Regional Solid Waste Management Plan

2008 - 2018 Update

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Chapter VI. Section I. Plan compliance and enforcement,
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Metro

People places • open spaces

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy and good transportation choices for people and businesses in our region. Voters have asked Metro to help with the challenges that cross those lines and affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to protecting open space, caring for parks, planning for the best use of land, managing garbage disposal and increasing recycling. Metro oversees world-class facilities such as the Oregon Zoo, which contributes to conservation and education, and the Oregon Convention Center, which benefits the region's economy.

Contents

Executive summary

This updated Regional Solid Waste Management Plan (RSWMP) provides the Portland metropolitan area with policy and program direction for the next decade (2008-2018). Implementation of the 13 goals and 68 objectives outlined in this Plan will enable the region to continue progress in reducing the amount and toxicity of waste generated and disposed, and will blaze new trails in advancing sustainable operations in the facilities and services of the solid waste system.

Key issues addressed in this updated Plan include:

- Reducing the amount and toxicity of waste generated and disposed
- Advancing sustainable practices throughout the region's solid waste operations
- Ensuring the disposal system continues to serve the best interests of the region.

Issues addressed in the plan

Resource conservation

This region is a national leader in successful waste reduction programs. Over the past 20 years, the waste reduction rate increased from 26% to 59%. Despite this achievement, many resources that can easily be recycled are still disposed. Enough waste from this region is landfilled each year to fill a football field 100 stories high. One-half of that disposed material is paper, wood, metal, glass, plastic and organics (food and yard waste) that could be recovered through existing programs. This Plan identifies more aggressive programs needed to achieve greater progress in material recovery.

Preventing waste from being generated in the first place is perhaps an even bigger challenge: The sum total of waste generated for recycling as well as disposal continues to increase. Between 1995 and 2005, regional population grew about 18%, or 239,000 new residents. Waste generation, however, grew by over 50%. With significant population growth and good economic times, the generation rate historically trends up due to increased commercial activity. The challenge is to instill greater awareness and implementation of effective waste prevention activities in the residential, commercial, and industrial sectors. This Plan continues many strategies intended to slow the rate of waste generation in the region and anticipates the implementation of new strategies, growing out of state recommendations, over the next 10 years.

Toxicity reduction

As with overall waste generation trends, volumes of household hazardous waste continue to climb, and only a portion of the total generated by households each year is separated and collected for recycling or safe disposal. This Plan will continue to guide sound management of household hazardous waste collected at facilities and events around the region. It also contains strategies to make more people aware of alternatives to hazardous products for homes and gardens, and to give them good reasons to use those alternatives.

Awareness that hazardous products are tossed into the waste stream have, in part, led to regional support for a more upstream-oriented approach to managing waste. Over the past decade, Europe and Canada have enacted "product stewardship" policies that require manufacturers to share responsibility for managing certain products at their end-of-life. The RSWMP update emphasizes the importance of making that policy shift here. Results from the region's advocacy for product stewardship policies could have significant payoff in reducing the waste handling burden on local governments, and arguably lead to reduced toxicity and increased recyclability in products manufactured for market.

Sustainable operations

Great strides in awareness and implementation of sustainability principles and practices have been made in the past decade, particularly in the Portland region.

This updated Plan provides groundbreaking sustainability guideposts for solid waste system operations. The solid waste system's operations are comprised of facilities, vehicles and people that collect, receive, process, transport, and recover or dispose of the region's waste stream.

At Metro's request, public and private sector stakeholders examined how sustainability principles could be applied to solid waste operations. Their recommended definition of sustainability, sustainability framework, and goals and objectives for sustainable operations are included in this Plan. These goals and objectives address air and water emissions, energy use, employee work life, and institutionalizing sustainability in solid waste system operations.

Disposal system decisions

A year-long analysis of transfer station ownership options was undertaken in conjunction with the development of this Plan. The main question addressed was whether the current system of public and private transfer station ownership should change.

After examining three different ownership models (all public, all private, public/private hybrid), Metro Council concluded that continuing the hybrid model, i.e., publicly-owned Metro Central and Metro South transfer stations and strategically placed private transfer facilities, is in the region's best interests.

This Plan's policies reflect that determination. Plan appendices indicate further areas of disposal system examination ahead for Metro, including waste allocation, public and private pricing, self-haul services and facility entry standards.

Metro's role in regional solid waste planning

Metro has the responsibility to conduct solid waste planning for the region through RSWMP, which serves as a regional framework for the coordination of solid waste programs and practices. Metro is accountable for state-mandated waste reduction goals in the tri-county region, and works with its local government and private sector partners to accomplish these goals. Local governments' solid waste ordinances, regulations and contracts are required to conform with the Plan (see Chapter VI, Plan implementation, compliance and revision for required elements of the Plan).

Plan performance

Historically, the regional waste reduction rate has been the primary benchmark of regional progress. This Plan continues an emphasis on that measure, but other means of assessing the solid waste system's performance (i.e., goals and objectives for sustainable operations) will be implemented and reported. In addition, the Plan is likely to be amended to incorporate a new set of numerical goals beyond the last benchmark year of 2009.

Annual work plans are the means by which Metro and local governments plan for the programs, projects and activities that implement the waste reduction elements of the Plan.

Regional work groups involving Metro, local governments, the DEQ and the private sector will include a standing group engaged in implementation and reporting on sustainable operations goals, as well as short-term groups that meet to study regional problems and recommend policy or program options or changes. These work groups play an important role in ensuring realization of Plan goals. They may also assist in evaluating programs or recommending Plan revisions.

Moving forward

Twenty-five cities, three counties, Metro, the Oregon Department of Environmental Quality (DEQ), private waste haulers, and private facility owners are all part of the solid waste system. The complex mix of public and private involvement in solid waste in our region makes cooperative planning essential. RSWMP provides a unified blueprint to ensure that the efforts of all parties are coordinated as key issues are addressed.

Hundreds of stakeholders participated in developing and shaping this RSWMP update through various venues and numerous discussions. Many of these stakeholders will also play valued roles in the Plan's implementation over the next 10 years. Collaborative efforts define the development and implementation of such plans for the region.

By implementing the direction in this updated Plan, the region will continue to provide national leadership in waste reduction, advance sustainable practices in system operations, ensure future changes in the solid waste system that serve the public interest, and move closer to achieving the Plan's vision of a system in which producers are an additional link in the responsibility chain, and all contribute to the sustainable use of natural resources.

Chapter I
Introduction

A. Why a regional plan?

The residents, businesses and institutions in the Metro region currently produce thousands of tons of solid waste every day. The question about what to do with this waste, now and in the future, creates the need for a plan such as this one. Furthermore, the daily movement of solid waste in the Metro area results in issues extending beyond individual jurisdictional boundaries, creating a need for coordination and cooperation in the development of a Regional Solid Waste Management Plan.

This Regional Solid Waste Management Plan (RSWMP, or the Plan) is a document that:

- Serves as a regional framework for the coordination of solid waste practices.
- Provides the region with a program of solid waste system improvements.
- Establishes regional solid waste goals and objectives, including an overall waste reduction goal and a plan to monitor progress toward the goals.
- Satisfies state law requiring the development of a waste reduction plan for the metropolitan area (ORS 459).

This updated Plan provides the metropolitan area with policy and program direction for the next decade. Twenty-five cities, three counties, Metro, the Oregon Department of Environmental Quality (DEQ), private waste haulers and private facility owners are all part of the solid waste system. The complex mix of public and private involvement in solid waste in our region makes cooperative planning essential. RSWMP provides a unified blueprint to ensure that the efforts of all parties are coordinated as key issues are addressed.

B. Plan context

The imperative to conserve resources for future generations -- reducing the amount and toxicity of waste generated and disposed -- drives much of the Plan's direction. Growing awareness and implementation of sustainability principles and practices provides the impetus for advancing sustainable practices in operations throughout the region's solid waste system. Finally, the Plan update process was an opportune vehicle to examine potential improvements to the region's disposal system. It reflects Metro Council's decision, after extensive analysis and outreach, that the region's transfer system will remain a public/private hybrid.

C. Scope of the Plan

This Plan addresses municipal solid waste (MSW), including hazardous wastes from households and small businesses. It does not address hazardous wastes from large-quantity generators, biosolids (sewage sludge), nor special industrial wastes.

The region addressed by this Plan consists of the tri-county metropolitan region (Clackamas, Multnomah and Washington counties), including the cities, residents, businesses and operations therein. This Plan also includes programs and facilities that in some cases are located outside of the tri-county boundaries, that may impact activities inside of the tri-county area.

All of the programs, services and facilities related to solid waste management and disposal are addressed by this Plan, including waste reduction, transfer, disposal, and collection. Although Metro has no specific authority over collection activities, the other government participants (i.e., cities and, to a lesser extent, counties) do have such authority. Furthermore, collection services are a critically important part of the solid waste management system and cannot be ignored.

This Plan also incorporates the most recent Disaster Debris Plan (see Appendix B). Due to its unique needs and constraints, disaster debris was addressed through a supplemental planning effort. Disaster debris management will make use of the existing recycling and disposal systems in the Metro region as much as possible, hence the need to recognize it as part of RSWMP. A priority will be placed on using waste reduction methods (in particular, recycling and composting) for handling any disaster debris.

D. The planning process

The RSWMP Update Project officially began in October 2003 with assembly of the 13-member project team comprised of Metro staff. The consulting firms Green Solutions and Environmental Practices were hired a few months later to assist with the development of the updated Plan. Cogan Owens Cogan, LLC, was hired to assist with the project's public involvement activities.

Project staff conducted an assessment of the 1995-2005 RSWMP and identified research items to support the update of the Plan. Several work groups contributed to the goals and objectives in waste reduction program areas. Sustainability and its application to solid waste operations was addressed through a special committee. In addition, Metro led an effort to examine future ownership options for the regional transfer and disposal system.

The interim waste reduction plan

The RSWMP update was delayed until the questions about transfer station ownership options could be resolved. In the meantime, Metro Council approved an Interim Waste Reduction Plan (IWRP) to provide updated program direction for the region until the entire RSWMP document could be completed. Staff and stakeholder work on the IWRP concluded in April 2006. A 45-day public comment period began at that time. The revised IWRP was presented to the Metro Council for its approval in August 2006. That document has now been incorporated into this Plan (see Chapter IV).

Disposal system planning study

To ensure that adequate public services will be provided through the regional transfer station system in the next 10 years, Metro conducted a Disposal System Planning (DSP) Study (see Appendix C for more details). The primary purpose of the DSP Study was to answer the question: What is the best way to deliver safe, environmentally sound and cost-effective waste transfer and disposal services to the public and private users in this region? Of particular interest was determining whether the system could be improved by changing the current mix of public and private ownership of the region's transfer facilities.

Consultants CH2M Hill and EcoData were retained to conduct a detailed analysis of the region's solid waste disposal system and to assess how changing the ownership structure of system facilities would impact system function. The study consisted of five major elements, including: 1) documentation and consideration of stakeholder input; 2) analysis of the economics of the Metro solid waste system; 3) definition of system alternatives and identification of system objectives; 4) evaluation of the system alternatives for cost, risk, and meeting system objectives; and 5) legal analysis of system issues.

After a year-long analysis, Metro Council concluded that continued public ownership of Metro Central and Metro South transfer stations is in the region's best interests. The Plans' policies reflect that determination.

The appendices contain the executive summary of the transfer station ownership analysis. Also appended is a System Improvements Workplan, which details further areas to be examined in years ahead, including waste allocation, public and private pricing, self-haul services and facility entry standards (see Appendix D).

E. Public involvement

Public involvement activities

Metro staff prepared a multi-phase public involvement plan for the RSWMP. In the first phase, between February and April 2004, seven two-hour meetings were held with approximately 40 stakeholders to identify and narrow a list of regional issues. The purpose of the meetings was to give a cross-section of stakeholders (from the regional solid waste community and the general public) the opportunity to express particular interests and perceptions of the regional solid waste system, and help identify key planning issues to address in the updated RSWMP. The results of the meetings were presented in a report titled "Summary Report of Stakeholder Meetings, Phase One, April 2004."

Four key planning issues were identified for further discussion (below). The first three planning issues were a part of the broader public involvement process targeting the public at large (service users). The fourth evolved into the Disposal System Planning project, a

review of the future public role in the region's transfer and disposal system. These issues were:

- Garbage and Recycling Services. Is the public satisfied with current service levels? Will these services be adequate in the future?
- The Regional Waste Reduction Goal. The next waste reduction goal in state law is 64% in target year 2009. As of 2004, a 57% waste reduction rate has been achieved. How much more can we recover?
- Sustainability and the Solid Waste System. Regional solid waste system operations (e.g., transport and facilities) create environmental impacts through fuel, water and energy usage. Should we adopt sustainability principles that can guide solid waste practices? Should we go further and adopt zero-waste strategies?
- Disposal System Planning. The regional solid waste system consists of public and private service providers with government regulating collection and private facilities. What are the overall goals for the disposal system over the next 10 years? What services are needed, and who should provide the services?

"Let's Talk Trash"

The key planning issues led to Metro's second phase of public involvement activities, which took place between August and December 2004. During this phase, Metro hosted and facilitated "Let's Talk Trash" discussions with the public, made numerous presentations at neighborhood meetings, an area high school, and gathered input from the Metro Council and the Metro Solid Waste Advisory Committee (SWAC).

Project staff developed a discussion guide and questionnaire to help people understand the issues, examine alternative approaches, and discuss the implications and tradeoffs.

Overall, 88 people attended Metro's hosted or facilitated discussions and 151 people submitted comments using the online or printed questionnaire. During this period, Metro also recorded more than 1,300 visits to Metro's "Let's Talk Trash" web pages.

The results of the initial "Let's Talk Trash" activities were presented in a report to SWAC and Metro Council in December 2004. Key findings included:

- Garbage and Recycling Service. The current garbage and recycling system is adequate, but many participants felt that recycling rates could be increased and services should be expanded.
- Regional Waste Reduction Goal. Participants roundly agreed that businesses could do more to recycle; however, many felt the approach should first emphasize more education and incentives over regulation.
- Sustainability and the Solid Waste System. Many participants felt that home and business sustainability practices should be improved, and government agencies should lead by example.

