materials has increased by at least 25 percent, and these materials are widely available.
- ✓ Ten percent of new residential and commercial construction use green building practices.
- ✓ The curricula for all accredited architectural programs in the state incorporate green building design.
- ✓ Ongoing industry-specific short courses are available across the state.
- ✓ More than 90 percent of the people working in building and building-related sectors in Washington State are familiar with green building practices and are aware of the availability of green building resources (training, technical assistance, etc).
- ✓ Product stewardship programs for carpet, paint, and mercury-containing building products are in place.
- ✓ All building material manufacturers are aware of what extended producer responsibility means.

## **Initiative #5**

### **Measuring Progress Toward Beyond Waste**

For brevity's sake, this summary document does not include the numerous citations used to develop these initiatives. A detailed Background Paper on the **Measuring Progress Initiative** including all appropriate citations can be accessed at <http://www.ecy.wa.gov/biblio/0407029.html>.

## Introduction

The goal of the Measuring Progress Initiative is to help Ecology and its partners make the transition to a long-term data-tracking system that measures progress toward the Beyond Waste vision. This will be done by developing effective and reasonable ways to measure how successful Washington is at reducing the use of toxic substances and the generation of both solid and hazardous wastes.

Ecology recognizes that industries and local government have few, if any, additional resources to invest in more data collection and reporting. While some data-collection efforts may need to be modified and improved, overall, Ecology needs to develop ways other than more reporting to improve its data-tracking system.

Performance indicators and data tracking have been selected as important areas of focus for the following reasons:

1. It is critical to be able to measure success and track progress toward the Beyond Waste vision.
2. There is a need for different evaluation tools. Currently, tracking systems are incomplete and focus mostly on managing waste. Ecology lacks tools for measuring overall reduction of waste and toxic substances.

## Today's Reality

Ecology collects and reports a huge amount of information about hazardous wastes, toxic releases and solid wastes in Washington. Much of the data collected by Ecology are submitted by regulated facilities or enterprises; others are obtained directly by Ecology staff. For data on some material flows, Ecology depends on other entities (including state and local government agencies, agricultural groups, and health agencies) to share pertinent information. In some cases, Ecology relies on studies conducted outside of its jurisdiction.

The existing data systems provide good information about hazardous and non-hazardous wastes. Most of this data is reasonably accurate, with data quality improving over the years as Ecology has worked with those that are required to report. The data are more readily available to staff and the public with the data reports on the Internet. Ecology has been able to use this data to make projections and to develop performance measures. In short, Ecology's progress with its current data-collection efforts is commendable. However, Ecology must build on its current data-collection efforts and revise them. Using existing data systems, the following issues limit the ability of Ecology and others to measure progress toward the Beyond Waste vision:

- ✓ Many hazardous wastes are not tracked due to regulatory exemptions.
- ✓ Inability to predict future waste streams.
- ✓ Limited ability to track trends due to regulatory changes or other factors.
- ✓ Lack of performance measures to determine if actions are making a difference.
- ✓ Lack of ability to target Ecology resources at changing waste generation trends.
- ✓ Data is not verified with other sources for accuracy.
- ✓ Limited ability to track the use of hazardous substances.



The questions below, developed by a team of experts, outline where Ecology needs to redirect its data-collection efforts:

### Key Questions

1. Total waste: How much are we generating?
2. Inputs & efficiency: Are we reducing the use of materials over time?
3. Return flows & eco-effectiveness: How much and what is the value of the “waste” output returned and reused as material inputs?
4. Risk & inherent hazard: Are we reducing risks from toxic materials and wastes?
5. Contribution to vitality: Does eliminating wastes contribute to economic, environmental and social vitality?
6. Behavior change: Are residents, businesses, and institutions taking actions to achieve the Beyond Waste vision?
7. Beyond waste strategy effectiveness: Are Ecology’s strategies achieving their intended goals?
8. Capacity & safety: Do we have adequate, safe facilities to handle the remaining wastes?

### Goals: What Washington will look like in 30 years

Following are 30-year goals for an improved data-tracking system:

- A performance-indicator system has been developed to answer the Key Questions (above) and measure progress toward the Beyond Waste vision over the long term.
- Data gaps have been identified, their significance has been determined, and the important gaps have been filled.
- Existing data-collection systems at Ecology have been strengthened by supplementing existing data with other sources of information, such as site visits and surveys, and cross-referencing data when appropriate.

### Proposed Actions

The following are recommendations to be undertaken over the next five years for the Measuring Progress Initiative:

#### **Recommendation DATA1 — Conduct a feasibility study to determine which major indicators to use**

Conduct a feasibility study to determine which major indicators or roll-up of indicators Ecology should be using to report overall progress on Beyond Waste. This feasibility study should be completed in 2006. Possible indicators include:

- ✓ Materials flow, including amount of industrial recycled feedstock used (similar to New Jersey's tracking of hazardous substance use, but done on a voluntary basis or by obtaining or purchasing available information).
- ✓ Basket of goods (similar to Consumer Price Index, focusing on quantity of recycled-content and/or non-toxic goods purchased).
- ✓ Creation of "green" jobs.
- ✓ Chemical body burden (toxics found in human blood or mother's milk) or other health-related indicators.
- ✓ Chemical environmental burden (similar to chemical body burden, but broader and more focused on the whole environment).
- ✓ The ratio of product to non-product output for selected businesses and sectors.

**Recommendation DATA2 — Continue the work of Ecology's data team to produce a joint Beyond Waste progress report**

Modify Ecology's existing data-collection system to be more comprehensive and to be more in line with a materials flow framework system. The Key Questions need to be kept in mind throughout this process. One of the tasks of this group will be to produce a joint Hazardous Waste and Toxics Reduction (HWTR) and Solid Waste & Financial Assistance (SWFA) Program Beyond Waste progress report annually or every other year, starting in 2006. This report will:

- ✓ Include existing as well as new performance indicators.
- ✓ Discuss efforts that have been made to date on closing data gaps such as the lack of good data on moderate risk waste.
- ✓ Explain what has been done to increase the effectiveness of existing data-collection efforts.
- ✓ Be user-friendly, emphasize the big-picture and be posted on the Beyond Waste Web site.

**Recommendation DATA3 — Discuss indicators for each Initiative**

In the joint Beyond Waste progress report (unless otherwise noted) discuss the implementation of Beyond Waste indicators that have been developed for each initiative. These indicators will be examined for possible modification based on input that was received during the public comment period on the Public Review Draft of the Beyond Waste Plan. It is Ecology's intention to continue to use these indicators for at least 10 years so that long-term trends can be observed and noted. They include the following:

- ✓ Moving Toward Beyond Waste with Industries -- Existing hazardous waste information will be analyzed for trends at the facility level and reported at the sector level. This analysis could include the following:
  1. Changes in the amount of hazardous waste generated
  2. Changes in the amount of hazardous waste recycled
  3. Changes in the amount of hazardous waste managed
  4. Growth in the sector

- ✓ Reducing Small-Volume Hazardous Materials and Wastes
  1. Fraction of gross state product spent on waste disposal
  2. Miles per pound of hazardous materials transported per capita
  3. Estimated generation rates of specific identified materials
- ✓ Increasing Recycling for Organic Materials
  1. The amount of organics disposed in landfills
  2. Percentage of cities and counties in Washington with residential organic waste recovery programs
  3. Percentage of residents and businesses served by organic waste recovery programs
  4. Number of cities and counties in Washington with on-site composting education and promotion programs
  5. Total volume of composted material statewide
- ✓ Making Green Building Practices Mainstream
  1. Fraction of new buildings that are Leadership in Energy and Environmental Design (LEED™) or Built Green™ projects
  2. Local building codes with green elements
  3. “Green building” market-share indicators (2010 report)
- ✓ Hazardous Waste Issues
  1. Changes in operating costs
  2. Changes in hazardous waste generation
  3. Changes in toxic material use
- ✓ Solid Waste Issues
  1. Total solid waste disposed, in aggregate and per person (including municipal solid waste, industrial waste and construction & demolition debris, by sector)
  2. Municipal solid waste recycling rates (state and local)

## **Five-year Milestones: What we will achieve**

The following are milestones for the first five years of the Measuring Progress Initiative:

- ✓ A feasibility study to determine key indicators for the Beyond Waste Project has been completed and those key indicators are in use.
- ✓ A clear baseline is established for Beyond Waste data.
- ✓ Several Beyond Waste progress reports have been released to the public.
- ✓ Ecology’s data-collection and tracking system provides specific information to evaluate progress toward Beyond Waste.



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## Other Hazardous Waste & Solid Waste Issues

### Introduction

Specific hazardous waste and solid waste issues are summarized below. Priority issues to help strengthen the existing hazardous waste management system and solid waste management system are discussed in this section. Recommendations are included for addressing these needs.