The general conclusion of the public feedback was that the current system is good, but improvements in services and recycling are desired, with resource conservation as the guiding principle.

This phase of public involvement is documented in the report "Summary Report of Public Outreach, Phase Two December 2004."

"Let's Talk Trash" II: The interim waste reduction plan

A 45-day public comment period, "Let's Talk Trash II," began when staff and stakeholder work on the Interim Waste Reduction Plan (IWRP) concluded in April 2006. More than 400 individuals responded to an online survey about the IWRP and/or sent in written comments. In addition, respondents were asked to provide written comments describing if and how they would change the proposed strategies. Following are the major themes that emerged from the written comments:

- The focus should be on waste prevention.
- Access to recycling services should be improved.
- Awareness, education and outreach should be emphasized.
- Responsibility for the recycling of hazardous and difficult-to-recycle products should be shared by manufacturers, distributors and consumers.

Cogan Owens Cogan, Metro's public involvement consultant on the project, produced a report, "Waste Reduction Survey Results," which summarizes the major themes from comments received. Metro staff prepared a summary responding to the major themes identified and detailing revisions to be made to the IWRP based on public input. This phase of public involvement is documented in the report, "Interim Waste Reduction Plan Public Involvement Report, June 2006."

Final plan public involvement

In the summer of 2007 Metro conducted a final public comment period on the updated RSWMP. The Plan incorporated the Interim Waste Reduction Plan, which received extensive public comment before being approved by the DEQ and the Metro Council in 2006.

Opportunities to comment on the complete RSWMP were publicized through emails to an interested parties list, through advertisements placed in The Oregonian and in all newspapers within the Community Newspaper network. In addition, the public comment opportunity was noticed on Metro's website and in several Metro Councilor newsletters.

Prior to the Plan's release for the official public comment period, members of the Metro Solid Waste Advisory Committee (SWAC) were invited to provide final comments on the Plan.

During this final phase of public and stakeholder involvement, a total of 22 people (public and SWAC) commented on the Plan. Many comments supported a variety of changes to the Portland collection system rather than dealing specifically with RSWMP contents. Comments specific to the Plan did not present any majority views for changes.

Comments from the public and SWAC included:

- a desire to have more materials added to curbside recycling, especially plastics
- concerns about excessive and non-recyclable packaging
- support for changes to the curbside collection system
- suggestions that the Plan include other numerical goals beyond the 2009 waste reduction goal of 64%.
- questions about enforcement of the Plan
- suggestions that the sustainability focus of the Plan be strengthened
- support for the Plan's direction and focus on sustainability
- recognition of the Plan's importance in meeting state goals and statutes

Metro staff reviewed all comments and provided responses to those that had the most direct connection to the Plan. The staff responsiveness report and a link to the final draft of RSWMP were posted on Metro's website.

This phase of public involvement is summarized in the "Regional Solid Waste Management Plan Update: Final Phase of Public Involvement, September 2007."

All reports documenting public involvement activities are available by contacting Metro.

Chapter II
Current system

A. Introduction

This chapter provides an overview of current services, programs and system facilities, a summary of the results of waste reduction programs, an assessment of what more can be recovered from the waste stream, a projection of the region's likely performance in achieving the 64% waste reduction goal by 2009 and a look ahead to the development of long-term goals.

B. The regional solid waste system

The region's solid waste system can be viewed as a network of interrelated elements: collection, recycling and processing, transfer, transportation, disposal, and waste prevention activities. Each facility and service that handles waste generated in the Metro district is part of the solid waste system.

As the regional solid waste authority, Metro has the responsibility to ensure that all solid waste generated in the region is managed in a manner that protects public health and safety and safeguards the environment. To meet this responsibility, Metro has been granted broad authority under state law and its home-rule charter to regulate or operate solid waste disposal and recovery facilities. By state statute, the regulation of collection services is limited to cities and counties.

Metro has the responsibility to conduct solid waste planning for the region through the RSWMP. Local governments' solid waste regulations are required to conform with the Plan.

C. Roles and responsibilities in solid waste

Federal level

The Environmental Protection Agency sets design standards for landfills and establishes regulations for hazardous waste generated on a commercial level. The agency has excluded household hazardous waste and exempted some businesses that generate small quantities of hazardous waste from regulation.

State level

The DEQ has several roles in the solid waste system. The DEQ enforces solid waste statutes, including the mandated recovery goals, and measures recovery rates. The DEQ prepares and adopts a state solid waste management plan, approves local waste reduction plans, and also provides technical assistance and offers grants for waste reduction and other activities.

Regional level

Metro is responsible for solid waste planning and disposal in the region. As a part of these responsibilities, Metro develops and administers the RSWMP. Metro is accountable for state-mandated waste reduction goals in the tri-county region, and works with its local government and private sector partners to accomplish these goals. Metro provides funding assistance to local governments for waste reduction programs, and operates household hazardous waste prevention and collection programs in the region.

Metro oversees the operation of two Metro-owned regional transfer stations and administers contracts for the transport and disposal of that waste. Metro also oversees a system of franchises and licenses to regulate privately owned and operated solid waste facilities that accept waste from the region. Finally, Metro plays a role in closure and monitoring of several inactive landfills located in the region.

Local level

Cities and counties are responsible for designing and administering waste reduction programs for their jurisdictions. These activities must comply with state laws, including the Opportunity to Recycle Act, the Oregon Recycling Act and the RSWMP.

Local governments are also responsible for regulating and managing solid waste and recycling collection services within their jurisdictional boundaries (including setting franchise boundaries), and reviewing collection rates and service standards. Within the Metro region, private haulers that are permitted or franchised by their respective jurisdictions provide garbage and recycling collection services.

Private sector

The private sector has a wide variety of responsibilities that it has undertaken through its own efforts or through contracts and other agreements. Private service providers are primarily involved in collection and

facility operation, especially for waste collection and disposal, but are also critically important to the success of waste reduction programs. The implementation of waste reduction and other programs in the region relies heavily on collaboration between the public and private sector participants in the system. Private sector service providers are expected to continue to play a central role in helping the region progress toward a more sustainable future.

D. Current services, practices and programs

The solid waste system in the Metro region consists of a large integrated system of facilities, services, and programs. This section describes the regional services and programs for solid waste management. The public and private facilities involved in recycling and disposal of solid waste are described in Chapter II, E.

1. Waste prevention

Waste prevention is defined as actions taken or choices made to either reduce or prevent the generation of waste or toxic substances through the combined efforts of prevention, reuse, commercial and home onsite composting practices. Waste prevention is highest on the solid waste hierarchy because it has the greatest positive impact on natural resource and energy conservation. It also has the smallest burden on the solid waste management system, since preventing waste in the first place eliminates the need to manage it. Metro and the region's local governments have consistently emphasized waste prevention practices. Examples of the efforts currently underway are described below:

- Reuse and thrift organizations include Goodwill, Salvation Army and St. Vincent de Paul.
- Reuse businesses include A Teacher's Space, Cracked Pots, The School and Community Reuse Action Project (SCRAP), and Supply Our Schools in Clackamas County.
- Building material reuse stores include Hippo Hardware, Rejuvenation Inc., Habitat for Humanity ReStore, and The ReBuilding Center.

Metro area businesses and residents may also utilize waste exchange opportunities on the IMEX network, Craig's List, Freecycle Portland and programs such as Free Geek, where used computers are reconditioned for reuse. Visitors to Metro's "Find a Recycler" web page are referred to thrift organizations and other reuse opportunities if it is determined that the materials they wish to recycle are reusable. The Metro website also features a charitable organizations reference page. During the holiday season, the region promotes waste prevention by distributing tips and by encouraging people to give an experience (such as museum membership or sports/ballet tickets) as a gift rather than a product. In 2005, the Metro recycling information center provided over 12,500 referrals to callers regarding waste prevention, reuse and composting practices and services.

Local governments augment ongoing regional outreach efforts by promoting waste prevention in local newspaper ads, city and county newsletters, cable access programs, and presentations to service clubs, the general public and the business community. Since 1996, all local government public outreach materials have emphasized waste prevention as well as recycling.

Home composting and grasscycling are promoted through workshops offered by Metro's Natural Gardening program and also through home and garden centers, local newspapers, and at neighborhood cleanups. Some local jurisdictions conduct composting workshops and augment those workshops with their own outreach and through independent presentations on composting with worms. Metro encourages home composting by offering reduced-cost bins to the region's residents. Discounted bins have been offered since 1994; as of 2006 over 94,000 bins have been sold.

A survey conducted in 2004 found that:

- 52% of all single-family households in the Metro region engaged in home composting.
- 68% of the respondents that purchased bins from 1994 through 2004 were still using them for composting.
- Residents that bought Metro compost bins diverted more than 10,000 tons of organics in 2003.

All businesses have access to in-depth waste prevention evaluations via Recycle at Work, a technical assistance program that examines waste prevention, buy-recycled and recycling practices for businesses upon request. These evaluations may include:

- An onsite walk-through of the business.
- Review of current waste management and recycling practices.
- Education on waste prevention and buying recycled.
- Literature and information on recycling and waste prevention resources, including information on services such as laser toner cartridge refilling, computer equipment salvage and reuse, and techniques including choosing reusable coffee mugs and renting over purchasing.
- Follow-up technical assistance.

Metro and local government youth education programs emphasize waste prevention. Free presentations

Recycle at Work
from Metro and your local governments
www.RecycleAtWork.com

and materials are offered to students and teachers throughout the wasteshed. Programs include classroom presentations and assemblies, summer day camp programs, curriculum resources for teachers, waste reduction education grants, and assistance with the Oregon Green Schools program. Metro also provides assistance for the annual Earth Day billboard contest promoting composting, recycling, natural gardening and waste prevention messages that target adult audiences throughout the Metro region through the use of children's artwork.

Metro provides annual matching grant funds and disposal vouchers to neighborhoods to offset the costs of annual cleanups, and waste prevention activities are strongly encouraged. Waste prevention activities include participation in the cleanup event by a thrift or reuse organization, promoting neighborhood "garage sales," junk mail reduction education, reusable canvas shopping bag distribution, backyard composting, grasscycling, wood chipping and local mulching, waste prevention workshops, natural gardening workshops, and other activities.

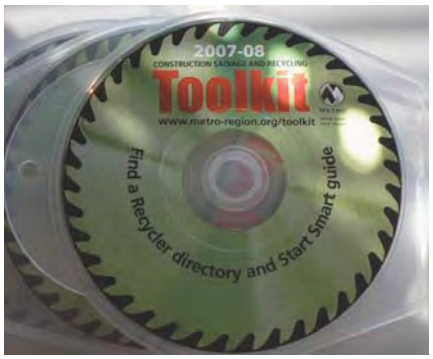
In 2004, Metro launched "Fork it Over!," a food donation outreach campaign targeted at food-generating businesses in the region. The goal of this program is to encourage businesses to donate surplus food that has not been served to their customers. Local government Recycle at Work staff provide technical assistance linking food businesses with food rescue agencies. An interactive web tool on Metro's website assists donors in finding the closest food rescue organization.

FORK it OVER!
TO REDUCE HUNGER & WASTE

Metro's transfer stations have implemented a reuse program that enables customers to drop off reusable materials for collection by The ReBuilding Center and St. Vincent de Paul. In addition, Metro's household hazardous waste facilities offer free reusable household cleaning materials and chemicals to non-profit organizations for reuse through the Pass It On program. In 2006, this program diverted 154,620 pounds of materials from entering the disposal system.

Metro has provided waste reduction grants that support reuse organizations such as The ReBuilding Center, Habitat for Humanity, School and Community Reuse Action Project (SCRAP), North Portland Tool Library, and various food rescue agencies. Metro and three local jurisdictions also provide funding to support the Master Recycler waste prevention, reuse and recycling training program. Master Recycler volunteers are utilized at a variety of public outreach opportunities.

Private reuse efforts include the building industry's support for increasing the capacity of local firms to handle used building materials. A survey of regional activity in deconstruction and used building material retailers reported that more than 10,000 tons of materials were salvaged for reuse in 2005. Metro's work in this area has emphasized partnerships with building industry associations to increase awareness of waste prevention practices within the industry. Metro has distributed 25,000 copies of the construction industry recycling Toolkit, which lists facilities accepting construction and demolition (C&D) materials for reuse.



2. Residential recycling

Residential garbage and recycling service is franchised in most jurisdictions in the region. Each city is responsible for its own franchising system, while the counties administer franchises in unincorporated areas.

Within the Metro region, weekly curbside collection of recyclables occurs on the same day as garbage service. This approach has been shown to help increase participation in curbside recycling. Curbside collection is responsible for a significant amount of the regional tons recovered. In 2005, residential curbside systems in the region recovered 217,047 tons of materials. This is about 16% of the total materials recovered from all sources in the region (see Table 1).

Recycling services for residents living in multi-family apartments contributed another 13,897 tons of recovered materials in 2005 (see Table 1).

A number of activities within the region support and promote residential curbside programs. Local governments regularly inform residents about proper preparation of recyclable materials and other collection issues through newsletters, mailers and other methods. Residents can also receive the most current information regarding services by calling their haulers, local government and Metro's Recycling Information Center.

The success of the region's curbside (residential) programs is due to many factors: collecting recycling the same day as garbage, providing recycling containers to all residents, frequent education messages, and volume-based pricing for garbage.

On the market side, the region is fortunate to have extensive local markets for most of the collected materials. Local markets make recycling more cost-effective because transportation costs are kept low.

The combination of comprehensive curbside collection programs and good markets have combined to allow residents to recycle nearly 50% of their waste stream.

3. Commercial recycling

Commercial garbage and recycling service is franchised in all jurisdictions in the Metro region except for the City of Portland. Within the region, there are also independent recyclers that specialize in collecting various materials.

Under state recycling opportunity requirements, haulers are required to provide recycling services to businesses that want to recycle, but businesses are not required to recycle except in the City of Portland, which requires businesses to recycle at least 50% of their waste.

The commercial sector is the largest source of recovered material in the region. In 2005, 865,562 tons of source-separated recyclables were collected from businesses, which was 62% of the total materials recovered throughout the region (see Table 1).

Commercial recycling is promoted through business recognition programs, an online interactive recycled product database, and a regional campaign to provide deskside paper recycling collection boxes. There is also a regional business assistance program designed to provide onsite personalized technical assistance for waste reduction practices, including waste prevention, recycling and buying recycled products.