### Current Hazardous Waste System Issues

For brevity's sake, this summary document does not include the numerous citations used to develop this section. A detailed Background Paper on the **Current Hazardous Waste System Issues** including all appropriate citations can be accessed at <http://www.ecy.wa.gov/biblio/0407030.html>.

Ecology's Hazardous Waste and Toxics Reduction (HWTR) Program activities can be grouped into three subject areas: pollution prevention, compliance with the regulations, and permitting/corrective action at facilities that manage hazardous wastes.

### 1. Pollution Prevention (P2)

Since 1990, when Washington's Hazardous Waste Reduction Act (Chapter 70.95C RCW) was passed, businesses that generate 2,640 pounds or more of recurrent hazardous waste annually or report toxic releases as part of the federal Toxics Release Inventory requirement must prepare P2 plans and submit them to Ecology.

### Today's Reality

From 1990 to 2000, P2 planners in Washington reported generating 48 million pounds *less* hazardous waste, which (adjusted for economic conditions, including business levels) represents a 59 percent reduction from the 1992 generation level. While these reductions are not all directly attributable to P2 planning, many hazardous waste generators point to P2 planning and implementation of P2 opportunities as being instrumental in their efforts to use or generate less hazardous substances.

P2 planning is required by law, but implementing opportunities identified by the facility that would reduce the use of hazardous substances or the generation of hazardous wastes is voluntary. As a result, the follow-through for P2 opportunities does not always occur. Also, P2 plans often address only those waste streams that are the easiest to reduce rather than those that are the most toxic. In addition, P2 plans do not put enough emphasis on reducing hazardous substances, yet many "future wastes" (for example, used/discarded products) are hazardous due to the substances they contain. Ecology's involvement with businesses is generally limited to regulating activities that are already established and in place. Thus, early opportunities for Ecology to influence the decisions a business makes that affect the use of toxic substances and the generation of hazardous waste are also limited.

## **Goals: What Washington will look like in 30 years**

The future of P2 planning is directed toward the following goals to maximize effectiveness and achieve the Beyond Waste vision:

### **■ Plan Earlier**

Plan for pollution prevention earlier by encouraging businesses to incorporate P2 considerations into the design of their facilities, processes, or products.

### **■ Plan Better**

Plan better for pollution prevention by developing tools that help refine P2 planners' understanding of the costs and inherent hazards posed by specific material flows.

### **■ More Implementation**

Implement more pollution prevention activities through the introduction of different incentives or means to encourage greater implementation of P2 plan activities.

### **■ Better Access**

Ecology provides better access to P2 planning program tools by enhancing the accessibility of the Ecology Web site.

## **Proposed Actions**

These recommendations to be undertaken over the next five years describe a number of activities that will help to achieve the P2 planning goals listed above.

### **Recommendation HW1 — Encourage P2 planners to address hazardous substance use including toxicity and risk in their P2 plans**

Develop additional incentives to encourage P2 planners to reduce the use of hazardous substances. This may involve:

- ✓ Education
- ✓ Technical assistance
- ✓ Modifying P2 fees
- ✓ Low-interest loans
- ✓ Possible rule and statute changes in the future

Ways to encourage addressing toxicity and risk in their plans include:

- ✓ Screening and evaluation tools, such as accounting for complete costs
- ✓ Mass balance
- ✓ More and better information on the Web
- ✓ Additional training of staff, P2 planners and other interested parties
- ✓ Working with EPA and others to prioritize chemicals of concern and to examine new risks

### **Recommendation HW2 — Develop an EMS hybrid model and guidance**

As an alternative to standard P2 plans, Ecology should develop an Environmental Management System (EMS) hybrid model and guidance based on lean manufacturing and sustainability principles. This hybrid model would be a plan that fulfills the P2 plan requirement through a multi-media EMS and sustainability approach, while emphasizing lean manufacturing and economic vitality. This alternative may become the standard format for large quantity generators over time.

### **Recommendation HW3 — Improve P2 plan quality and relationships with P2 planners**

Continue to work to improve the quality of P2 plans and Ecology's relationships with P2 planners. Some possible methods to do this are through additional Web-based information, additional training, and finding ways to address the concerns raised by P2 planners at the hazardous waste focus group meetings, held in 2003. Some of these concerns included the hazardous substance data requirements and the need for an easier way to opt out of the required updates if P2 opportunities are not available.

## **2. Compliance with the *Dangerous Waste Regulations***

Compliance with federal and state hazardous waste management regulations is the basis of Ecology's charge regarding hazardous waste management. The state *Dangerous Waste Regulations* are the basis of the HWTR Program's compliance efforts. Formal inspections of, and informal visits to, waste generators are centered on the regulations.

### **Today's Reality**

From 1991 to 2000, the number of compliance inspections went up 334 percent and the number of environmental threats resolved increased 243 percent. This increase in the number of inspections conducted by HWTR Program staff is the result of two primary changes within the program. First, improvements were made to increase the efficiency of inspections and to focus on violations that presented potential environmental or human health threats. This allowed more time to be spent conducting inspections rather than doing associated paperwork. Secondly, the HWTR Program began conducting statewide, single-industry campaigns that focused outreach efforts of the staff to one industry at a time such as the automobile service industry.

The existing program focuses on preventing and managing wastes. The same precautions and safeguards are not in place for products and substances. It does not make sense to carefully regulate wastes from cradle to grave, but have no similar management requirements for products containing hazardous substances.

Some generators have voiced concern that Ecology inspectors can be inflexible and lack business experience or training. Businesses also wish to see more consistency between Ecology's compliance staff and technical assistance staff as well as greater consistency between Ecology and EPA.

## Goals: What Washington will look like in 30 years

The future of regulatory compliance activities for the HWTR Program is directed toward the following goals to maximize effectiveness and achieve the Beyond Waste vision:

### ■ Build on Existing Relationships

Ecology continues to build on existing relationships with hazardous waste generators to improve compliance with the *Dangerous Waste Regulations*.

### ■ Improve Information Availability

Ecology makes information more readily available to generators through various avenues including person-to-person contact and internet-accessible data and guidance.

### ■ Promote Recycling

The *Dangerous Waste Regulations* are modified to promote safe recycling and emphasize the Beyond Waste goals.

## Proposed Actions

These recommendations to be undertaken over the next five years describe a number of activities that will help to achieve the regulatory compliance goals listed above.

### **Recommendation HW4 — Strive for better relationships with the regulated community**

Strive to have better relationships with the regulated community by having HWTR inspectors:

- ✓ Obtain more business experience and training.
- ✓ Increase consistency with other Ecology inspectors and technical assistance staff, other state agencies, and EPA.
- ✓ Follow the HWTR Inspector's Manual Guidance and HWTR Program parameters to improve consistency.
- ✓ Conduct more cross-media inspections.
- ✓ Maintain the strongest focus on requirements that directly affect environmental protection.
- ✓ Align field work to complement industry sector approach.

### **Recommendation HW5 — Work to ensure greater compliance with the regulations**

To ensure greater compliance with the regulations, the following actions should occur:

- ✓ Continue to inspect all generators with an EPA/State ID number at least once every 5 years, and more often, if needed, for certain facilities, such as large quantity generators and waste handlers that receive wastes from off-site.
- ✓ Ecology should provide additional workshops and other training for businesses.
- ✓ Ecology should make more compliance information available on the Web.



### **Recommendation HW6 — Modify the *Dangerous Waste Regulations* to encourage more waste and toxics minimization, including upcycling**

The *Dangerous Waste Regulations* should be modified to encourage more waste and toxic substances minimization, including additional legitimate recycling, especially “upcycling” (or recycling that will result in better, more valuable uses of resources—for example, re-refining oil instead of burning it for energy recovery).

## **3. Permitting/Corrective Action**

Ecology issues waste management permits to facilities that treat, store, or dispose (TSD) of hazardous waste. In addition to the conditions of the permit, a hazardous waste management or TSD facility is also subject to state and federal regulations for the activities conducted during operation and when the facility ceases operation or closes. Unintended releases from TSD facilities during operation are cleaned up under a process called “corrective action.”

### **Today’s Reality**

Through permits, technical assistance and monitoring of compliance with the regulations at active waste management facilities, the goal of preventing releases of dangerous waste to the air, soil, and groundwater is being met. Also, of the 116 corrective action sites in the state of Washington, only 33 are medium or high priority sites. Ecology expects to complete the corrective action process at all 19 of the high priority sites by 2011, and the 14 medium priority sites are expected to complete the process by 2032.