Table 1
Recovery by generator source

Program	2005 Tons	Percent
Commercial organics	4,821	0.3%
C&D onsite	167,675	12.0%
C&D post-collection	98,591	7.0%
Commercial, paper and containers	296,667	21.2%
Commercial, other	568,895	40.6%
Multi-family	13,897	1.0%
Residential	217,047	15.5%
Other[1]	33,816	2.4%
Total recovery	**1,401,409**	**100.0%**

2006 DEQ annual recovery survey.
[1]Bottle bill and depot/dropoff.
C&D = Construction and demolition debris.

Regional efforts to recover commercially generated organics (food waste) have targeted edible food for donation to local agencies, and the diversion of non-edible food to composting operations. For edible food, the program aims to increase the levels of donations

as well as increase the capacity of the agencies to take donations. In 2004, the last year reported, local agencies recovered 16,000 tons of edible food, an increase of 1,800 tons from the previous year. For non-edible food, the program aims to increase the organics processing infrastructure available to businesses within the region. Metro, the City of Portland and the private sector have worked on a number of projects that have expanded food waste recovery from 4,400 tons in 2000 to 9,587 tons in 2006.

4. Residential and commercial waste collection

Garbage and recycling collection services in the Metro region are provided solely by private companies. Local jurisdictions handle collection differently; however, no jurisdiction in the region requires residents to subscribe to collection services (although some require landlords to provide refuse collection for residential rental units).

Washington County: Garbage service for both residential and commercial customers is franchised throughout Washington County, except in the City of Banks. There are currently 14 haulers that serve Washington County. Ten of the cities in Washington County are responsible for their hauler franchising, while the county administers franchises in unincorporated areas.

Clackamas County: Garbage service for both residential and commercial customers is franchised throughout Clackamas County. There are currently 15 haulers that serve Clackamas County. The 12 cities of the county that are within the Metro boundary are responsible for their own hauler franchising, while the county administers the franchises in unincorporated areas.

Multnomah County: Residential garbage service in Multnomah County is franchised; there are currently 47 haulers that provide residential and commercial garbage collection services in the county. Unlike the other two counties in the region, Multnomah County does not regulate waste haulers in unincorporated areas. Except in the areas that fall into the service boundary of an adjoining city, collection in rural Multnomah County is unregulated.

Portland's commercial system is not franchised. It allows commercial customers to choose among haulers permitted by the city and negotiate rates for service. In addition to those haulers, there are six entities in the City of Portland that haul their own waste and are licensed as commercial haulers, e.g., the Housing Authority of Portland and American Property Management. These firms do not provide services to others.

The solid waste collection industry has undergone significant changes since 1995. At the beginning of 1995, approximately 107 licensed or franchised haulers served the region and most were locally owned. The only nationally owned hauling company controlled slightly less than 6% of the market. The five largest regional haulers controlled about one-third of the market.

In 2006, there were only 62 hauling companies serving the region. This reduction in the number of haulers is the result of more national waste companies entering the market and a wave of acquisitions by these companies. The five largest hauling companies now control over 60% of the market (twice as much as 11 years ago), with the largest nationally owned hauler controlling almost one-third of the market.

The five largest regional haulers and their tonnage are shown in Table 2. (Although one of the names remains the same, a new firm actually purchased that corporation and assumed its name.)

In addition to the consolidation of smaller haulers into larger firms, the hauling industry has changed significantly in terms of the range of activities. In 1995, none of the region's haulers were fully vertically integrated (i.e., owned all of the components necessary to collect, transfer, and dispose of waste). Most of the haulers in the region depended on two publicly owned transfer stations and one privately owned facility to handle the waste they collected.

Table 2
Top Five Haulers

Calendar Year 1995	Tons	Share
MDC	137,239	15.60%
Waste Management	62,082	7.00%
Keller Drop Box Inc.	36,298	4.10%
Oregon City Garbage Co.	33,050	3.70%
Hillsboro Garbage Co.	30,261	3.40%
Total	298,930	33.90%
All Other Haulers	583,144	66.10%
Total Delivered by Haulers	**882,074**	**100%**
Calendar Year 2006		
Waste Management	295,870	28.90%
Allied	145,673	14.20%
AGG Enterprises	61,141	6.00%
Waste Connections	55,661	5.40%
Pride Disposal	49,944	4.90%
Total	608,289	59.40%
All Other Haulers	416,149	40.60%
Total Delivered by Haulers	**1,024,438**	**100%**

Today, three of the region's largest hauling companies are fully vertically integrated, providing collection, transfer, processing, and disposal services. One of the two locally owned haulers in the top five is partially vertically integrated in that both collection and transfer services are provided. Full vertical integration of waste companies is a more recent occurrence in this region and has resulted in significant changes in how waste is handled.

5. Self-haul

Although most of the solid waste in the region is taken to disposal facilities by licensed or franchised commercial haulers, there is a substantial amount of waste hauled by individual residents or businesses. Approximately 20% of solid waste disposed in the region is hauled to a solid waste facility by the generator of that waste ("self-haul"). Self-haul loads are typically smaller in volume and weight than loads disposed by garbage haulers. It is estimated that 70% of loads taken to solid waste facilities in the region are self-haul loads. An estimated 50% of the waste generated by the building and renovation industry is self-hauled by building contractors to disposal or processing facilities. As a result, the number of vehicles and the amount of infrastructure required to serve self-haul customers is disproportionately large relative to the tonnage handled.

6. Hazardous waste management

Collection services for household hazardous waste have been offered by Metro since the mid-1980s. Services began with occasional collection events and have grown to include permanent facilities at Metro's two transfer stations and community-based collection events around the region. In 2006, 44,188 customers used the permanent facilities and 12,265 attended the community events.

The collection events are held nearly every weekend between mid-March and mid-November. These events are distributed throughout the region to provide a convenient disposal option for residents who are more distant from the permanent sites.

Many small and large business generators contract with private companies that provide hazardous waste management services in the region. Metro (in partnership with the DEQ) also collects hazardous

waste from businesses, known as conditionally exempt generators (CEGs), that generate small amounts. In 2006, Metro served more than 625 CEGs.

7. Education

Adult and school education programs play an important role instilling waste reduction practices within the region. School districts, local governments, Metro, the State of Oregon, waste hauling and recycling companies cooperate in efforts to provide education services for waste prevention, recycling, composting and household hazardous waste. The Oregon Green Schools program is a good example of this cooperative effort. Metro also provides a number of services to local schools including curriculum materials, classroom presentations and technical assistance.

Education on reducing the toxicity of the waste stream has become a central concern for the region in the last several years. As households learn about the need to reduce the quantity of hazardous products put into the trash, Metro's household hazardous waste program continues to grow. Finding techniques to get residents of the region to change their habits when it comes to buying, using and disposing of hazardous products has become a priority. Programs within the region (such as Natural Gardening) provide residents with practical alternatives to the use of hazardous products.

Focusing on health and local environmental impacts is an additional technique for motivating behavior change. Within the region, partnerships between local governments, Metro, the State of Oregon and other agencies (such as the Regional Coalition for Clean Rivers and Streams) have engaged in education efforts to reduce the use of lawn chemicals.

8. Illegal dumping

Metro coordinates the investigation and cleanup of illegal dump sites in the region. As part of this process, Metro investigates potential major violators and, when necessary, takes enforcement action including assessment of monetary penalties.

If a dump site is on public property, a corrections crew is dispatched to clean up the site. A corrections crew consists of a team of low-risk inmates supervised by a Multnomah County corrections officer (on contract to Metro). As sites are cleaned up, an investigation is initiated to attempt to identify the generators of the waste.

Depending on the amount of waste dumped and the history of the offender, law enforcement officers on contract to Metro may issue civil citations for fines ranging from $150 to $500. Citations may be contested to the Metro contract hearings officer in a formal hearing. Anyone who fails to respond to a citation, either by paying the citation or by requesting a hearing, automatically receives a case review by the hearings officer, who renders a decision in the case and issues a formal order, a copy of which is mailed to the person cited. If the citation is upheld and the fine remains unpaid, the judgment goes to collections.

E. Current facilities

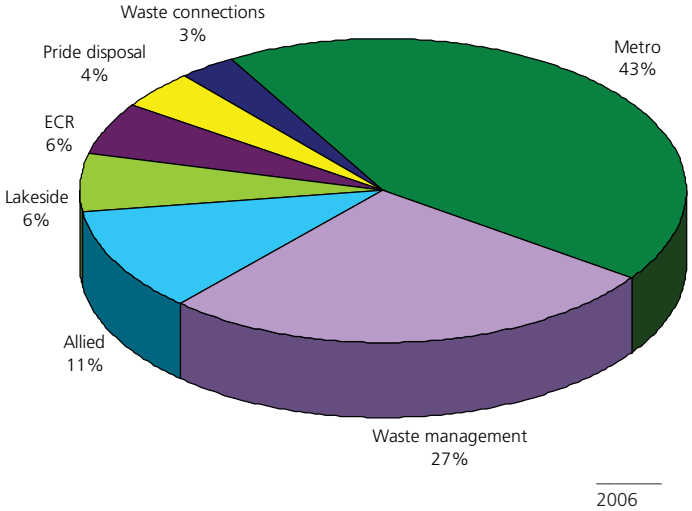
1. Facilities overview

A number of facilities make up the region's solid waste system. Some handle mixed waste, while the others act as processors for specific kinds of materials that can be recycled or composted. The purpose of this system is to process, recover and dispose of all the waste that the region produces in the most efficient, economical and environmentally sound manner possible.

Most solid waste facilities are privately owned, but Metro South and Metro Central transfer stations are both publicly owned. The opportunity for private entry and innovation in the system has helped to create a diverse array of facilities that can respond to rapidly changing technologies, fluctuating market conditions, and local conditions and needs.

The volume of waste handled by private facilities has increased significantly during the past 10 years. In 1995, the region's two publicly owned facilities handled slightly over 70% of the waste delivered to facilities in the region. By 2005, the share of the waste stream delivered to publicly owned facilities had declined to 43% (see Figure 1).

Figure 1
Tons received at facilities



2. Recycling/Recovery

The Metro region is currently served by 16 facilities conducting material recovery from dry waste of varying types (see Map 1). Twelve of these facilities are permitted to take nonputrescible ("dry") waste; the other four are licensed to accept a more limited range of materials. Two of those four facilities are limited to accepting wood, yard debris, and roofing; the other two facilities handle tires exclusively. Six of the facilities are hybrid facilities that also perform other functions, including four that are local transfer stations and two that are publicly owned/privately-operated regional transfer stations.

There are also seven "clean" MRFs in or near the region that exclusively receive and process source-separated residential curbside and business recyclable materials.

3. Composting

There are six yard debris composting facilities located within the region. All but one of these facilities are privately owned and operated. The publicly owned facility handles only leaf debris collected by City of Portland maintenance crews. The region is also served by a composting facility located in Washington State that is authorized to accept post-consumer food waste.

4. Waste transfer

The seven transfer stations located within Metro's boundaries (see Map 2) consolidate loads of solid waste for transfer to landfills. Three of these facilities, Metro Central, Metro South and the Forest Grove Transfer Station, are regional transfer stations that can accept unlimited amounts of putrescible (or "wet ") waste and dry waste. Metro's two transfer stations are publicly owned; the Forest Grove facility is privately owned.

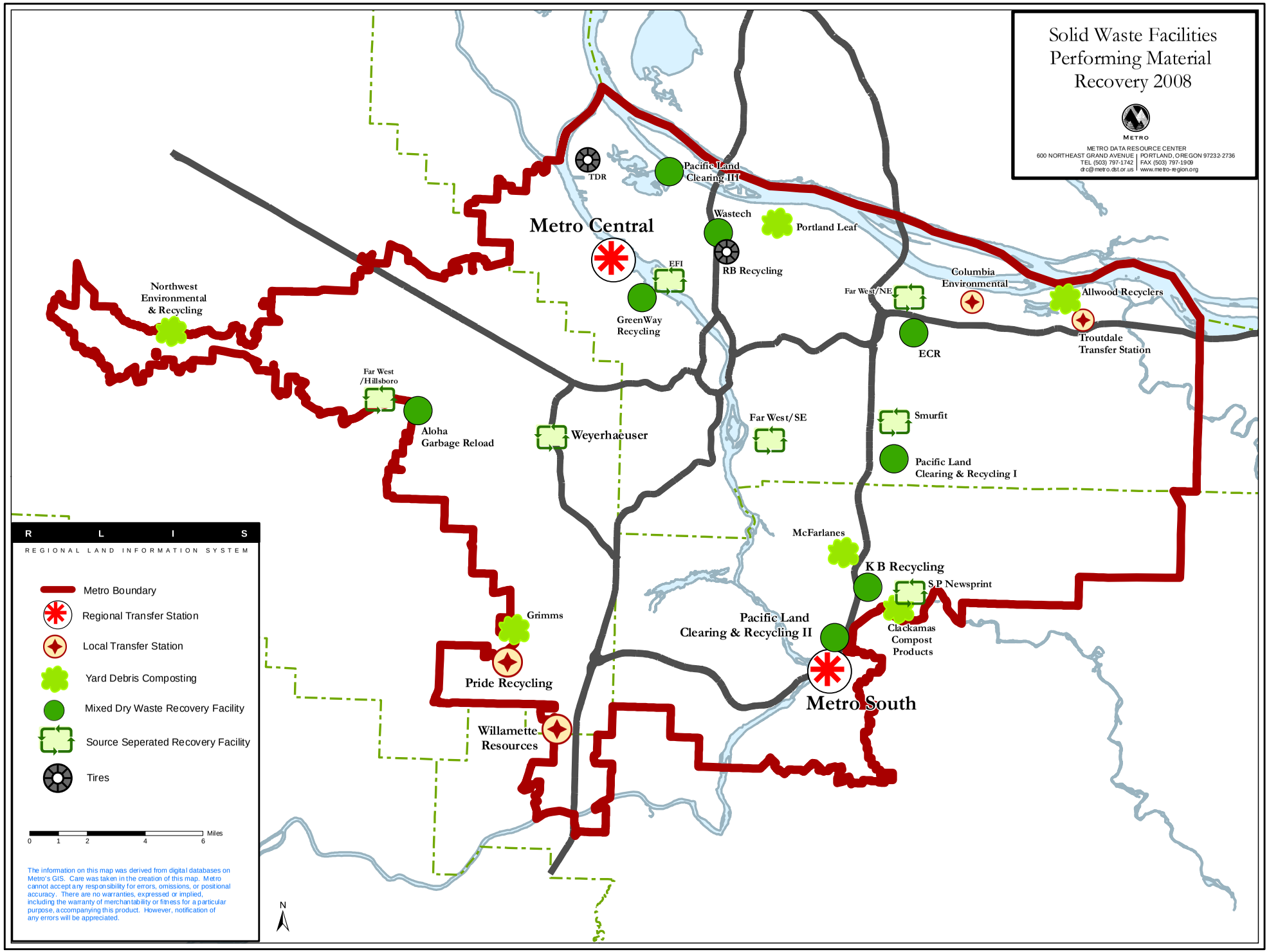
The four other transfer facilities, Columbia Environmental, Pride Recycling, Troutdale Transfer Station and Willamette Resources, are franchised to serve localized needs, and as such are authorized by Metro to accept only limited amounts of "wet" waste per year (but are allowed to accept unlimited amounts of "dry" waste). These local transfer stations are privately owned by companies that also provide collection services.