Hazardous waste permits do not always cover all types of wastes received or waste handling processes employed at a facility. Also, hazardous waste permits contain financial requirements for TSD facilities including coverage for pollution liability and facility closure, but they often fall short of covering the full cost of closure. Further complicating matters, the financial mechanisms often used by TSDs require the owner/operator to be present at closure (which is not always the case), and these mechanisms can be so complex that it is difficult to successfully file and collect claims.

An additional concern is the limited ability to address potential environmental threats at recycling facilities and used oil processors because these facilities are not required to obtain a hazardous waste management permit.

### **Goals: What Washington will look like in 30 years**

The future of permitting/corrective action activities for the HWTR Program is directed toward the following goals to maximize effectiveness and achieve the Beyond Waste vision:

#### **■ Ensure Full Financial Responsibility**

Hazardous waste management and recycling facilities assume full financial responsibility for facility closures and corrective action cleanups.

### ■ **Acquire More Technical Assistance**

Ecology seeks technical assistance from EPA on financial assurance, including cost modeling.

### ■ **Educate The Public**

The public is aware of the possible risks and costs of waste mismanagement at facilities handling hazardous wastes.

### ■ **Transform Existing TSDs**

As the goals of Beyond Waste are met and the need for waste management facilities diminishes, TSDs are provided with technical assistance to allow them to mature into “second generation” TSDs. Second generation TSDs provide treatment (reclamation, reuse, or recovery for beneficial value) of wastes that have not been eliminated, or stocking and distribution of reusable materials for industrial and commercial uses.

## **Proposed Actions**

These recommendations to be taken over the next five years describe a number of activities that will help to achieve the permitting and corrective action goals listed above.

### **Recommendation HW7 — Ensure hazardous waste management facilities are operated in a safe manner**

Ecology should continue to work on its assessment of hazardous waste facilities to ensure:

- ✓ Waste handlers (TSDs, recyclers and used oil processors) assume full responsibility, including financial responsibility, for any necessary environmental remediation at their facilities.
- ✓ Waste handlers are regulated consistently and comprehensively.
- ✓ Ecology has the necessary funding mechanisms to implement an adequate technical assistance, permitting and compliance program for waste-handling facilities.
- ✓ The public understands the full costs (closure, investigation, cleanup, post-closure, and long-term monitoring) and risks of possible mismanagement of waste at waste-handling facilities.
- ✓ Establishment of an operating certificate program for recyclers and used oil processors, followed by increased Ecology presence at these facilities through visits by technical assistance and compliance staff.

### **Recommendation HW8 — Develop accurate cost estimates for closure/corrective action**

Work to develop complete and accurate cost estimates and financial assurance for closure and corrective actions by waste handlers. Explore various ways to do this, such as: assistance from EPA or other state agencies, additional HWTR Program staff time assigned to this or contracting for services.

### **Recommendation HW9 — Reduce the administrative burden for corrective action facilities**

Work to reduce the administrative burden for facilities subject to corrective action by:

- ✓ Encouraging voluntary cleanups.
- ✓ Increasing regulatory flexibility including use of orders instead of permits.
- ✓ Continuing to work with facilities toward cleanups that are protective and reasonable for the location instead of relying on the most stringent requirements.

### **Recommendation HW10 — Explore private/public partnerships**

Explore the desirability of private/public partnerships for waste handling facilities.

## **Current Solid Waste System Issues**

### **1. Solid Waste Authorities and Local Planning Issues**

Solid waste handling includes management, storage, collection, diversion, transportation, treatment, use, processing and final disposal. It is governed by the laws and regulations of federal, state and local governments. The U.S. Congress has typically left issues relating to managing solid waste to state and local governments. In Washington State, primary authority is given to local government by statute.

County governments develop policies and procedures to manage the municipal solid waste stream primarily through their local, comprehensive, solid waste management plans (CSWMP), as required by Chapter 70.95 RCW. Cities can choose to sign onto the county CSWMP, or they can create their own plans. Local planning jurisdictions are also required to develop local hazardous waste management plans by RCW 70.105.220.

The local plans represent a cornerstone for reaching many of the Beyond Waste goals, as major investments, decisions, infrastructure and programs must be consistent with them. Additionally, local plans must be complete and in good standing to receive grant monies from the Coordinated Prevention Grant program, an important source of local funding for non-disposal-related programs and activities. Similar to the Key Principles and Strategies guiding the recommendations contained in the five key initiatives (see page 8), solid waste and hazardous waste planning at the local community level can be used to identify and plan for important investment and decision-making opportunities, such as for needed facilities and establishing service levels and programs that will be offered to households and businesses. Ecology and others will encourage and assist local jurisdictions to embrace and implement the Beyond Waste recommendations. This will involve seeking opportunities to incorporate the Beyond Waste vision, goals, and recommendations into local solid waste and hazardous waste management plans.

It is neither feasible nor expected that the exact same steps will be taken in each jurisdiction. Progress in each jurisdiction may be different based on the unique characteristics and needs of each area such as distance to recycling markets, existing infrastructure, economy, and many other factors. What is important, however, is a committed effort across the state to implement the recommendations contained in this plan.

The Beyond Waste Plan is not mandated by law nor is it a regulation requiring specific actions. Instead the Beyond Waste Plan is a combination of the state Solid Waste Plan and Hazardous Waste Plan updates which are required by state law and serve as the guide for the future management of solid and hazardous waste in Washington State. Its success will rely on creating opportunities to advance its goals through coordinated actions across the state. An important role for local and state government will be to bring partners with mutual interests together to collaborate on implementation of the recommendations. Relying on leadership and action from the private, non-profit and educational sectors, as well as from all levels of government, is essential to meaningful progress toward the Beyond Waste vision. It will be important to review the guidelines for local solid waste and hazardous waste planning, to ensure that they reflect the Beyond Waste vision and goals.

## **Today's Reality**

The role of state government is to set environmental protection standards for designing and operating disposal facilities, to provide competent technical advice to local government and citizens, to regulate the garbage collection industry and to coordinate the overall system. Ecology reviews locally issued permits and solid waste management plans, defines minimum functional standards for all types of solid waste facilities, and provides technical support and grants.

Local governments have primary responsibility to manage solid waste. That responsibility is shared between the counties, the jurisdictional health departments (JHD) and the cities. Statewide regulation of solid waste collection is delegated to the Washington Utilities and Transportation Commission (WUTC). Cities may choose to provide collection services themselves, or to contract for collection services.

Local health departments are charged with enforcing environmental regulations. They do so by issuing permits for solid waste handling facilities and by regulating the operations of these facilities. They also are charged with enforcing ordinances governing illegal dumping.

As recycling continues to expand, it is critical to assure compliance with solid waste regulations and laws. It is also important to consider future needs for financial assurance mechanisms and other tools that maintain accountability. Private companies play a major role in collecting and hauling solid waste, and in operating transfer stations, landfills, waste-to-energy, composting, and recycling facilities.

Moving toward the Beyond Waste vision entails carefully assessing opportunities to align responsibilities, regulatory structures, and planning and funding with the Beyond Waste priorities while meeting existing needs for services. Equally important is the need for continued enforcement vigilance to preserve the integrity of the recycling and solid waste system, especially with regard to the illegal recycling and disposal practices that continue to occur. Washington's goals for the proper management of solid waste also require that each individual recognize his or her role and responsibility in preserving our natural resources and protecting the environment and human health through his or her actions.

## **Proposed Actions**

The recommendations listed below include actions that are critical to the overall success of Beyond Waste and are intended to be undertaken during the next five years.

### **Recommendation SW1 — Encourage inclusion of Beyond Waste principles into local plans**

Encourage local planning jurisdictions to revise or update their local Comprehensive Solid Waste Management Plans to incorporate Beyond Waste principles and actions.

### **Recommendation SW2 — Revise local planning guidelines**

Revise the *Guidelines for the Development of Local Solid Waste Plans* to be reflective of the Beyond Waste Plan.

### **Recommendation SW3 — Expand assistance to local planning jurisdictions**

Ecology will be available to provide planning and technical assistance to incorporate Beyond Waste principles and actions into local plans.

### **Recommendation SW4 — Collaborate with local government**

Collaborate with local governments to strategically use grant funding to encourage both incorporating Beyond Waste principles and priorities into their planning and implementing the highest Beyond Waste priorities.

### **Recommendation SW5 — Ensure responsibilities are clear**

Ensure responsibilities and roles for solid waste planning and implementation are clear and are aligned with the Beyond Waste principles. As a part of this effort, evaluate and consider the following:

- ✓ Identifying potential authorities needed to carry out Beyond Waste priorities.
- ✓ Identifying gaps and overlaps in authorities and responsibilities throughout the solid waste management system.