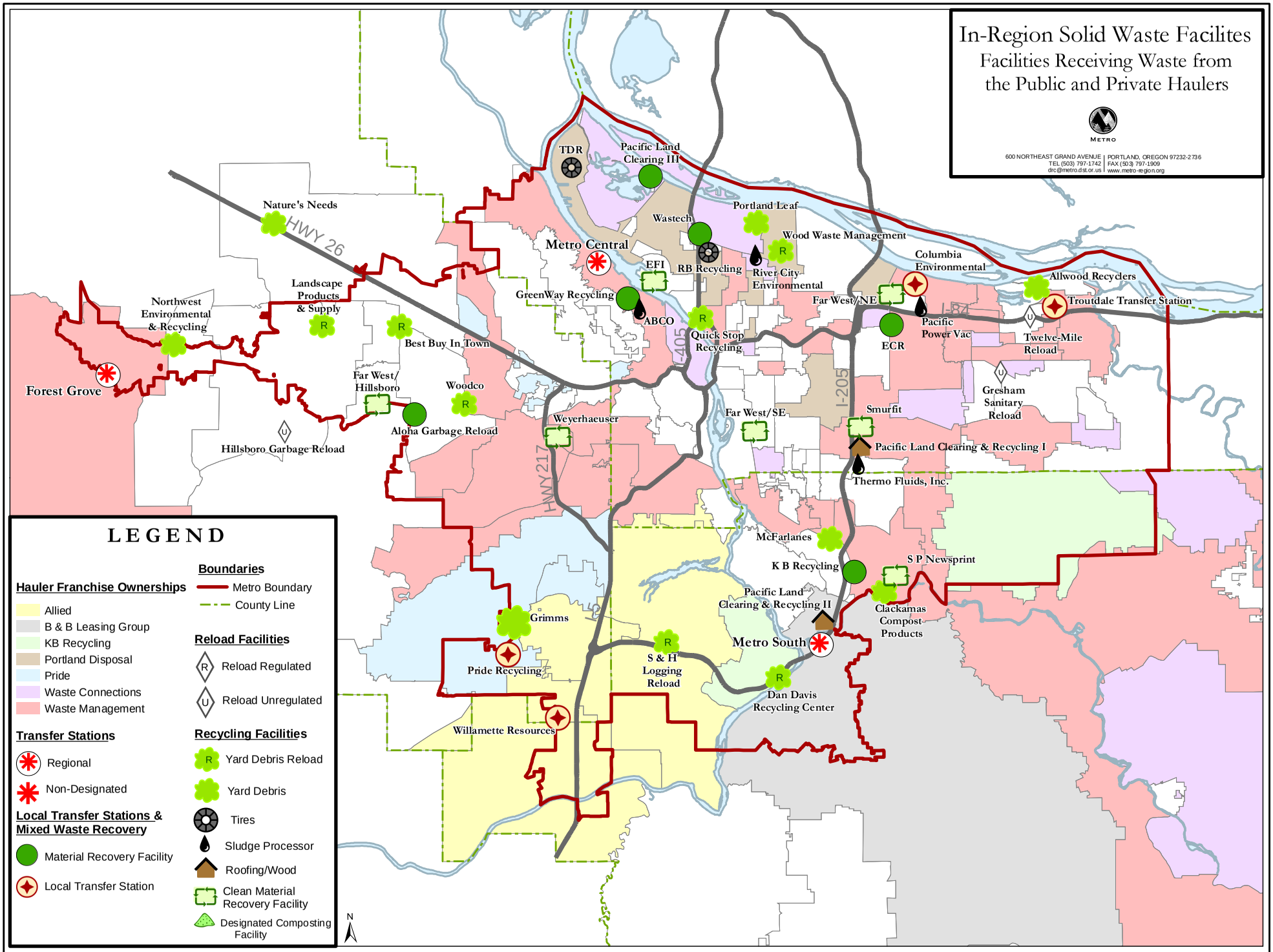
The region's seven transfer stations have an estimated transfer capacity of approximately 2.06 million tons/year. During 2006, these facilities accepted 1.05 million tons of waste. The estimated capacity of each facility and the tonnage received during 2006 is shown in Table 3.

Table 3
Transfer station throughput and estimated capacity, 1,000s tons/year

	2006 Throughput	Transfer Capacity
Public facilities		
Metro Central	324	624
Metro South	280	560
Private facilities		
Forest Grove*	168	135
Pride Disposal	56	234
Troutdale	82	312
Willamette Resources	144	196
Columbia Environmental**	0	unknown
Total	**1,054**	**2,061**

*Approximately 26,500 tons of solid waste are delivered to the Forest Grove transfer station in transfer vehicles and do not utilize transfer station capacity. The capacity shown is a nominal capacity based on the average load size in the region.
**Columbia Environmental is not yet operational.





Plot date: March 2008 J:\lmartin\06146SolidWaste

Please recycle with mixed paper

A small portion of the region's waste is delivered to non-system transfer facilities located outside the region's boundary. Haulers are permitted to use these facilities under the terms of non-system licenses issued by Metro. Although there are five transfer facilities in the areas adjacent to the region, only two facilities, the West Van Material Recovery Center and Central Transfer and Recycling Center in Vancouver, Washington, receive appreciable amounts of waste from the region. A vertically integrated company providing collection services within the region owns both of these facilities.

5. Waste disposal

The region's system of transfer stations was developed to meet the need to consolidate smaller loads from collection routes into significantly larger loads that could be economically hauled the relatively long distances to general-purpose landfills serving the region.

During 2006, about 1.08 million tons of solid waste were transported to one of these far-off facilities. Approximately 1.04 million tons were hauled by truck; the other 41,000 tons were hauled to Vancouver, Washington in collection vehicles and then transported by barge to a landfill in eastern Oregon. The Metro region is unique in that it has access to three modes of transportation: truck, rail and barge – for transporting waste to disposal. None of the region's putrescible waste is currently transported by rail.

Eight landfills serving the region have entered into Designated Facility Agreements (DFA) with Metro and are considered a part of the region's solid waste system. Riverbend Landfill has not entered into a DFA, and therefore, customers from the region need a non-system license to use the facility. It is also the nearest landfill authorized to accept municipal solid waste containing putrescible matter (about 40 miles from the center of the region). The shortest "long hauls" are about 30 miles from transfer facilities near the southern boundary of the region; other waste is hauled in excess of 150 miles to a disposal site (see Map 3).

The Hillsboro and Lakeside landfills are located immediately outside the Metro boundary. These are limited-purpose landfills that are permitted by the DEQ to only take dry waste and some special wastes.

6. Facility regulation

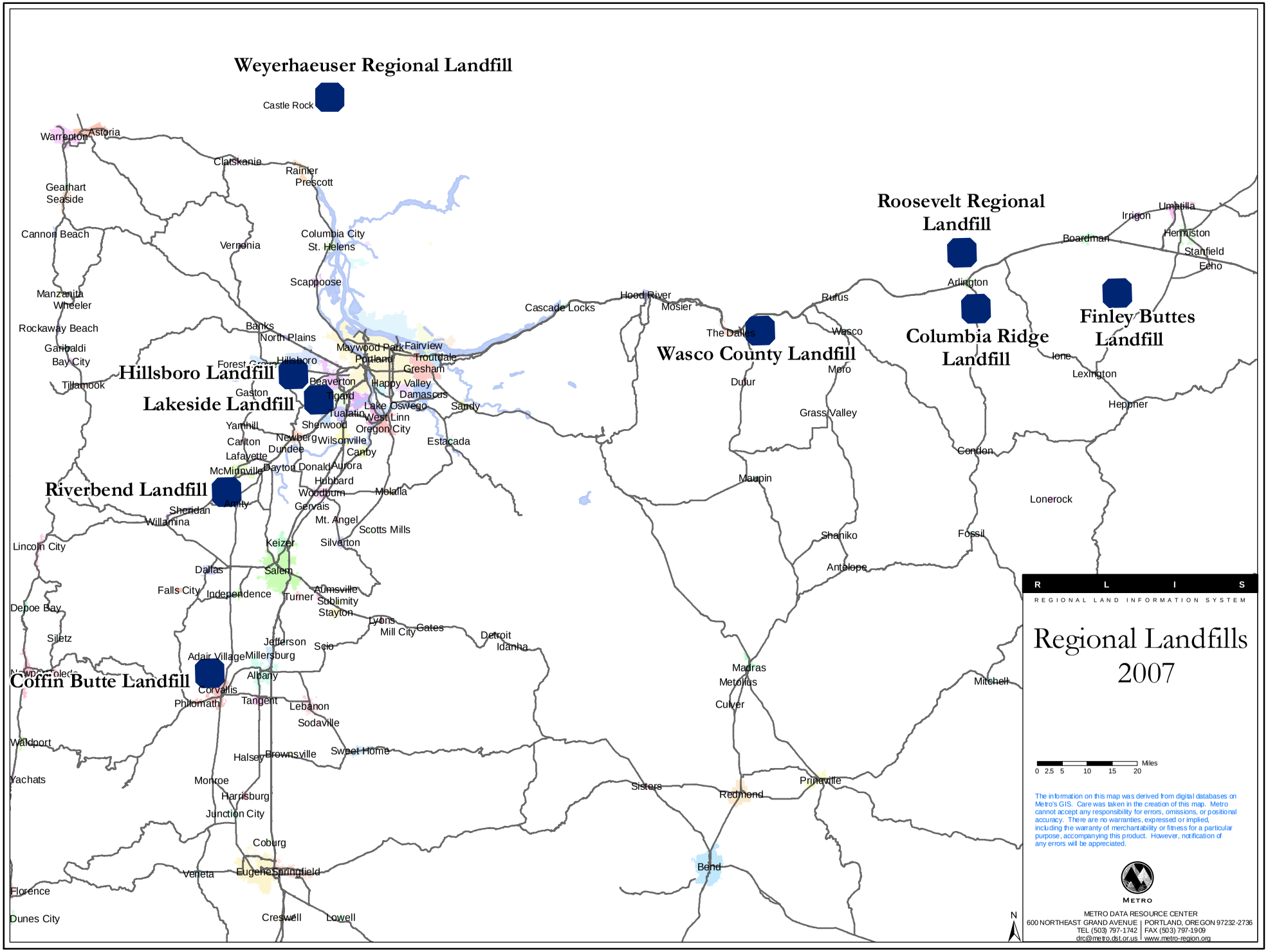
Metro is responsible for licensing, franchising, inspecting and monitoring activities conducted by the private solid waste industry in receiving, managing and disposing solid waste. Metro works closely with other governments to assure an appropriate level of regulatory oversight at facilities without redundancy. For instance, local governments are charged with zoning, land use, and local traffic impacts; the DEQ focuses on reducing environmental and human health risk from the waste management activities of both public and private facilities.

Table 4
Landfill ownership and approximate reserve capacity

	Ownership	Remaining Capacity (millions of tons)
Designated facilities		
Columbia Ridge	Waste Management	263
Roosevelt Regional	Allied Waste	135
Finley Buttes	Waste Connections	120
Hillsboro	Waste Management	6
Lakeside Reclamation	Grabhorn	1
Coffin Butte	Allied Waste	20
Northern Wasco	Waste Connections	15
Weyerhaeuser	Weyerhaeuser	25
Non-System facilities		
Riverbend	Waste Management	6
Total		**591**

Metro uses its regulatory authority to:

- Protect public health, safety and the environment.
- Collect user charges on all applicable waste generated within the region.
- Establish operating standards.
- Monitor facility performance.



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Please recycle with mixed paper

For facilities located inside the Metro boundary, Metro issues one of two operational permits:

- A franchise to transfer stations and any facility managing wet waste.
- A license to compost, dry waste reload, and recovery facilities.

Certain facilities, such as those exclusively handling inert wastes or source-separated recyclable materials, are not required to obtain authorization from Metro to operate. However, Metro retains the authority to inspect and audit these operations to periodically confirm compliance with Metro Code.

For facilities located outside the Metro boundary that accept waste generated inside the boundary, Metro enters into one of the following voluntary agreements:

- Designated facility agreements for disposal sites willing to collect user fees and excise taxes on behalf of Metro, or
- Non-system licenses for generators, transporters or other persons wanting to use a facility outside the regional boundary that does not have an agreement with Metro.

Metro implements its regulatory authority through formal and informal facility compliance monitoring and through formal enforcement, including civil penalty authority (see Appendix E, System and Non-System Facilities).

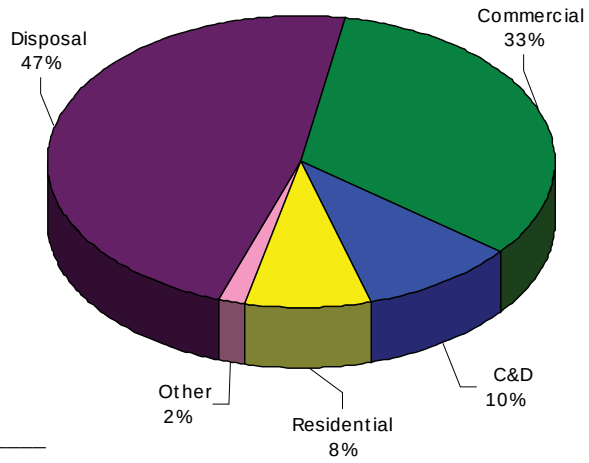
F. Material recovery and disposal trends

Current waste recovery rate

The current percentages recycled and disposed are illustrated in Figure 2. The data used for Figure 2 do not include the waste prevention credits (6%) or other waste prevention activities.

As shown in Figure 2, over half of the waste generated is being recovered through recycling and composting programs. This is a significant accomplishment and represents a substantial improvement over historical recycling levels. In 1986, the regional recovery rate (including recycling and composting) was estimated at about 25%. Over the next 10 years, spurred by higher goals and by public and private investments, the rate grew to more than 40%, thus achieving the 1995 target set by the state legislature.

Figure 2
Disposed and recycled amounts



2006 DEQ annual recovery survey.

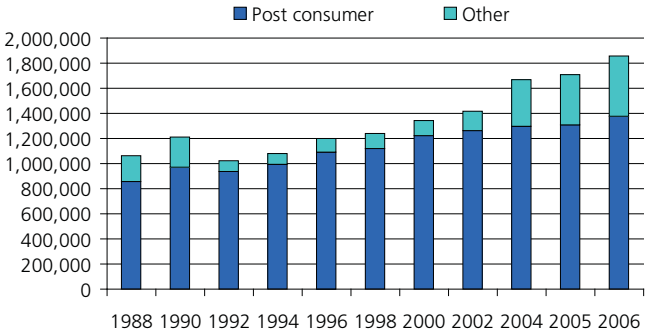
The 1995-2005 RSWMP followed on this accomplishment by setting recovery goals of 52% by 2000 and 56% by 2005. In 1997, the state legislature recognized the importance of encouraging waste prevention and passed a statute that allowed wastesheds to receive "credits" for waste prevention efforts. As a result of the 1997 legislation, a wasteshed that implements programs in waste prevention, reuse and home composting could receive a 2% credit for each of those programs. The Metro region has received the credits since they have become available. By 2005, the region had achieved a 59% waste reduction rate (53% recovery, plus 6% for waste prevention credits), about 90,000 tons shy of the statutory goal of 62%.

Waste disposal amounts

At the same time the waste reduction rate has increased, the amount of waste landfilled each year has also increased. Since 1994, the total amount of waste landfilled annually has grown from about 1.1 million tons to almost 1.8 million tons (see Figure 3). A significant part of this increase has been in the "other waste" category, which includes environmental cleanup wastes and other special wastes that generally originate from development activities. These wastes made up only 15% of the disposal tonnage in 1994, but now account for 30% of solid waste disposed.

The "post-consumer" waste shown in Figure 3 includes residential and commercial solid waste, plus construction and demolition debris. The post-consumer waste tonnages are used by the DEQ in computing recovery rates.

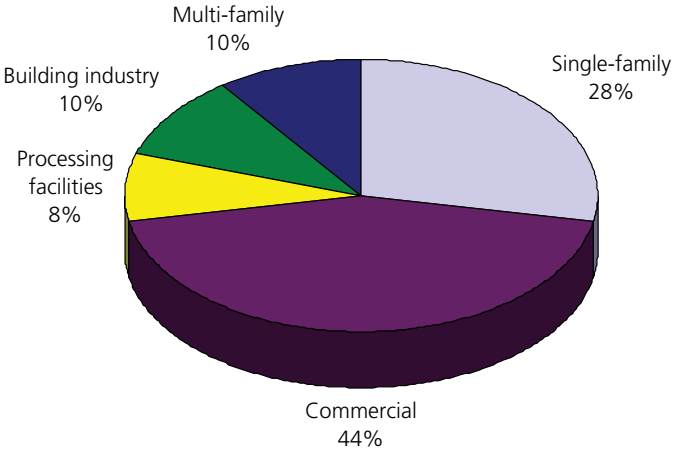
Figure 3
Historical disposal tonnages



Amount of waste disposed by sector

The amount of waste disposed and recovered by each generator is shown in Figures 4 and 5. Commercial sources (including industrial and institutional waste generators) account for almost half of the waste disposed from the Metro region (44%). Single-family homes are next at 28% (this figure includes the amount of residential self-haul received at the Metro-owned transfer stations, since most of that waste is from single-family homes).

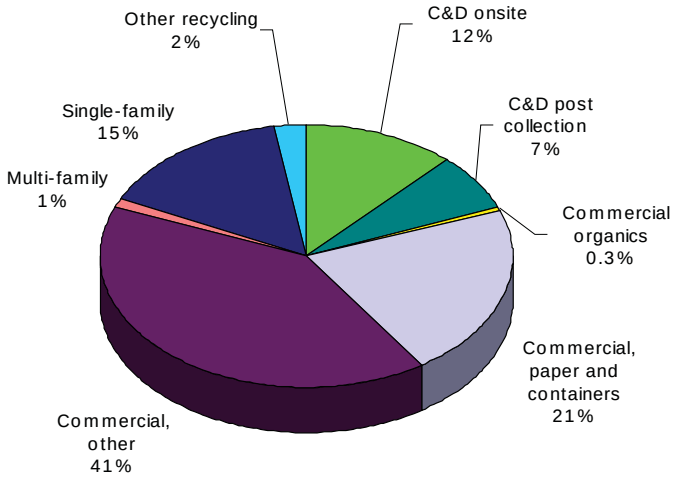
Figure 4
Waste disposed by generator source



2005 DEQ waste composition data.

The proportions of these sources (and their contributions to the region's waste stream) varies locally depending on the amount of commercial and industrial generators in a given area. The amount of C&D waste generated in a specific area, for example, is related to the amount of construction activity. In the outer suburban areas of the Metro region, where much of the new construction of residences and businesses is currently taking place, C&D may account for half or more of the waste generated there.

Figure 5
Amounts recovered by generator source



2006 DEQ annual recovery survey.
[1]Multi-family, bottle bill and depot/dropoff.

In the long term, the relative proportions of waste from each sector will shift due to changes in the amount recycled or composted. Implementation of the goals and objectives in this RSWMP should further decrease the amount of waste disposed from commercial and residential sources.

Composition of the waste disposed

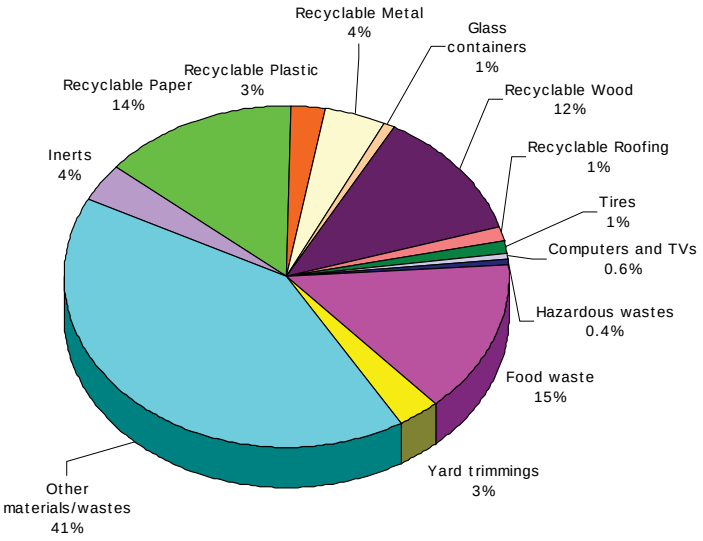
The composition of waste generated by each sector (residential, business and building industry) is different. The building industry generates many recyclable materials such as wood, concrete, cardboard, metal, and land-clearing debris. Some types of businesses generate large quantities of waste paper, most of which is recyclable when it is separated from the smaller amounts of putrescible and nonrecyclable waste generated at most locations. Industries generate diverse wastes, such as grits and screenings, scrap from product manufacturing, specialized packaging and other substances that typically require case-by-case evaluation for recycling or reuse.

Residential sources generate a waste stream that contains a wide variety of materials. Among the recyclable residential materials are paper, metal, glass, plastic bottles, motor oil, and yard debris. The largest single material remaining in the residential waste stream is food waste (26% of the waste disposed). Infrastructure development in food waste collection may make it possible to recover that material, and soiled paper, for composting.

The amount of recovery possible for many materials may be constrained for various reasons, including lack of market infrastructure, collection services, poor generator awareness and certain government regulations. Variations in these factors among the generators give rise to variations in recovery performance. For example, because the residential collection and processing infrastructure is well developed, and homeowners tend to be highly aware and motivated recyclers, the recovery rate for some residential materials is relatively high. Typically, about 50% of the waste generated in a single-family residence gets recycled or composted. On the other hand, businesses tend to be more focused on bottom-line financials than on the environmental impacts of their consumption. Despite a highly recoverable waste stream (mostly paper), businesses as a whole separate their recyclables less thoroughly than households, and so send a higher proportion of recyclables to the landfill.

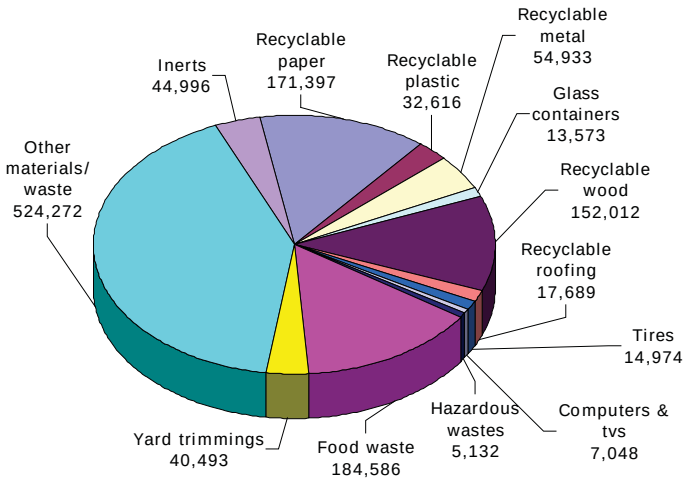
The results of the most recent waste composition study show that an additional 739,449 additional tons of material (59% of the waste currently disposed) could be recycled through existing programs or facilities. Recovery programs for the remaining wastes (41%) are either small and local (e.g., gypsum) or non-existent (see Figure 6, Figure 7 and Table 5).

Figure 6
Aggregate composition of disposed waste, including residential, commercial, industrial and construction/demolition



2005 DEQ waste composition data.

Figure 7
Aggregate composition of disposed waste, in tons



2005 DEQ waste composition data.

The quantities, composition and recovery potential for recyclable materials being disposed by various sources within the region have been analyzed and used in setting target goals for different programs and sources, as discussed in the section below on waste reduction goals.

Table 5
Composition of disposed waste

Paper		**Rubber**	
*Recyclable	171,397	*Tires	14,974
Nonrecyclable	87,032	Nonrecyclable	7,734
Plastic		**Electronics & elec. equip.**	
*Recyclable	32,616	*Computers and TVs	7,048
Nonrecyclable	126,388	Nonrecyclable	14,271
Metals		**Organics**	
*Recyclable	54,933	*Yard trimmings	40,493
Nonrecyclable	11,878	*Food waste	184,586
Glass		**Other materials/wastes**	
*Glass containers	13,573	Textiles & furnishing	112,766
Nonrecyclable	7,179	Gypsum wallboard	39,560
Wood		Other C&D	26,321
*Recyclable	152,012	Noncompostable	
Nonrecyclable	17,185	organics	69,100
Inerts		*Hazardous wastes	5,132
*Rock, concrete, dirt	44,996		
Roofing			
*Recyclable	17,689		
Nonrecyclable	4,859		
	Total	**1,263,721**	

*Materials with additional recovery potential.
2005 DEQ waste composition data.

G. Current and future goals

Historically, the waste reduction rate has been the Plan's primary measure of resource conservation progress. Emphasis on this measure continues in the near term and this Plan identifies policies and programs needed to achieve a 64% waste reduction goal. The Plan also anticipates that other measures of performance in resource conservation will be established in the years ahead and that the RSWMP will be amended to include those measures.

The first part of this section delineates the tons needed from each of the Plan's primary program areas to reach the 64% goal. The discussion includes consideration of whether the targets are likely to be reached in each area. The second part addresses increased waste generation rates and the implications for how we measure resource conservation. The third part addresses the development of new long-term goals.

Plan programs for achieving the 64% goal

The Plan is designed to reach the 64% waste reduction goal through targeted efforts in the single-family residential ("curbside"), multi-family residential, business, building industry and commercial organics sectors. Regional work groups, SWAC and Metro Council have worked to develop implementation strategies for each of these sectors. In particular, regional discussions have focused on strategies for the business and building industry sectors.

Table 6 illustrates two recovery growth scenarios for the region: a "High Recovery" scenario (the Plan programs) where the region would reach the 64% recovery goal, and a "Likely Recovery" scenario, where efforts fall short of the goal by over 100,000 tons, or 3.4% percentage points. The table also shows the expected recovery by program sector for each scenario. The following describes the major factors affecting the ability of each program to achieve its targeted recovery tonnage.

Table 6
Recovery growth scenarios

	Actual Recovery 2005	Potential Growth Scenarios for Recovery from New Programs: High Recovery	Likely Recovery
Organics	5,000	34,000	15,000 (shortfall 19,000)
C&D	266,000	42,000	31,000 (shortfall 11,000)
Business	297,000	80,000	45,000 (shortfall 35,000)
Multi-family	14,000	5,000	5,000
Single family	217,000	18,000	10,000 (shortfall 8,000)
Other (scrap metal, pallets, bottle bill, containers, etc.)	603,000	8,000	6,000 (shortfall 2,000)
Subtotal new recovery		187,000	112,000 (shortfall 75,000)
Recovery	**1,402,000**	**1,779,000**	**1,704,000**
Disposal	**1,264,000**	**1,288,000**	**1,363,000**
Generation	**2,666,000**	**3,067,000**	**3,067,000**
Recovery Rate	**52.6%**	**58.0%**	**55.6%**
Waste Prevention Credits	**6.0%**	**6.0%**	**6.0%**
Total Metro WR Rate	**58.6%**	**64.0%**	**61.6%**

Organics

The estimate for the "High Recovery" scenario is predicated on expanded participation of large food waste generators in the City of Portland, implementation of food waste collection programs in other jurisdictions in the region, and on residential organics collected with yard debris in the City of Portland. The scenario also requires the siting and operation of a food waste composting facility in or near the region. The "Likely Recovery" scenario anticipates no local processing facility, limited collection programs and consequently much lower tonnage.