## **2. Recycling and the Technical Nutrient Cycle**

Municipal solid waste recycling has been highly successful in Washington. Despite not reaching the legislative goal of a 50 percent recycling rate by 1995 (now amended to 2007), the recycling rate for "traditional" materials has climbed from 15 percent in 1986 to 35

percent in 2002, with a few years in between at even higher rates. Equally important has been the growth of recycling for other materials (not tracked by the annual state recycling survey), including asphalt, concrete, and other construction, demolition and land-clearing materials. When these and other materials are added to the traditionally tracked recycled materials, the "alternate" recycling rate for 2002 became 45 percent.

Recycling is a key foundation of the five initiatives proposed as starting points for beginning the transition to Beyond Waste (discussed in earlier sections of this document). Much remains to be done to create a recycling system for the long-term that supports the Beyond Waste vision of viewing wastes as resources and reusing them as much as possible. Many successful programs are already in place, such as recycling of cardboard, aluminum, metals, and some plastics. New systems that can recover a wider range of materials efficiently for reuse with a minimum of downcycling will also need to be established.

Interwoven throughout the five Beyond Waste initiatives are recommendations for increased recycling through state government purchasing, infrastructure, local planning, incentives and price signals, education, technical assistance, performance measures, and other actions. These efforts are essential to maintain the current recycling system and to move toward a comprehensive recycling system.

The five initiatives also include recommendations for improving recycling through developing products and materials that are more recyclable. For example, the electronics product stewardship recommendation (MRW4) proposes actions to redesign electronic products to eliminate hazardous components, lengthen life span, and ease disassembly and recycling. Additional examples are the recommendations on replacing mercury in products (MRW2) and on redesigning building materials to use recycled feedstocks and to reduce toxics (GB4). Design efforts are vital to increase recycling, as they can shift the emphasis from end-of-pipe recycling of wastes to looking for opportunities to increase entire life-cycles of products. This includes designing products for disassembly and for recycling, and also designing products to reduce toxics and other contaminants. Products made with composite materials can be difficult to recycle, for example. Products containing toxic materials can pose risks in handling and processing for recycling. Additionally, many recovered materials are recycled today via "downcycling," such as paper recycled into tissues, and plastic soda bottles recycled into park benches. This means that materials are only used one additional time before being disposed.

In addition to a closed-loop organics recycling system, a similar system for recycling technical materials (for example, plastics, glass, and metal) is crucial to success of the Beyond Waste Plan. Ultimately, products can be designed to enter organic or technical nutrient cycles. A technical cycle is a system where materials can remain in a closed-loop of manufacture, reuse, and recovery, maintaining their value through many product life cycles. This goal stems from work completed by William McDonough and Michael Braungart, some of which is discussed in their book *Cradle to Cradle: Remaking the Way We Make Things* (McDonough and Braungart, 2002).

While we continue to support the recycling system and divert as much as possible, we must also plan ahead for what will be needed to support and to encourage even greater recycling in Washington. Many of the actions proposed for green building, industries, moderate-risk wastes, and organics aim to increase recycling of traditional or technical materials. Efforts in each of these areas have proven to be cost-effective.

## Proposed Actions

The recommendations below describe activities to be undertaken during the next five years that help to achieve a working technical nutrient cycle in Washington.

### **Recommendation SW6 — Characterize Washington's solid waste streams**

Characterize Washington's solid waste streams including municipal solid waste, agricultural, industrial, commercial, and institutional wastes to better understand and anticipate future opportunities for recycling. Strengthen data collection and evaluation of recycling.

### **Recommendation SW7 — Plan for a stronger technical recycling system**

Establish a schedule and collaborative approach to enhance current recycling and to begin a stronger technical recycling system for the future. One way to strengthen the current system is to focus on optimizing paper recycling from both commercial and residential sources. The eventual aim is to design products to be reused and recycled in the technical closed-loop cycle (manufacture, reuse and recovery). This will include projecting and planning for infrastructure needs to support increased recycling and reuse of technical materials. We need to address expanding local markets and recycling businesses, increasing demand for products designed for recycling, and using incentives and price signals to increase recycling of technical cycle materials.

## 3. Disposal—Yesterday, Today and Tomorrow

For brevity's sake, this summary document does not include the numerous citations used to develop this section. A detailed Background Paper on the [disposal of solid waste](#) including all appropriate citations can be accessed at <http://www.ecy.wa.gov/bibliol/0407031.html>.

Disposal of solid waste in landfills and incinerators continues to be a critical element of Washington's system of managing solid waste. The Beyond Waste initiatives will reduce reliance on disposal, but disposal facilities will remain a reality in the future. This section describes some important issues that surround solid waste disposal today and proposes both short and long-term recommendations.

## Today's Reality

Solid waste disposal has become much safer and far more protective of health, habitat and natural resources than in the past 30 years. Some wastes are disposed of at energy recovery/incineration facilities. Three waste-to-energy facilities/incinerators burned more than 300,000 tons of solid waste in Washington during 2002. Most municipal solid waste

in Washington is disposed in landfills, most of which are lined. Despite these improvements, landfills still affect the air with methane gas or other hazardous gases that are generated as the waste decomposes. Many landfills also have liners and/or leachate collections systems, but we still see groundwater and surface water pollution.

In 2002, nine of the state's municipal solid waste landfills received 2 million tons (out of a total of 4.7 million tons) of waste from counties other than the one they are located in, and sometimes from other states and countries. It is important to consider the effects of long-distance transportation and storage of wastes.

The price of disposal today should incorporate the costs of meeting the existing broad range of regulatory requirements. For landfills, this should include not only operational costs, but also monies to cover facility closure and post-closure monitoring activities. In addition, charges for disposal are intended to include potential costs of cleanup from environmental degradation that could result from the facility. However, these costs are not always anticipated and included in disposal fees charged today.

Many former landfills and dumps have closed or have been abandoned over the years. For a variety of reasons, hundreds of these sites have not been addressed at all. These sites need to be identified and environmental problems need to be addressed.

## **Goals: What Washington will look like in 30 years**

The 30-year goals for the solid waste disposal system in Washington as we strive toward the Beyond Waste vision are:

### **■ Closed Landfills are Addressed**

Yesterday's landfills no longer pose threats; many are redeveloped and are vital community assets.

### **■ Landfills Fully Meet Compliance Requirements**

Landfills and other disposal facilities do not cause problems. The few problems that may come up are contained, addressed and cleaned up to prevent further degradation and to protect human health. Costs for actions needed are paid by the property owners and waste disposers.

### **■ Facilities are State-of-the-Art**

The very small amount of waste that is not recoverable is disposed at state-of-the-art facilities, and collection and disposal have minimal impacts. These facilities are sited and operated to pose no threats to human health or the environment.

### **■ Disposed Materials are Recovered**

Disposal facilities have been mined to recover resource materials for recycling. Disposal occurs in such a way that what is being disposed can, where feasible, be recovered later.



## Proposed Actions

To reach the 30-year goals described above, the recommendations below (organized into three categories) should be undertaken during the next five years.

### For Closed and Abandoned Solid Waste Landfills

#### **Recommendation SW8 — Identify closed and abandoned sites statewide**

Inventory and track closed and abandoned landfills. Ensure that property owners with potential or confirmed former sites are notified. Specific steps include:

- ✓ Establish an agreed-upon process to identify closed and abandoned solid waste landfills throughout the state.
- ✓ Develop an inventory of all identified sites.
- ✓ Notify property owners of those sites to verify locations.
- ✓ Establish property identification procedures.

#### **Recommendation SW9 — Evaluate and prioritize problems at closed sites**

Establish an approach, schedule and process for evaluating and prioritizing action at identified sites. Specific steps are:

- ✓ Develop an agreed-upon process to informally evaluate and prioritize the sites identified through the inventory.
- ✓ Evaluate the sites and prioritize them for cleanup or other actions.

#### **Recommendation SW10 — Develop feasible and responsible processes for addressing priority sites**

Take steps to encourage needed action on closed and abandoned solid waste landfills. This should include addressing sites through existing cleanup programs, where appropriate. This may also include developing additional options for addressing sites with minimal problems, or sites that fall outside the scope of existing cleanup programs.

- ✓ Explore opportunities to develop more flexible approaches to address closed and abandoned landfills.
- ✓ Consider designing and implementing state/local government pilot projects that address a category or group of sites to more efficiently and cost-effectively resolve issues at similar sites.

#### **Recommendation SW11 — Identify funding to address priority sites**

Develop cost estimates for the highest priority sites, and identify funding options to pay for the needed corrective action. Specific steps include:

- ✓ Conduct an evaluation of the existing state grant programs to identify potential fund options.
- ✓ Review the potential of other public funding options (for example, new revenue sources, Brownfields programs, existing grant funds, local revenue options, etc.) and public-private partnerships.

- ✓ Develop mechanisms for government to partner with developers and property owners to clean up old landfill sites and use them for community benefit.

### **For Existing Disposal Facilities**

#### **Recommendation SW12 — Ensure that existing disposal facilities comply with requirements**

Evaluate statewide compliance with all regulatory requirements at disposal facilities and establish a plan to ensure regular statewide monitoring and assistance. Specific steps include:

- ✓ Assess statewide compliance of disposal facilities and develop a plan to ensure that facilities receive adequate technical assistance to continue meeting all required conditions in their solid waste permits.
- ✓ Work to close existing landfills or landfill cells that are inadequate and encourage replacement, as needed, with better designed and constructed facilities.
- ✓ Ensure adequate closure and post-closure funds remain in place for the short and long term and regularly monitor closure/post-closure permits.
- ✓ Gather data to begin anticipating trends and needs for future cleanup.

### **For the Future**

#### **Recommendation SW13 — Continually reduce disposal impacts on human health and the environment**

Ensure that disposal facilities, including waste-to-energy facilities, do not pose threats to human health and the environment by reducing the toxicity of disposed wastes and by closely monitoring and continually improving operation, closure, and post-closure practices over time. Specific steps include:

- ✓ Begin investigating ways to further decrease potential threats and risks from disposal facilities and practices.
- ✓ Incorporate into local plans the goal of minimizing impacts of waste disposal.
- ✓ Evaluate the potential of mining landfills to recover resource materials.
- ✓ Develop a long-term strategy to ensure that disposal fees reflect complete costs and that no costs (such as future cleanup) are passed on to future generations.
- ✓ Establish a schedule to regularly assess disposal facility requirements and propose changes, as needed, to ensure adequate public health and environmental protection.
- ✓ Evaluate effects and costs of out-of-area disposal, including incentives and disincentives for waste reduction and recycling created by long-hauling wastes.

## **4. Financing Solid Waste for the Future**

For brevity's sake, this summary document does not include the numerous citations used to develop this section. A detailed Background Paper on **Financing Solid Waste for the Future** including all appropriate citations can be accessed at <http://www.ecy.wa.gov/biblio/0407032.html>.

The present solid waste system in Washington is remarkably successful in many ways. This success is due to the people involved and the relationships they have developed over the years. Ecology is fortunate to have great partners in local government (both health jurisdictions and solid waste divisions), the private sector (haulers, recyclers, composters, landfill owners), state government (Washington Utilities and Transportation Commission, Health), and others. While we envision changes to achieve the Beyond Waste vision, we see no reason that the current list of partners and some future partners, such as manufacturers, will not be successful in getting there. Together, we have made great strides to move from open burning dumps to our system of modern solid waste facilities. We can make similar strides to implement Beyond Waste. We will continue to partner and grow – including continued work to ensure equitable, sufficient, and effective financing for the system.

It is essential to support the existing successful system through transition toward a Beyond Waste future. The private and public solid waste infrastructure has shown various levels of its ability to expand and diversify in response to changing demands of the marketplace, changing technologies, and evolving policy requirements. Evidence of this flexibility is the range of materials collected for reuse and recycling that were previously sent to disposal.

Business and government investment at all levels will be needed to meet Beyond Waste goals. Achieving large increases in waste reduction and in closed-loop recycling will require more extensive technical assistance, education, planning and collaboration. It will be useful to seek ways in which financing structures can reinforce rather than work against Beyond Waste goals. For example, a key benefit for the long term might be to support regional and national efforts to shift from predominantly end-of-life fees (such as disposal fees) to incorporating costs at more appropriate parts of the life-cycle (such as advance recovery fees).

Continuing to move recycling toward greater cost-effectiveness is also important. If the demand for recyclable materials and recycled-content products significantly improves and if sales of recyclable materials can cover all the costs, then solving funding challenges could be easier. This could occur through development of technology, use of state and local government purchasing power, and other means.

## **Today's Reality**

Washington's current solid waste system consists of a number of programs, services, and activities provided to both residents and businesses/organizations by the solid waste industry, manufacturers, counties, cities, state government, the federal government, and various non-governmental organizations. These activities are aimed primarily at managing wastes in the municipal solid waste stream. Large quantities of wastes are also generated from agricultural, industrial, and large institutional settings. These wastes are not generally included in the municipal solid waste stream.

One goal of the Beyond Waste effort is to have costs of a product's complete life cycle incorporated into product pricing, which can occur in various ways. This goal's focus ultimately lies in creating products in manners that conserve natural resources, minimize waste, are compatible with biological processes, and limit the use of materials that create significant negative impacts on the ecosystem. Incorporating external costs will affect pricing signals in the market in such a way that costs will reflect what is and what is not supportable.

This new perspective on accounting for costs and setting prices does not imply only a one-way street of additional expenses. Less pollution means reduced health problems and cleanup costs; eliminating artificial subsidies can result in reduced use of resources; and actions that result in new, "green jobs" produce economic benefits of their own. Investing in the Beyond Waste future can reduce costs and liabilities for businesses, create new jobs, open new markets, and maintain economic vitality while simultaneously reducing environmental impacts to healthier and more sustainable levels. A healthier and more sustainable environment benefits every person in Washington. Some up-front expenses are needed to realize long-term environmental, health, and societal gains, and some of these actions and investments may bring economic gains more quickly.

## **Proposed Actions**

Reducing wastes and toxins, recycling, waste prevention, and safe handling all require constant diligence, ongoing information and education, and resource investments. Such activities and services often yield intangible results. These types of services and activities are pivotal to moving toward Beyond Waste and helping to create a stronger and healthier future for Washington.

It is important to ensure reliable and adequate funding for all elements of the solid waste system, including reduction and recycling, as we implement Beyond Waste. Therefore, regular evaluation is needed of financing mechanisms for solid waste infrastructure, services, programs and activities. Long-range financing goals and potential actions for working toward them must be articulated.

### **Recommendation SW14 — Evaluate financing for the solid waste system, including moving toward Beyond Waste, in consultation with the SWAC and interested parties**

Conduct evaluations of how solid waste is financed currently, and the extent to which needs are able to be met. The first evaluation should be completed within five years, and ongoing evaluations should be conducted as needed, but at least every five years. The state Solid Waste Advisory Committee (SWAC) should play a key role in monitoring the solid waste financing situation, and should alert Ecology when discussions and evaluations are needed. These evaluations should be done in collaboration with key stakeholders of the solid waste system, and parties (of differing perspectives), including, but not limited to, business, industry, citizens, and elected officials. When discussions addressing specific waste streams are called for, stakeholders having a particular interest in such materials or products should be identified and encouraged to participate.

## Specific Steps

- ✓ Within two years of plan adoption, the state SWAC, together with the other stakeholders, will examine how programs and services are funded now, including consideration of the extent to which the current system supports waste disposal over recycling and/or waste reduction. The SWAC, in cooperation with Ecology, will create a report on these issues.

Within five years:

- ✓ Evaluate the extent to which the existing financing mechanisms will be able to cover the identifiable costs to implement Beyond Waste effectively and determine whether changes are needed.
- ✓ Examine a range of potential financing mechanisms and other actions, if needed, and collaboratively work to inform and educate all parties, and to implement successful options.
- ✓ Evaluate options for moving from end-of-life financing to up-front financing.
- ✓ Evaluate current opportunities to incorporate complete cost models into solid waste system decision making.
- ✓ Identify regulatory barriers that may need to be addressed.
- ✓ Expand partnerships--some needs can be funded and carried out by non-governmental organizations and the business sector.
- ✓ Work toward the elimination of subsidies, tax breaks and incentives that serve to encourage waste generation and toxic substance use. Replace with incentives to reduce wastes, use fewer resources, reduce use of toxic substances, and reduce overall environmental footprints.

As part of the evaluation, consider the following potential actions to help move toward a long-term Beyond Waste future.

1. While continuing to rely on user fees to fund solid waste programs and services, begin shifting from predominantly end-of-life fees (such as disposal fees) to up-front fees (such as cost internalization) where practical opportunities exist.
2. Begin incorporating complete cost and benefit models into solid waste system decision making.
  - Most solid waste management decisions are based on traditional cost-benefit analysis. More informed decisions can be made by incorporating external costs not captured by current accounting practices.
  - Life-Cycle Assessment (LCA) is a tool that can be used to evaluate traditional (internal) costs and benefits as well as external costs and benefits. LCA is an emerging policy tool that provides a way to connect solid waste practices and policy to sustainability.

### **Potential Actions for the Long Term**

As actions are taken and progress is made toward achieving the Beyond Waste goals, a stable and long-term financing system must be in place to ensure the delivery of solid waste programs. These mechanisms must have the flexibility to meet the needs of urban and rural areas of Washington. It is not possible to fully anticipate what will be needed in the coming decades as we shift toward the Beyond Waste goals. Performance indicators and regular evaluation will help to determine next steps along the way. Entities involved in the current system (WUTC, local governments, haulers, Ecology, and others) should discuss and consider the following long-term actions:

- Continue to promote all facets of product stewardship, including product and process redesign, take-back, advance recovery fees and leasing services instead of owning products.
- Continue to ensure that incentives to encourage more sustainable behaviors are maintained.
- Incorporate the complete costs of solid waste collection and disposal into the prices charged for them.