Under the "High Recovery" scenario, the processor establishing a local facility needs to be confident there will be a sufficient flow of organics to the facility to ensure its economic feasibility. There must be enough revenue from tip fees to cover operating costs and the initial capital investment. However, ensuring a potential processor that a sufficient amount of organics would flow to their local facility is difficult. The organics will flow only if efficient collection routes can be established and generators are provided an organics collection rate that gives an incentive to participate. Several local governments are currently addressing these issues.

Businesses

The estimate for increased recovery under the "High Recovery" scenario in the business sector is based on results from other areas of the country where mandatory

recycling or disposal bans have been implemented. This scenario assumes that the region will take a mandatory approach.

The "Likely Recovery" scenario anticipates a different approach, wherein local governments would have targets to meet (the same level of recovery as a mandatory program), but be able to choose how to achieve it. The tonnage for this scenario is estimated to be lower, at least in the near term.

Building industries
The estimates for increased recovery under the "High Recovery" scenario in the building industry sector is based on results from other areas of the country where mandatory recycling or disposal bans have been implemented. Both scenarios assume that the region will take an approach that requires that all construction and demolition waste be processed before being disposed. Under the "High Recovery" scenario all such wastes will be processed by January 1, 2009.

Under the "Likely Recovery" scenario, full implementation takes longer.

Multi-family residential
Increased recovery from the multi-family sector is anticipated to result from regionwide implementation of a uniform collection system (a two-sort approach) that will allow for more effective regional outreach. Large amounts of resources on an ongoing basis will be necessary to ensure that outreach is effective in this sector, as multi-family housing is characterized by very high turnover rates among residents. Both recovery scenarios anticipate that the program can be successfully implemented and achieve the targeted recovery amounts.

Single-family residential
The estimate for increased recovery under the "High Recovery" scenario in the single-family residential sector is based on expanding use of weekly roll carts for recycling throughout the region. Experience locally and elsewhere in the country provides a clear indication of tonnage to be gained in switching from bins to roll carts.

The "Likely Recovery" scenario anticipates that the gains will not be as great due to delays in implementing the switch to carts, and a rise in levels of contamination.

Conclusion
In sum, the Plan anticipates that the "Likely Recovery" scenario will occur in most cases and the region will not reach the 64% goal by the statutory benchmark year of 2009. The vast majority of this anticipated shortfall will be in the commercial organics, business and building industries sectors. The Plan remains committed to achieving the 64% goal in the near term.

Waste generation trends

Between 1995 and 2005, regional population grew about 18%, or 239,000 new residents. By contrast, waste generation grew by over 50%. The per capita waste generation rate (total waste divided by population) increased on average 2.6% each year from 1992 to 2005.

Looking ahead, assuming regional population growth at 1.44% per year and waste generation rising at 80% of the historic average, the region will have an additional 237,000 residents by 2015, and an increase of over 40% or 1,100,000 tons of new waste to manage through the recycling and disposal system. These increases will occur regardless of whether the region achieves the 64% waste reduction goal.

These increases in waste generation will have both upstream impacts on resources and the environment (from the manufacture of products) and downstream impacts (from the need to invest in more recycling and disposal infrastructure). However, our primary measuring tool – the number of tons recycled and disposed – is limited in its ability to measure the benefits from strategies to reduce waste generation.

Long-term goals development

To address this deficiency, Metro will be undertaking a project to develop an approach to long-terms goals that meet the Plan's vision of sustainable resource use. These goals could include reducing green house gases, product toxicity and waste generation. The project will also look at the feasibility of measuring materials and energy use based on their renewable or nonrenewable character.

The DEQ, with Metro's participation, recently completed a study of the complex factors behind the increase in waste generation. Metro will continue this collaboration and incorporate this work into the development of long-term goals for the region.

These goals will be determined after a regional discussion, and added to RSWMP by amendment.

Chapter III
Future direction and regional policies

A. Introduction

This chapter establishes the RSWMP framework: a long-term vision for the regional solid waste management system as well as the values and policies that provide direction in years ahead.

As used in this Plan:

- The **vision** is the ultimate ideal;
- The **values** represent a set of principles held by the region that will guide and shape policies; and
- The **policies** are statements that guide programs and inform future decisions.

B. RSWMP vision

The Plan envisions a significant evolution in today's comprehensive solid waste management practices, to a future where waste is viewed as an inefficient use of resources. Through cooperation and shared responsibility among producers, consumers and government, the region will contribute to the sustainable use of natural resources to enhance our community, economy and environment for current and future generations.

C. Regional values

1. Resource conservation

Protecting the environmental quality of the region by conserving resources and reducing toxic and solid waste to ensure adequate resources for future generations.

2. Public health and safety

Ensuring sound waste management operations, eradicating illegal dumps and reducing toxic substances to maintain quality of life for the region's residents.

3. Shared responsibility

Promoting a shift away from managing products after they have become waste to instead include manufacturers and users in bearing or avoiding the costs associated with product management and disposal.

4. Life-long learning

Raising awareness among all age groups of ways to conserve resources and reduce impacts on the environment.

5. Coordination and cooperation

Addressing regional issues and developing regional programs in partnership with local government, the private sector, citizens and other key parties.

6. Performance

Emphasizing outcomes in programs and services to maximize efficiency and effectiveness.

7. Access

Providing residential and commercial customers with access to information and a range of collection and facility service options.

D. Regional policies

1.0 System performance

The regional solid waste system will perform in a manner that is:

- Environmentally sound.
- Regionally balanced.
- Cost-effective.
- Adaptable to change.
- Technologically feasible.
- Acceptable to the public.

2.0 Preferred practices

Solid waste management practices will be guided by the following hierarchy:

- First, reduce the amount of solid waste generated.
- Second, reuse material for its originally intended purpose.
- Third, recycle or compost material that cannot be reduced or reused.
- Fourth, recover energy from material that cannot be reduced, reused, recycled or composted so long as the energy recovery facility preserves the quality of air, water and land resources.
- Fifth, landfill solid waste that cannot be reduced, reused, recycled, composted or from which energy cannot be recovered.

3.0 Evaluating opportunities for sustainability

Opportunities for increasing the sustainability of business practices or programs will be evaluated based on: a) technological feasibility; b) economic comparison to current practice or conditions; and c) net environmental benefits.

4.0 Recycling services provision

Recycling services will be offered as a component of residential and commercial waste collection in the region.

Recycling services will be standardized in the region to the extent possible, to minimize confusion on the part of residents and businesses and to construct cooperative promotion campaigns that cross jurisdictional boundaries.

5.0 Source separation

Source separation is the preferred approach in the region for ensuring quality secondary materials for recycling markets, but other forms of material recovery, such as post-collection separation, will not be precluded.

6.0 Market development

Enterprises that can significantly expand end-use opportunities for reuse or recycling will be fostered by the region.

7.0 New facilities

The current system of transfer stations provides reasonable access for haulers and sufficient capacity for the consolidation and transfer of solid waste to disposal facilities. New transfer stations may be considered if they provide a net benefit to the public. Factors in evaluating net benefit include capacity and access, whether the facility will be publicly or privately owned, and the impacts on material recovery and ratepayers.

Other types of new solid waste facilities shall be considered if they significantly support and are consistent with the policies of this Plan.

8.0 Facility ownership

Transfer facilities in the regional solid waste system may be publicly or privately owned. The public interest is best served by continued public sector facility ownership in the system. Public ownership ensures a comprehensive range of services are accessible to regional customers at equitable and affordable rates.

9.0 Facility siting

Appropriate zoning in each city or county will utilize clear and objective standards that do not effectively prohibit solid waste facilities.

10.0 System regulation

Solid waste facilities accepting waste generated within the region will be regulated to ensure they are operated in an acceptable manner and are consistent with the policies of this Plan. All facilities performing post-collection material recovery shall meet minimum recovery requirements. Regulatory control will be implemented through a system of franchises, contracts, public ownership, and licenses.

Government regulation will ensure protection of the environment and the public interest, but not unnecessarily restrict the operation of private solid waste businesses.

11.0 Host community enhancement

Any community hosting a solid waste "disposal site" as defined by ORS 459.280 shall be entitled to a Metro-collected fee to be used for the purpose of community enhancement.

12.0 Disposal pricing

Charges for disposal services shall be sufficiently transparent to allow regulators to judge whether such charges are fair, acceptable, and reasonably related to the costs of services received.

The establishment of charges for disposal services at publicly owned facilities shall balance cost recovery, revenue adequacy, and adopted regulations and policies, including the policies and objectives of this Plan. In addition, such charges shall be structured to ensure that the public sector is able to meet its long-term obligations such as investments, debt, contracts, and fixed costs undertaken by the public sector on behalf of the public.

Charges to residents of the Metro district who may not be direct users of the disposal system should be related to other benefits received.

To the extent possible, rate adjustments will be predictable and orderly to allow affected parties to perform effective planning.

High level vs. ground level direction

The vision, values, and policies presented in this Chapter provide the framework for guiding solid waste management decisions, programs, practices, and system performance in the region. The goals and objectives that follow in the next two chapters constitute much of the "work plan" for the decade ahead, and are consistent with this framework.

Chapter IV
Program areas

A. Introduction

This chapter outlines goals and objectives that will guide the direction of key program areas to reduce the amount and toxicity of solid waste for the next 10 years. It is organized into four sections: waste reduction, education services, hazardous waste management and product stewardship. The objectives in these four sections are designed to achieve the region's goals, and will be used to guide the annual work plans produced by Metro and local governments.

Many of the programs will continue to focus on sectors where the most recoverable tonnage remains, as these will provide the greatest opportunity for achieving the waste reduction goal. These programs will be designed in the direction of recovery, while adhering to the solid waste hierarchy of reduce, reuse, recycle/compost, recover energy and disposal. Other programs will look beyond generator-based strategies and will focus on the toxicity or recyclability of products by addressing their design and manufacture (i.e., product stewardship).

These waste reduction efforts will require coordination and collaboration among Metro, local governments, service providers, the DEQ and the public. The coordination of efforts between those providing education and outreach services, for example, is important to avoid duplication of services and to reach the largest audiences. Collaboration can also assist in addressing complex environmental problems that cannot be solved by one agency, such as partnerships between hazardous waste and water quality programs to achieve the goals of protecting and restoring streams and critical habitat.

B. Waste reduction program areas

Goal: Increase the sustainable use of natural resources by achieving the waste reduction goal of 64%.

Specific objectives describing how each sector (single-family residential, multi-family residential, business, building industry and commercial organics) will contribute to this goal are described in the pages that follow.* The creation of regionally coordinated plans with services accessible to all is the foundation of each set of objectives.

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*The Plan programs related to many of these objectives are described in the "High Recovery Scenario" in Chapter II, Plan programs for achieving the 64% goal.

Single-family residential

Following a boost to curbside recycling rates when commingled collection was introduced, increases to the recycling rate have tapered off recently. In 2005, about 46% of residential waste was recycled through curbside services. To stimulate additional participation and to ensure steady progress toward the waste reduction goal, the region has identified the objectives shown below.

1.0	**Conduct annual outreach campaigns that focus on preventing waste, reducing toxicity and/or increasing the quantity and quality of recycling setouts.**	To increase the quantity and quality of materials set out for recycling in regional recycling programs, regular campaigns will be undertaken. Regional campaigns will be cooperative in nature and will use a clear and consistent message across the region.
2.0	**Identify and implement service provision changes and incentives to maximize recycling, and identify and evaluate new collection technologies.**	Incentives in the form of monetary savings or convenience can encourage residents to participate in waste reduction programs. Currently, collection rates are structured to provide some degree of savings with increased recycling and reduced solid waste (e.g., mini-can rates, monthly collection, etc.). With emerging solid waste collection technologies, it is important to evaluate new collection techniques and options that may increase efficiencies and recycling rates. Research will be conducted on a cooperative regionwide basis to identify potential new collection options and opportunities for additional incentives through the residential rate structure, service options or other means.
3.0	**Expand curbside service by adding new materials as markets and systems allow.**	The region's residents continue to seek more opportunities to recycle additional materials at the curb. Markets for recycled materials can be volatile, and it is vital to ensure that it is technically and economically feasible to collect and process any new materials before they are added to curbside collection.
4.0	**Promote home composting and appropriate onsite management of yard debris and food waste.**	Composting and other onsite management is the least expensive and most environmentally sound option for handling yard debris and food scraps. Half of the region's residents participate in this activity and divert more than 50,000 tons of organics annually. Future activities in this area will include providing technical support for current onsite composters and developing more cost-effective home compost bin promotions that target interested residents.
5.0	**Develop residential organics collection programs when economically and technically feasible.**	Although home composting of vegetative food waste and yard debris is the preferred method of managing yard debris and food scraps, the region will also examine the economic and technical feasibility of implementing curbside collection of residential food wastes to further increase organics recovery.

Monitoring and implementation methods

Detailed program planning and implementation of these objectives will be coordinated through the Local Government Recycling Coordinators group, which includes local governments, Metro and the DEQ. Implementation plans will be presented for review to the Regional Solid Waste Advisory Committee and Metro Council annually. The plans will detail annual programs, costs, and roles and responsibilities. Local governments and Metro will be jointly responsible for the implementation of these plans.

Multi-family residential

Recycling services for residents living in dwellings of five or more units ("multi-family" buildings) currently contribute to regional recovery levels, but could be collecting more material. These households, which range from suburban garden apartments to high-rise buildings in dense urban areas, present a number of challenges and opportunities for recycling. Although technically these are defined as residential dwellings, most multi-family units share common garbage and recycling areas and are serviced as commercial accounts by garbage haulers. Turnover in multi-family dwellings is much higher than in single-family housing, making more frequent education and outreach especially important. According to the 2002 American Housing Survey, people who rent (either apartments or houses) typically stay in the same location for less than two years while homeowners stay at the same location for about seven years.