## **5. The Solid Waste System in Washington Today**

An additional Background Paper is being developed in collaboration with the state Solid Waste Advisory Committee. This paper is expected to be available in early 2005, and will be accessible through the Beyond Waste Web site or at <http://www.ecy.wa.gov/biblio/0407033.html>. The paper will provide a "snapshot" in time by describing how solid waste is managed in Washington today. It will not contain recommendations, nor will it draw conclusions. This paper is intended to serve as a reference for the Beyond Waste Project. It will also enhance the information published by Ecology in its annual status report on solid waste in Washington, which can be accessed at <http://www.ecy.wa.gov/biblio/0307019.html>.

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## Beyond Waste Implementation Plan

The following text and table contains the implementation activities that are proposed as Beyond Waste “Starting Points,” which means that they are priority actions that will be commenced first. Selection of these starting points was made based on a number of factors, including readiness to proceed, appropriate sequencing of actions, availability of resources, and likelihood of partners to collaborate on implementation.

In the following list, the recommendations that Ecology identified as starting points, are printed in **Bold**. At times, one or more steps within a recommendation may be starting points, but do not complete the entire recommendation. Even if there is only one starting point within a recommendation the entire recommendation is printed in **Bold**. For more information on any of the recommendations, refer to the pages listed.

Initiative: **Moving Toward Beyond Waste with Industries (IND)** (page 11)

- IND1. Focus on sector work** (pg. 13)
- IND2. Specific sectors to focus on** (pg. 13)
- IND3. Develop a standardized process for sector work** (pg. 14)
- IND4. Develop specific tools for sector work
- IND5. Modify the Pollution Prevention Planning Program to dovetail with the Beyond Waste vision** (pg. 14)
- IND6. Expand information on Ecology’s Web site** (pg.14)
- IND7. Form a work group on low-interest loans
- IND8. Negotiate the state agreement with EPA** (pg.15)
- IND9. Collaborate with affected parties to explore changes to hazardous waste fees and taxes
- IND10. Explore ways to implement Beyond Waste incentives** (pg. 15)
- IND11. Encourage new businesses to adopt sustainability practices
- IND12. Encourage waste handlers to become materials brokers
- IND13. Support EPA’s “Beyond Waste-type” efforts** (pg. 16)
- IND14. Promote sustainability in product development

Initiative: **Reducing Small-Volume Hazardous Materials and Wastes (MRW)** (page 17)

- MRW1. Prioritize substances to pursue** (pg. 21)
- MRW2. Reduce threats from Mercury** (pg. 21)
- MRW3. Reduce threats from PBDEs** (pg. 21)
- MRW4. Develop an electronics product stewardship infrastructure** (pg. 21)
- MRW5. Ensure proper use of pesticides, including effective alternatives
- MRW6. Reduce and manage all architectural paint wastes** (pg. 22)
- MRW7. Lead by example in State government** (pg. 22)
- MRW8. Ensure MRW and hazardous substances are managed according to hazards, toxicity and risk** (pg. 22)
- MRW9. Fully implement local hazardous waste plans** (pg. 23)
- MRW10. Ensure facilities handling MRW are in compliance with environmental laws and regulations** (pg. 23)

Initiative: **Increasing Recycling for Organic Materials (ORG)** (page 24)

- ORG1. Lead by example in State government** (pg. 26)
- ORG2. Increase residential and commercial organics recovery programs** (pg. 26)
- ORG3. Improve quality of recycled organic products
- ORG4. Develop a strategy to increase industrial and agricultural organics recovery** (pg. 27)
- ORG5. Propose solutions to statutory and regulatory barriers
- ORG6. Develop new products and technologies for organic residuals

Initiative: **Making Green Building Practices Mainstream (GB)** (page 29)

- GB1. Coordinate and facilitate partnerships to implement the green building action plan** (pg. 31)
- GB2. Lead by example in State government** (pg. 31)
- GB3. Provide incentives that encourage green design, construction, and deconstruction and begin removing disincentives** (pg. 31)
- GB4. Expand capacity and markets for reusing and recycling construction and demolition materials
- GB5. Provide and promote statewide residential green building programs** (pg. 32)
- GB6. Increase awareness, knowledge and access to green building resources** (pg. 32)
- GB7. Encourage innovative product design** (pg. 33)

Initiative: **Measuring Progress Toward Beyond Waste (DATA)** (page 33)

- DATA1. Conduct a feasibility study to determine which major indicators to use
- DATA2. Continue the work of Ecology's data team to produce a joint Beyond Waste progress report** (pg. 36)
- DATA3. Discuss indicators for each initiative** (pg. 36)

Section: **Current Hazardous Waste System Issues (HW)** (page 39)

- HW1. Encourage P2 planners to address hazardous substance use including toxicity and risk in their P2 plans** (pg. 40)
- HW2. Develop an EMS hybrid model and guidance
- HW3. Improve P2 plan quality and relationships with P2 planners** (pg. 41)
- HW4. Strive for better relationships with the regulated community** (pg. 42)
- HW5. Work to ensure greater compliance with the regulations** (pg. 42)
- HW6. Modify the *Dangerous Waste Regulations* to encourage more waste and toxics minimization, including upcycling
- HW7. Ensure hazardous waste management facilities are operated in a safe manner** (pg. 44)
- HW8. Develop accurate cost estimates for closure/corrective action
- HW9. Reduce the administrative burden for corrective action facilities** (pg. 45)
- HW10. Explore private/public partnerships



Section: **Current Solid Waste System Issues (SW)** (page 45)

- SW1. Encourage inclusion of Beyond Waste principles into local plans** (pg. 47)
- SW2. Revise local planning guidelines** (pg. 47)
- SW3. Expand assistance to local planning jurisdictions** (pg. 47)
- SW4. Collaborate with local government** (pg. 47)
- SW5. Ensure responsibilities are clear
- SW6. Characterize Washington's solid waste streams
- SW7. Plan for a stronger technical recycling system
- SW8. Identify closed and abandoned sites statewide** (pg. 51)
- SW9. Evaluate and prioritize problems at closed sites** (pg. 51)
- SW10. Develop feasible and responsible processes for addressing priority sites
- SW11. Identify funding to address priority sites
- SW12. Ensure that existing disposal facilities comply with requirements
- SW13. Continually reduce disposal impacts on human health and the environment
  
- SW14. Evaluate financing for the solid waste system, including moving toward Beyond Waste, in consultation with the SWAC and interested parties** (pg. 54)

The implementation table is organized by categories of similar actions, and not by key initiative. This is because many of the actions must be carried out in a coordinated manner to be effective. A major strength of the Beyond Waste Plan is the interconnectedness of the five key initiatives and their recommendations. (Note: A table that lists the implementation actions by key initiative/section (such as Making Green Building Practices Mainstream) has also been prepared and can be accessed at <http://www.ecy.wa.gov/biblio/0407034.html>)

In addition to the starting points, the implementation plan also lists the Beyond Waste Plan recommendations that are not starting points, but are slated to begin later. Also included is a general listing of the actors needed to successfully carry out the recommendations. In most cases, Ecology will begin to coordinate and/or lead the efforts. However, other leaders will be sought for many of the actions.