The following objectives are designed to increase the efficiency and effectiveness of multi-family residential recycling programs.

1.0	**Implement a program suited to the needs of multi-family housing that is uniform and consistent throughout the region.**	The region will cooperatively develop a program tailored to the needs of multi-family housing.
2.0	**Provide annual regional education and outreach targeting multi-family housing.**	Outreach materials will be designed to address the barriers and benefits of recycling in a multi-family setting and will be adapted to a variety of conditions and collection systems.
3.0	**Identify and evaluate new collection technologies for implementation on a cooperative regionwide basis.**	Multi-family recycling presents many unique challenges. Emerging collection technologies will be evaluated on a cooperative regionwide basis to identify potential opportunities to enhance and improve collection.

Monitoring and implementation methods

Implementation of these objectives will be coordinated through the intergovernmental multi-family waste reduction work group. This work group will present its implementation plans for review to the Regional Solid Waste Advisory Committee and Metro Council annually. The plans will detail annual programs, costs, and roles and responsibilities. Local governments and Metro will be jointly responsible for the implementation of these plans.

Business

Businesses hold the greatest potential for increasing material recovery in the region, as they generate nearly half the region's waste. For example, 26% of the garbage businesses throw away (more than 107,000 tons annually) is paper that is fully recyclable. An additional 80,000 tons of paper and containers are needed to meet the 2009 waste reduction goal. To help achieve this goal, programs for this sector focus on providing direct assistance to businesses and regulatory and service provision options to increase recovery.

The following objectives are intended to help non-residential waste generators improve their recycling programs, initiate waste prevention practices, increase their purchases of recycled-content products and incorporate sustainable practices into their operations.

1.0 Provide businesses with annual education and technical assistance programs focused on waste reduction and sustainable practices.

The business community has indicated in a variety of forums that tailored one-on-one education and assistance is a preferred approach to increase recycling rates. By offering a comprehensive education and technical assistance program to businesses, the region addresses the needs of businesses that want to start or improve their waste reduction programs. It also focuses attention on a waste stream that generates a large percentage of the region's waste.

2.0 Develop information and resource materials that demonstrate the benefits of waste reduction and sustainable practices to support the business assistance program.

Information and resources, such as fact sheets, recycling containers, decals and Internet tools, provide additional tools to help businesses participate in the assistance program and improve their waste reduction practices.

3.0 Conduct annual regional outreach campaigns to increase participation in the business assistance program and to promote recycling opportunities and other sustainable practices.

Outreach campaigns stimulate individual business interest and broadly promote waste reduction ideas to a large portion of the business sector.

4.0 Implement waste reduction and sustainable practices at government facilities.

Government facilities make up a large portion of the business waste stream in the region. Improving practices at government facilities shows a commitment to serve as a model for the business community.

5.0	**Identify and implement opportunities for increasing recovery in the business sector, including service provision options, incentives for recycling and regulation.**	Incentives in the form of monetary savings, increased convenience and a variety of service options can encourage businesses to participate in waste reduction programs. Currently, collection rates and service standards are set by some, but not all, jurisdictions in the region. Research will be conducted on a cooperative regionwide basis to identify potential opportunities for additional incentives through commercial rate structures, service standards or other means. In addition, many municipalities around the country (including Portland and Seattle) have passed laws that either require items to be recycled or that ban them from landfill disposal. These regulatory approaches will be pursued if regional implementation is feasible.
6.0	**Periodically review end-use markets to assess cost-effectiveness, material quality and capacity.**	Conducting periodic market studies and reviewing end-use markets to ascertain the viability of recycling various materials can help provide businesses with up-to-date information on recycling opportunities and preparation guidelines. Many businesses generate materials that have historically had little opportunity for recycling, and need to be informed in a timely fashion when new materials become recyclable.

Monitoring and implementation methods

Implementation of these objectives will be coordinated by Metro through the intergovernmental business recovery work group. The work group will present its implementation plans for review to the Regional Solid Waste Advisory Committee and Metro Council annually. The plans will detail annual programs, costs, and roles and responsibilities. Local governments and Metro will be jointly responsible for the implementation of these plans.

Building industry

Regional efforts to manage construction and demolition debris follow a three-pronged approach:

- Preventing waste through salvage, deconstruction and reuse;
- Developing effective construction and demolition debris recovery programs for debris that is not suitable for deconstruction and salvage; and
- Maintaining and supporting viable and diverse markets for recyclable and reusable building materials.

The primary targets for increased recovery of construction and demolition debris include new commercial construction under $3 million, commercial remodel/tenant improvement, complete and selective building demolition, and residential remodeling performed by licensed contractors.

The following objectives are designed to support the building industry in its efforts to develop sustainable practices promoting environmental protection and resource conservation.

1.0 Develop a regionwide system to ensure that recoverable construction and demolition debris is salvaged for reuse or is recycled.

The region's building industry currently enjoys a full range of waste reduction options and choices, including salvage and reuse, source-separated recycling and post-collection recovery. The existence of low-cost disposal at two regional landfills severely constrains the growth of salvage, recycling and recovery. The region will work with stakeholders to develop a program that ensures construction and demolition debris in the region is processed before disposal and recovered to the maximum extent possible.

2.0 Provide the building industry with annual outreach, education and technical assistance programs that demonstrate the benefits of green building, including building material reuse and recycling.

The building industry generally supports reuse and recycling, but often lacks information on these opportunities. Maintaining an ongoing outreach, education and technical assistance program helps builders make more informed decisions about managing their waste. Green building is a growing enterprise and it is important to work cooperatively with local green building programs to promote reuse and recycling.

3.0 Include sustainable practices and products in the development, construction, renovation and operation of government buildings, facilities and lands.

Construction, renovation and maintenance of government buildings and facilities represents a large portion of the construction activity in the region. These projects result in significant quantities of construction and demolition debris and present an opportunity to serve as models and demonstration projects for businesses in the region.

4.0	**Support the development of and access to viable end-use markets for construction and demolition materials.**	Periodic market studies will be conducted to assess the viability and diversity of local salvage markets or markets for materials typically found in construction and demolition waste. If markets appear weakened, then technical, monetary or research assistance may be provided to strengthen, maintain and diversify markets for construction and demolition materials.

Monitoring and implementation methods
Implementation of these objectives will be coordinated through the intergovernmental construction and demolition recovery work group. The work group will present its implementation plans for review to the Regional Solid Waste Advisory Committee and Metro Council annually. The plans will detail annual programs, costs, and roles and responsibilities. Local governments and Metro will be jointly responsible for the implementation of these plans.

Commercial organics

The region follows a two-track approach to organic waste management. The first track emphasizes preventing waste by donating usable food to food banks, and other uses such as animal feed (when appropriate). The second track focuses on implementing a collection and processing system to recover (i.e., compost) organic waste that cannot be diverted to those higher end uses. Regional efforts currently target large organics-rich businesses and industries, such as large retail grocery stores, restaurants, hotels, institutional cafeterias, wholesale produce warehouses and food processors.

The following objectives are designed to support the use of sustainable practices by businesses generating organic wastes.

1.0	**Provide outreach and education programs for targeted businesses to support and increase organic waste prevention and diversion practices.**	Donation is the highest end use for surplus food, and an established system to collect and redistribute donated food exists in the region. Emphasizing food donation also helps to address the problems of hunger in the region and the state.
2.0	**Enhance access to organics recovery services throughout the region.**	Organic waste that cannot be diverted to higher end uses may be collected for composting. The region will focus on increasing the composting opportunities that are available to businesses; every effort will be made to use existing infrastructure and to tailor generator and collection programs to fit within existing operations and regulatory systems.
3.0	**Implement organic waste recovery programs at government facilities where feasible.**	Government facilities that generate significant quantities of organic waste will serve as models for businesses in the region by adopting organics recovery programs.

4.0	**Work to ensure that compost products are specified for use in government projects.**	Metro and local governments will coordinate with other government agencies to incorporate the standard use of compost products for landscaping, soil conditioning and erosion control on publicly funded projects.
5.0	**Periodically review the viability of end-use markets and assist with market development efforts.**	Conducting periodic market studies to assess the viability of local compost markets is an important activity. If market trends indicate a weakening in demand, Metro and others can assist regional compost facilities with market development as needed to strengthen and maintain the marketability of compost and soil amendment products made from organic materials.

Monitoring and implementation methods

Implementation of these objectives will be coordinated through the intergovernmental organics recovery work group. The work group will present its implementation plans for review to the Regional Solid Waste Advisory Committee and Metro Council annually. The plans will detail annual programs, costs, and roles and responsibilities. Local governments and Metro will be jointly responsible for the implementation of these plans.

C. Education services

Goal: Increase the adoption of sustainable practices by households and businesses through increased knowledge, motivation and commitment.

Achieving the region's goals will require strong public support. Regional education and outreach efforts help build this support by supplying the information that residents and businesses need to make environmentally responsible choices in their daily lives. Metro and local governments provide a wide range of information through a variety of media. The Metro Recycling Information hotline responds to nearly 100,000 calls per year and the companion website has a host of tools and resources available. Local governments provide ongoing outreach and education through mailed materials and events.

Education and outreach efforts also build and reinforce resource conservation and environmental protection ethics that are essential to increasing sustainable practices. Regional education efforts start in the schools. Targeted education in schools, including elementary and secondary programs, provide age-appropriate information and concepts about resource conservation and environmental awareness, as well as programs designed to help teachers incorporate resource conservation concepts into their teaching. There are free classroom presentations and educational materials on waste prevention, recycling, composting and household hazardous waste reduction for elementary and secondary schools. In addition, technical assistance is available to help schools set up a waste reduction and recycling program or expand existing programs.

Metro and local governments also provide a wide variety of adult education programs. In particular, local governments and Metro have been promoting household hazardous waste (HHW) prevention and proper disposal education and outreach to the region for many years. Education targeted to adults about household hazardous chemical use and less toxic alternatives are ongoing through efforts such as the natural gardening program.

Information services and adult education

Numerous organizations within the region (including local governments, private businesses and non-profit agencies) provide disposal, recycling and other waste reduction services. Offering residents and businesses easily accessible and accurate referrals to these services is critical to reaching regional waste reduction goals.

The objectives for information services and adult education are shown below.

1.0	**Provide a regional information clearinghouse and referral service.**	Maintaining communication with and providing education to residents and businesses about waste reduction programs and services offered within the region is essential to help them make environmentally responsible choices.
2.0	**Provide education and information services for residents and businesses that are targeted to specific waste streams, materials or generators.**	Information services are more effective when they address specific needs and use methods that match how generators receive and respond to information on waste reduction opportunities. Education services are a critical part of each waste reduction program area (single-family, multi-family, business, building industry and commercial organics) targeted in the Plan.

Monitoring and implementation methods

Metro and local governments will work cooperatively to develop and distribute education materials for households and businesses. Metro will research and provide technical assistance on the most effective methods to educate households and businesses on waste reduction options. Local governments, haulers and Metro will cooperate and communicate on the implementation of these education programs. Implementation of these objectives will be coordinated through the intergovernmental work groups.

School education

Life-long learning about the value of resource conservation and the importance of protecting the environment begins with children in elementary and secondary schools. The guiding approach is to develop curriculums and programs that are appropriate for each age group and that cumulatively help build an environmental stewardship ethic.

The objectives for school education are shown below.

1.0	**Provide education programs that help teachers incorporate resource conservation concepts, including waste prevention and toxicity reduction, into their teaching.**	Today's teachers have a multitude of demands on their time and resources. Providing teachers with assistance on curriculums and programs helps teachers meet their needs, while simultaneously assisting the region in meeting its waste reduction goals.
1.1	**Provide programs at the elementary level that establish fundamental concepts of resource conservation and environmental awareness through active learning experiences.**	Elementary students are often eager to learn about ways to help make the world a better place. Providing age-appropriate information and concepts about resource conservation that encourage awareness and participation will build a strong foundation for life-long sustainable behaviors.
1.2	**Provide programs at the secondary level (middle and high school) that will extend concepts established at the elementary level and prepare students for making responsible environmental choices in everyday adult life.**	By middle and high school, students can begin to make connections between their daily choices and behaviors and how they impact the environment. By providing opportunities to encourage their critical thinking skills, students can gain an appreciation and a sense of stewardship for the environment that will carry over into adulthood.
2.0	**Work with schools and teachers to increase support for regional solid waste programs and create opportunities for partnerships.**	Schools are vital institutions within our community. Working and partnering with schools provides an opportunity to educate the next generation about resource conservation programs. Schools are also large resource users and waste generators and need to be active participants in waste reduction programs.

Monitoring and implementation methods

Metro and local governments will continue to provide school waste reduction education programs. Metro and local governments will provide technical assistance to school recycling programs and will collaborate on the development and distribution of education materials to meet local needs. Implementation of these objectives will be coordinated with various waste reduction work groups and the Regional Solid Waste Advisory Committee.

D. Hazardous waste management

Goal: Reduce the use and improper disposal of products generating hazardous waste in order to protect the environment and human health.

Homeowners use a variety of products in their daily lives, some of which pose risks to human health and the environment during use, storage and disposal. Examples of these risks include fires or child poisonings due to improper storage; injuries to disposal system workers (haulers, transfer station or landfill workers); contamination of streams from runoff of lawn and garden care products; and pollution of streams or groundwater from improper disposal of auto products such as used oil or antifreeze.

Historically, the region's approach to dealing with the problem has been to provide disposal alternatives for the public through collection facilities and events. Collection programs are costly to operate, however, and waste volumes continue to increase, while only a portion of the total waste generated each year comes into the collection program. As a result, there has been growing interest in preventing the generation of household hazardous waste through increased education and outreach. In addition, the region is looking toward product stewardship to transfer responsibility from local governments back to manufacturers and retailers (see the section on product stewardship).

Hazardous waste reduction

Changing the way people use products in their home is a very challenging undertaking. Traditional education techniques such as informational brochures can be ineffective in getting people to change long-standing behavior. The large number of households in the region, wide array of products, and competing messages from manufacturers and retailers all pose barriers to encouraging residents to change their behavior. Given these challenges, regional education and outreach efforts are paying increased attention to new methods to get residents to engage in more environmentally sustainable behavior.

The objectives for achieving hazardous waste reduction are shown below.