Finally, as an additional resource, implementation plan actions are also included at the end of each of the following Background Papers:

- Moving Toward Beyond Waste with Industries
- Reducing Small-Volume Hazardous Materials and Wastes
- Increasing Recycling for Organic Materials
- Making Green Building Practices Mainstream
- Measuring Progress Toward Beyond Waste
- Current Hazardous Waste System Issues



## Implementation Plan for Beyond Waste Recommendations

Recommendations to Begin in First Year	Approach for Implementation	Recommendations for Years 2-5
<b>1. Collaborating with local governments to incorporate Beyond Waste (BW) strategies into local plans and grant-funded projects</b>		
<p><b>Encourage inclusion of Beyond Waste principles into local plans.</b> (SW1)</p> <p><b>Revise local planning guidelines.</b> Review Planning Guidelines for existing requirements that support BW initiatives. (SW2)</p> <p><b>Expand assistance from Ecology to local planning jurisdictions.</b> (SW3)</p> <p><b>Collaborate with local government.</b> Strategically use grant funds to encourage incorporating and implementing BW principles/priorities in local plans. (SW4)</p> <p><b>Increase residential and commercial organics recovery programs.</b> Encourage local governments to incorporate organics initiative goals into local plans; produce statewide report of home composting and assess needs/opportunities. (ORG2)</p> <p><b>Fully implement local hazardous waste plans.</b> Provide assistance for MRW plan updates; produce status report of plans; develop strategy for full implementation. (MRW9)</p> <p><b>Identify closed and abandoned landfill and dump sites statewide.</b> Convene workgroup to develop inventory and prioritization processes; provide assistance with inventories. (SW8 and SW9)</p>	<p>Ecology will coordinate these efforts in collaboration with local government.</p>	<p>SW8 (Remainder) Complete inventories of closed/ abandoned landfills and dumps</p> <p>SW9 Use process to prioritize problems at identified sites</p>
<b>2. Focusing on specific sectors</b>		
<p><b>Reduce threats from PBDEs.</b> Help implement PBDE Chemical Action Plan. (MRW3)</p> <p><b>Reduce threats from mercury.</b> Education and technical assistance to businesses; develop and implement household and school education. (MRW2)</p> <p><b>Specific sectors to focus on.</b> Implement Mercury Action Plan, including auto switches and lights, and in hospitals; help implement PBDE chemical action plan, general government sector and Cleaner Production Challenge. (IND1 and IND2)</p> <p><b>Develop a standardized process for sector work.</b> Workgroup will establish process for selecting future sectors to prioritize. (IND3)</p> <p><b>Prioritize substances to pursue.</b> In concert with IND3, workgroup will establish process for selecting future substances to prioritize. (MRW1)</p>	<p>Ecology will initiate this effort in close cooperation with local government, and several other entities.</p>	<p>MRW1. (Remainder) Select future priority substances</p> <p>MRW5. Ensure proper use of pesticides, including effective alternatives</p> <p>IND3. (Remainder) Select future priority sectors</p>

Recommendations to Begin in First Year	Approach for Implementation	Recommendations for Years 2-5
<b>3. Leading by example in government (including EPP)</b>		
<p><b>Lead by example in state government.</b></p> <ul style="list-style-type: none"> <li>• Develop and implement environmentally preferable purchasing policies and practices and promote to users of state contracts. (MRW7)</li> <li>• Maximize use and purchase of environmentally preferable products and services in the following areas: automotive products, grounds maintenance, electronics, cleaning products and flame retardants. (MRW7)</li> <li>• Assistance to state government to use green building practices, including procurement of environmentally preferable building materials; technical assistance and training. (GB2)</li> <li>• Maximize procurement of recycled organic products at state agencies; identify procured products that interfere with closed loop organic recycling and find alternatives; identify current purchases that could be replaced with recycled organic products. (ORG1)</li> <li>• Implement yard debris, food waste and soiled paper collection and processing at state government facilities. (ORG1)</li> <li>• Develop best management practices for composting food waste and soiled paper at institutions. (ORG1)</li> </ul>	<p>Ecology will lead this effort at first, in close cooperation with GA, OFM and other entities.</p>	<p>ORG1. (Remainder) Partner with state agencies and other large institutions to implement organics collection and processing programs</p>
<b>4. Building demonstration projects</b>		
<p><b>Lead by example in state government.</b> Design and install food/paper towel compost demonstration project at Ecology HQ building. (ORG1)</p>	<p>Ecology will lead this effort and incorporate GB and MRW initiative goals/recommendations as possible.</p>	
<b>5. Raising awareness, knowledge and demand</b>		
<p><b>Lead by example in state government.</b> Advertise success of demonstration projects, especially links to environmental benefits and cost reductions. (ORG1)</p> <p><b>Increase awareness, knowledge and access to green building resources.</b> Support expansion of educational programs that nonprofit, private, and government sectors are already providing; work with educational institutions at all levels to develop a plan for including GB practices in curricula. (GB6)</p>	<p>Ecology will lead these efforts, and will seek others to lead green building- related efforts.</p>	<p>ORG2. (Remainder) Healthy soils program  GB6. (Remainder) Info clearinghouse, technical assistance centers, marketing  HW1. (Remainder) Education on P2 Planning</p>

Recommendations to Begin in First Year	Approach for Implementation	Recommendations for Years 2-5
<b>6. Improving technical assistance and customer relationships</b>		
<p><b>Encourage P2 Planners to address hazardous substance use including toxicity and risk in their P2 Plans.</b> (Develop incentives, technical assistance, new tools). (HW1)</p> <p><b>Modify P2 Planning Program to dovetail with the Beyond Waste vision.</b> (IND5)</p> <p><b>Strive for better relationships with the regulated community.</b> HWTR inspectors more training, consistency, business experience, follow inspectors manual. (HW4)</p> <p><b>Provide/promote statewide residential GB programs.</b> Market available support, such as technical assistance, promotional materials, and checklists. (GB5)</p> <p><b>Ensure facilities handling MRW are in compliance with environmental laws and regulations.</b> Form partnership (Ecology, local govt. and TSDs) to evaluate the effectiveness of the existing compliance strategy (plans, grants, regulations, technical assistance). Develop/implement a plan to strengthen compliance of TSDs, MRW recyclers, and other MRW facilities. (MRW10)</p> <p><b>Reduce the administrative burden for corrective action facilities.</b> Encourage voluntary cleanup, use of orders instead of permits, reasonable and protective cleanups. (HW9)</p>	<p>Ecology will lead this effort.</p>	<p>IND4. Develop specific tools for sector work</p> <p>IND12. Encourage waste handlers to become materials brokers</p> <p>HW5. (Remainder) Inspections, additional training for businesses</p>
<b>7. Providing incentives</b>		
<p><b>Explore ways to implement Beyond Waste incentives.</b> (IND10)</p> <p><b>Increase residential and commercial organics recovery programs.</b> Evaluate incentives used by other states; convene stakeholders for input on incentives. (ORG2)</p> <p><b>Lead by example in state government.</b> Recommendations to legislature to identify incentives that will increase state government green building investments. (GB2)</p> <p><b>Provide incentives that encourage green design, construction, and deconstruction.</b> Research regulatory and other disincentives that act as barriers; identify and promote existing incentives; survey stakeholders for input on incentives and regulatory barriers. (GB3)</p>	<p>Ecology will lead these efforts in consultation with affected parties.</p>	<p>IND7. Form a work group on low-interest loans</p> <p>IND9. Collaborate with affected parties to explore changes to hazardous waste fees and taxes</p> <p>IND11. Encourage new businesses to adopt sustainability practices</p> <p>GB3. (Remainder) Develop strategy to address disincentives and to employ incentives</p> <p>HW8. Develop accurate cost estimates for closure/corrective action</p>

Recommendations to Begin in First Year	Approach for Implementation	Recommendations for Years 2-5
<b>8. Reviewing statutes and regulations</b>		
<p><b>Ensure MRW and hazardous substances are managed according to hazards, toxicity and risk.</b> Collect examples of problems and needs to address. (MRW8)</p> <p><b>Ensure hazardous waste management facilities are operated in a safe manner</b> (rule development for TSD initiative). (HW7)</p>	<p>Ecology will lead regulatory review efforts in cooperation with local government and others.</p>	<p>SW5. Ensure responsibilities are clear            ORG5. Propose solutions to statutory and regulatory barriers            HW6. Modify the <i>Dangerous Waste Regulations</i> to encourage more waste and toxics minimization including upcycling            HW7. (Remainder) Consistent regulation; increased public understanding; operator certification            MRW8. (Remainder) Develop approach to address identified needs in environmental laws and regulations</p>
<b>9. Providing enhanced tools on the Web</b>		
<p><b>Improve P2 Plan quality and relationships with P2 planners</b> (web-based P2 planning format). (HW3)</p> <p><b>Work to ensure greater compliance with the regulations.</b> More compliance information on the Web. (HW5)</p> <p><b>Increase residential/commercial organics recovery programs.</b> Research existing collection contracts, identify opportunities for increased organics recycling in future contracts, and post model contracts on the Web. (ORG2)</p> <p><b>Lead by example in state government.</b> Provide information on web about composting demo project and best management practices. (ORG1)</p> <p><b>Provide and promote statewide residential green building program.</b> Create a BuiltGreen Washington Web site; cookbook on how to start new programs; market available resources and technical assistance. (GB5)</p> <p><b>Expand information on Ecology's Web site.</b> (IND6)</p>	<p>Ecology will lead this effort with other entities.</p>	<p>HW2. Develop an EMS hybrid model and guidance</p>

Recommendations to Begin in First Year	Approach for Implementation	Recommendations for Years 2-5
<b>10. Researching and promoting green products</b>		
<p><b>Encourage innovative product design.</b> Support and actively participate in regional and national product stewardship councils and efforts to help ensure that current product stewardship initiatives for carpet, paint, and mercury-containing building products are making progress (use government purchasing power to drive product stewardship efforts). (GB7)</p> <p><b>Lead by example in state government.</b> Identify procured products that interfere with closed-loop organics recycling; encourage use and development of alternatives. (ORG1)</p>	<p>Ecology will lead this effort at first, in close consultation with regional and national product stewardship councils and research universities.</p>	<p>ORG3. Improve quality of recycled organic products.</p> <p>ORG6. Develop new products and technologies for organic residuals</p> <p>IND14. Promote sustainability in product development</p>
<b>11. Developing recycling and product stewardship infrastructure</b>		
<p><b>Develop an electronics product stewardship infrastructure.</b> Conduct study in accordance with ESHB 2488 and participate in national/regional dialogues. (MRW4)</p> <p><b>Reduce and manage all architectural paint wastes.</b> Continue participation in national Paint Dialogue; if not successful develop an alternative northwest approach. (MRW6)</p>	<p>Ecology will work with national/regional product stewardship organizations and state SWAC on these efforts.</p>	<p>GB4. Expand capacity and markets for reusing and recycling construction and demolition materials.</p>
<b>12. Collaborating with our key partners</b>		
<p><b>Negotiate the State agreement with EPA.</b> Revise state agreement between Ecology and EPA to be more in line with Beyond Waste vision. (IND8)</p> <p><b>Support EPA’s “Beyond Waste” type efforts.</b> (IND13)</p> <p><b>Coordinate and facilitate partnerships to implement Green Building Action Plan.</b> Convene partnership forum to coordinate implementation of GB initiative. (GB1)</p> <p><b>Evaluate financing for the solid waste system.</b> Convene workgroup to conduct evaluations of solid waste financing. (SW14)</p> <p><b>Develop a strategy to increase industrial and agricultural organics recovery</b> (Assess barriers). (ORG4)</p>	<p>Ecology will lead or coordinate these efforts.</p>	<p>ORG4. (Remainder) Develop plan to address barriers</p> <p>HW10. (Remainder) Explore private/public partnerships for waste handling facilities</p>

Recommendations to Begin in First Year	Approach for Implementation	Recommendations for Years 2-5
<b>13. Collecting and analyzing data</b>		
<p><b>Continue the work of Ecology’s data team to produce a joint Beyond Waste progress report. (DATA2)</b></p> <p><b>Refine indicators for each initiative with our key partners. (DATA3)</b></p>	<p>Ecology will lead this effort.</p>	<p>DATA1. Conduct a feasibility study to determine which major indicators to use</p> <p>SW6. Characterize Washington's solid waste streams</p> <p>SW7. Plan for a stronger technical recycling system</p> <p>SW10. Develop feasible and responsible processes for addressing priority sites</p> <p>SW11. Identify funding to address priority sites</p> <p>SW12. Ensure that existing disposal facilities comply with requirements</p> <p>SW13. Continually reduce disposal impacts on human health and the environment</p>

The Department of Ecology is also working on a number of actions that will maximize the agency’s capacity to successfully implement Beyond Waste recommendations. Some of the initial steps Ecology is taking include an assessment and realignment of staff skills and expertise to the Beyond Waste vision, and the development of teams to implement elements of the plan in a coordinated fashion. Emerging technologies and infrastructure innovations will be prime areas for staff training.



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## Glossary

This glossary is intended to provide definitions for terms and acronyms that may not be familiar to the reader. Other more common terms in the solid or hazardous waste arenas (such as waste reduction, waste recycling, solid waste, hazardous waste, etc.) are not included in this glossary, but definitions can be accessed through these links to the solid and hazardous waste laws: <http://www.leg.wa.gov/RCW/index.cfm?fuseaction=chapterdigest&chapter=70.95>  
<http://www.leg.wa.gov/RCW/index.cfm?fuseaction=chapterdigest&chapter=70.105>

**Biosolids** -- Biosolids means municipal sewage sludge that is a primarily organic, semisolid product resulting from the wastewater treatment process, that can be beneficially recycled and meets all requirements under Chapter 70.95J RCW.

**Built Green™** -- Built Green™ is a residential green building program developed by the Master Builders Association of King and Snohomish Counties in Washington. See <http://www.builtgreen.net> for details.

**CESQG** -- A Conditionally Exempt Small Quantity Generator is a generator of 220 pounds or less of hazardous waste per month. Hazardous waste generated by a CESQG is exempt from the *Dangerous Waste Regulations* if certain conditions are met.

**Closed-Loop** -- A cycle or system where secondary materials (wastes) are reclaimed and recycled back into the process from which they were originally generated.

**Complete Costs** -- Costs that include internal costs (all transactions tracked using traditional accounting methods and practices), future costs, and external costs (those such as environmental, societal, and health costs not accounted for by traditional accounting methods and practices), so that all costs are included.

**Corrective Action** -- A process to guide the cleanup of unauthorized releases at hazardous waste management facilities.

**Downcycling** -- Recycling that results in a lower value use or re-use of resources such as composting paper rather than recycling it into new paper.

**Environmental Justice** -- Environmental Justice is 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, regulations, and policies.

**Environmental Management System** -- A comprehensive, integrated and systematic approach toward managing an organization's interaction with the environment.

**EPA** -- Environmental Protection Agency.

**EPP** -- Environmentally preferable purchasing of products or services that have a lesser or reduced affect on 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.

**Feedstock** -- Materials needed to produce a product in a manufacturing process. Feedstocks can be virgin raw materials or secondary materials from the same or another process.

**Green Building** -- The concept of Green Building includes lower-impact building practices, such as reducing waste, using low toxicity or recycled content building materials, and recycling of construction and demolition debris.

**HHW** -- Household hazardous waste is any waste that exhibits the properties of dangerous wastes, but is exempt from the *Dangerous Waste Regulations* solely because it is generated by households.

**HWTR** -- The Hazardous Waste & Toxics Reduction Program of the Washington State Department of Ecology.

**Lean Manufacturing** -- A new 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.

**LEED™** -- The LEED (Leadership in Energy and Environmental Design) Green Building Rating System™ is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings that was developed by the U.S. Green Building Council. See [http://www.usgbc.org/leed/leed\\_main.asp](http://www.usgbc.org/leed/leed_main.asp) for details.

**MRW** -- Moderate-risk waste is the term used to describe the combined hazardous waste stream made up of Conditionally Exempt Small Quantity Generator (CESQG) Waste and Household Hazardous Waste (HHW). MRW is exempt from regulation as hazardous waste.

**Organics (Organic Materials)** -- Substances and products of biological origin that have the potential to be safely returned to the soil. Organic materials include landscaping and yard waste, food waste, manures, crop residues, wood, soiled/low-grade paper, and biosolids.

**PBDE** -- Polybrominated diphenyl ethers are toxic flame-retardants used in many products including carpets, insulation, upholstery, and computers.

**PCBs** -- Polychlorinated biphenyls are chlorinated compounds that have been used as coolants and lubricants in transformers, capacitors, and electrical equipment because they don't burn easily and are good insulators. The manufacture of PCBs was halted in the U.S. in 1977 because of the build up in the environment and are known to cause cancer in animals.

**PBTs** -- Persistent bioaccumulative toxins are both naturally occurring and man-made substances that build up in the food chain and can affect human health and reproduction. These toxins travel long distances in the atmosphere, move readily from land to air and water, and do not break down easily. PBTs include mercury, dioxins, DDT, and PCBs.

**Pollution Prevention (P2)** -- The use of processes or practices that reduce or eliminate the use of hazardous substances and the generation of wastes at the source.

**Product Stewardship** -- Product stewardship is achieved when those who produce, sell, use, or dispose of a product assume responsibility for the product's environmental, social, and economic costs throughout the product's life cycle. For further information, see the *Product Stewardship Strategy* at

<http://ecy-hqapp10/Sustainability/Resources/PS%20Strategy%20Final%204-17-2002.pdf>

**RCRA** -- The Resource Conservation and Recovery Act is 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.

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

**SWFA** -- The Solid Waste & Financial Assistance Program of the Washington State Department of Ecology.

**Technical Nutrients** -- Materials such as glass, paper, cloth, plastic and metal that are often recyclable and make up a large portion of the solid waste stream.

**Technical Nutrient Cycle** -- A system for the collection and processing of technical nutrients from the economy in a closed-loop of manufacturing, reuse, and recovery that maintains the value of technical nutrients and minimizes the downcycling of these nutrients into lower value products.

**Toxics** -- Hazardous substances and hazardous wastes that have the properties to cause or to significantly contribute to death, injury, or illness of man or wildlife.

**TSD** -- A treatment, storage, or disposal facility is a facility that has authorization from the Department of Ecology to conduct hazardous waste management activities.

**Upcycling** -- Recycling that will result in a valuable use or re-use of resources rather than, for example, burning for energy recovery.