1.0 Provide hazardous waste education programs that focus on behavior change.

The region will pursue methods to tailor education messages to more effectively bring about behavioral changes in ways that can benefit public health and the environment. Programs will include learning about and targeting specific audiences that use hazardous products, identifying barriers to changing these behaviors, and overcoming these barriers. Education on hazardous products in the home will also be a part of Metro's school age education programs.

1.1 Provide hazardous waste education programs that focus on those products whose toxic and hazardous characteristics pose the greatest risks to human health and the environment, or that are very costly to properly dispose or recycle.

With limited resources available for hazardous waste reduction efforts, it is important to focus on the types of waste that have the greatest health, environmental, and financial impacts. Focusing on pesticides, mercury and other persistent bioaccumulative toxins (PBTs), for instance, is consistent with these priorities. As more understanding is gained on the health and environmental impacts of hazardous wastes, education programs will focus on those wastes that are the most detrimental to human and environmental health.

1.2	**Provide hazardous waste reduction messages and information to all customers bringing waste to household hazardous waste collection sites.**	A large number of the region's residents are already taking one step by bringing their leftover hazardous products to collection sites. This audience is likely to be receptive to information about the hazards of those products and the use of less toxic alternatives.
1.3	**Coordinate hazardous waste education efforts with related efforts conducted by government agencies and community groups in the region and in other areas.**	Along with the hazardous waste reduction efforts conducted by Metro, a number of other organizations in the region, such as water and air quality agencies, are involved in similar efforts. Coordination can eliminate duplication of efforts and can help solve problems that are too complex for any one group to address. Coordinating with hazardous waste education efforts in other areas can help keep local educators informed of the latest research and the success of approaches that others have tried.
2.0	**Research and develop tools to measure the generation, impacts and reduction of hazardous waste, when this can be accomplished at a reasonable cost.**	To reduce the environmental and health impacts of hazardous products, it is important to fully characterize their effect, but data are limited on many important aspects of household hazardous waste use and disposal. When it can be done at a reasonable cost, the region will acquire quantitative information on aspects such as purchasing, generation and disposal practices, repeat users, specific environmental and health impacts, consumer attitudes and behaviors, and the effectiveness of behavioral change programs.

Monitoring and implementation methods
Metro will continue to provide annual reports as required by permits. Implementation of these objectives will be coordinated with various waste reduction work groups and reported to Metro Council and the Regional Solid Waste Advisory Committee.

Hazardous waste collection

Even with significant efforts invested in preventing the generation of hazardous wastes, substantial volumes of hazardous wastes will still need to be managed and properly disposed. The region should provide convenient, safe, efficient and environmentally sound collection and disposal services for hazardous waste that cannot be eliminated through prevention and education.

The objectives for providing hazardous waste collection services are shown below.

1.0	**Manage collected waste in accordance with the hazardous waste hierarchy: reduce, reuse, recycle, energy recovery, treatment, incineration and landfill.**	The hazardous waste hierarchy differs from the solid waste hierarchy in that composting is not an option. In addition, treatment and incineration (without energy recovery) are acceptable for hazardous waste. For certain types of waste, treatment and incineration are the most environmentally sound options. To maximize the environmental soundness of the disposal methods selected, this hierarchy will be used when procuring contractors for ultimate disposal of collected household hazardous waste.

2.0	**Coordinate collection programs with waste reduction and product stewardship efforts.**	When waste reduction efforts target particular wastes due to toxicity or cost concerns, collection programs will be available for disposal of the targeted waste. In some cases, however, Metro will not undertake collection but instead will pursue waste prevention or product stewardship solutions. In other cases, the convenience of Metro's collection efforts may need to be increased when this is consistent with waste reduction goals and can be done in a cost-effective manner.
3.0	**Conduct waste screening programs at solid waste facilities to minimize the amount of hazardous waste disposed with solid waste.**	In spite of the availability of collection programs, some hazardous waste is still put into the trash. Effective screening programs will be used at solid waste facilities to keep this hazardous waste from the landfill.
4.0	**Use solid waste facilities efficiently and effectively for the delivery of collection services.**	Existing solid waste facilities that serve the public will be used as collection points for household hazardous waste. In some cases, these facilities may serve as the site of permanent collection depots; in others, they may serve only as occasional sites as a part of a schedule of temporary events.
5.0	**Maximize the efficiency of public collection operations, search for the most cost-effective methods and place a high priority on worker health and safety.**	To maximize the amount of waste properly managed with limited financial resources, collection programs must operate in an efficient manner. Program operators will continue to identify ways to reduce expenditures for materials, labor and disposal contractors, while maintaining high standards for environmental protection, worker health and safety, and customer service. Wastes brought to household hazardous waste collection centers can pose a wide variety of risks to the workers handling them. It is important to have a comprehensive health and safety program in place to properly protect these workers.
6.0	**Offer a Conditionally Exempt Generator (CEG) program to manage waste from small businesses.**	While federal and state laws allow small businesses that are classified as Conditionally Exempt Generators (CEGs) to dispose of their hazardous waste in the trash, Metro discourages this practice. As part of the effort to keep this waste out of the solid waste system, Metro operates a disposal program that provides a convenient and economical way for these generators to properly dispose of their hazardous waste.
7.0	**Implement bans on disposal of specific hazardous products as needed to address public health and environmental concerns.**	Some localities around the country have passed laws to ban the disposal of some or all hazardous products. When disposal of specific products poses a known risk to public health or the environment in the region, and there are convenient collection services available for such products, disposal bans will be implemented.

Monitoring and implementation methods

Metro will continue to provide annual reports as required by permits for hazardous waste collection methods. Implementation of these objectives will also be coordinated with various waste reduction work groups and reported to Metro Council and the Regional Solid Waste Advisory Committee.

E. Product stewardship

Goal: Shift responsibility to manufacturers, distributors and retailers for ensuring that products are designed to be nontoxic and recyclable, and incorporate the cost of the product's end-of-life management in the purchase price.

Over the past decade, state and local governments have been faced with finding solutions to rising waste quantities, strong competition for limited fiscal resources, and a growing amount of expensive and difficult-to-recycle products. These problems resist traditional solid waste management methods, which focus primarily on improving end-of-life management through better recycling and disposal programs. Product stewardship has emerged as a way to help deal with these problems.

Product stewardship is defined as an approach to managing the lifecycle costs of a product in which a product's designer, producer, seller and user share the responsibility for minimizing the product's environmental impact throughout all stages of the product's life cycle. The greatest responsibility lies with whomever has the greatest ability to affect the overall environmental impacts of the product.

This concept aspires to recast the system of product responsibility from resting primarily on governments to having others – consumers, retailers and manufacturers – share in reducing the product's life cycle impacts. "Products" in this sense are defined to include durable goods, nondurable goods and packaging.

The burden on government resources will be eased when manufacturers design, businesses distribute and sell, and consumers purchase products that are less toxic and more durable, reusable and recyclable. Product stewardship shifts responsibilities "upstream" from government to a product's users, retailers, distributors and manufacturers. These parties then take greater responsibility for ensuring that products are collected and recycled, and that markets exist for the recovered materials. If there are costs to recycle or dispose of a product, those costs should be part of the product's original price. This could be achieved by including a visible fee (i.e., an advance recycling fee) or by the manufacturer internalizing the costs of recovering, reusing and recycling. These "front-end" fee approaches are much preferable to "drop-off" or "end-of-life" fees which may increase illegal or improper disposal. Both "front-end" approaches are likely to increase the cost of a product in the near term, but could reduce the growth in solid waste management costs for ratepayers.

Objectives to achieve the product stewardship goal are shown below.

1.0 Prioritize product stewardship activities by evaluating products based on the significance of environmental impact (e.g., resource value, toxicity), current barriers to recycling, and financial burdens on governments for recovery programs.

The region will focus its resources on product stewardship activities that will have the greatest impact on decreasing local burdens, such as the need for government to provide special and costly collection programs. The region will coordinate with others at state, regional and national levels that are also seeking to set product stewardship priorities.

2.0	**Implement industry-wide product stewardship agreements or individual company stewardship programs in the region.**	Product stewardship agreements require the support of local and state governments to ensure that programs are effectively implemented. A number of national industry stewardship programs are currently in place and progress is being made in others (e.g., household batteries, carpet, paint, cell phones, and office products such as recycled content paper, ink cartridges, and computers). Local efforts can assist these programs by promoting product take-back opportunities and other activities.
3.0	**Educate public and private sector consumers about product stewardship and, in particular, their role in purchasing environmentally preferable products.**	Product stewardship encourages changes in thinking and behavior from a consumption and use perspective toward waste minimization and sustainable production. Such changes are enhanced by educating public and private consumers about the environmental impacts of their purchases and encouraging them to consider those impacts when making purchasing and disposal decisions. When businesses, institutions and governments adopt policies and purchase products that are part of product stewardship programs, they provide direct and visible support to stewardship programs. The electronic product environmental assessment tool (EPEAT) for electronic products is a good example.
4.0	**Work at the local, regional, state and national level to develop and implement policies, such as recycled-content requirements, deposits, disposal bans and advance recycling fees, that encourage product stewardship programs.**	Local, regional, state and national policies can provide the necessary incentives or legislative foundation required to make stewardship programs efficient, effective and sustainable. Because local governments are responsible for ensuring an environmentally sound and efficient solid waste disposal and recycling system, they directly benefit when product stewardship solutions result in manufacturers and others sharing that responsibility. Local governments are encouraged to support the product stewardship approach and to adopt product-specific policies. For example, a jurisdiction could include a provision in computer procurements that requires the sellers to take them back for recycling at the end of their useful life.

Monitoring and implementation methods

Implementation of these objectives will be coordinated with various waste reduction work groups and reports will be provided to Metro Council and the Regional Solid Waste Advisory Committee.

Chapter V
Sustainable operations

A. Introduction

As part of the RSWMP outreach in 2004, public input indicated a desire to see the solid waste system become more 'green' by engaging in broader environmental protection and resource conservation. In 2005, Metro facilitated a team of solid waste system stakeholders to develop goals for the RSWMP update that would guide system activities to become more sustainable. This chapter of the Plan reflects their work: a definition of sustainability, a framework through which potential improvements can be examined, and goals and objectives to guide progress. The goals and objectives that follow are intended to apply to any solid waste facilities and services in the region that are regulated by government.

B. Sustainability and the solid waste system

Sustainability efforts are becoming widespread among governments and businesses in Oregon. Metro adopted its own resolution to make agency operations more sustainable in May 2003, and has since taken a leadership role in implementing sustainability practices for contracted solid waste operations. These have included the use of ultra-low-sulfur and biodiesel fuel in facility rolling stock and long-haul trucks, as well as requiring purchase of rolling stock with the latest emission control devices.

Achieving sustainable operations throughout the system will involve engaging all participants in thinking about values, behavior and business decisions over the long run. This chapter of the Plan as well as the next (Plan implementation) will enable the regional solid waste system to achieve sustainability progress in a more coordinated fashion. It will also provide a model for sustainable operations in solid waste management for other jurisdictions around the nation.

To guide the evaluation and incorporation of sustainable practices, the following definition of sustainability, consistent with that of the State of Oregon, will apply:

> "Sustainability" means using, developing and protecting resources in a manner that enables people to meet current needs and provides that future generations can also meet future needs, from the joint perspective of environmental, economic and community objectives [ORS 184.421 (4)].

Application of this definition to solid waste management practices requires a framework through which to examine, develop and deploy improvements. The framework that was chosen is based on "The Natural Step" as defined below.

"The sustainable operation of the solid waste system considers economic, environmental and societal resources and is consistent with the Natural Step system conditions so that nature is not subject to systematically increasing:

1. Concentrations of substances from the Earth's crust;
2. Concentrations of substances produced by society, or
3. Degradation by physical means;

   and in that system

4. Human needs are met worldwide."

The following nine goals and 23 related objectives were approved by the Regional Solid Waste Advisory Committee in 2005. These goals and objectives are intended to guide evaluation and implementation of sustainable operations practices over the next 10 years.

Goal 1.0 Reduce greenhouse gas and diesel particulate air emissions

Objective 1.1: Implement plans for greater energy efficiency.

Objective 1.2: Utilize renewable energy sources.

Objective 1.3: Reduce direct emissions of greenhouse gases from landfills and other facilities.

Objective 1.4: Reduce diesel particulate emissions in existing trucks, barges and rolling stock through best available control technology.

Objective 1.5: Implement long-haul transportation and collection alternatives where feasible.

Options for realizing these objectives may include: choosing renewable energy options (both in daily operations and in the procurement of new contracts); implementing new energy audit and efficiency programs to ensure incorporation of the most energy-efficient practices available; and converting facility rolling stock, collection vehicles and transport equipment to ultra-low-sulfur fuels and incorporating the cleanest exhaust technology available.

Goal 2.0 Reduce stormwater run-off

Objective 2.1: Implement stormwater run-off mitigation plans.

Options for realizing this objective may include: employing best bio-swale systems; new oil/water separation technologies; active and passive filtration systems; and best management practices for wash-down and water usage procedures.

Goal 3.0 Reduce natural resource use

Objective 3.1: Implement resource efficiency audit recommendations.

Objective 3.2: Implement sustainable purchasing policies.

Objective 3.3: Reduce disposed waste.

Options for realizing these objectives may include: achieving higher-than-minimum recovery requirements; and implementing bid and procurement procedures that allow for maximum sustainability options

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Goal 4.0 Reduce use and discharge of toxic materials

Objective 4.1: Implement toxics reduction and management plans.

Options for realizing this objective may include: using non-toxic cleaning and industrial supplies; and developing education programs regarding proper product usage.

Goal 5.0 Implement sustainability standards for facility construction and operation

Objective 5.1: Implement sustainability standards for site selection.

Objective 5.2: Require new construction to meet the Leadership in Energy and Environmental Design (LEED) or equivalent program standards.

Objective 5.3: Provide incentives for existing facilities to meet LEED or equivalent program standards.

Options for realizing these objectives may include: basing new facility site acquisition on the lowest environmental and social impacts associated with site selection and facility development; providing an information source for LEED or LEED equivalent program and product research for workshops and other practical purposes; and underwriting the cost of Green/ Sustainable Building program certification through system fees.

Goal 6.0 Adopt best practices for customer and employee health and safety

Objective 6.1: Reduce injuries by automating operations where effective.

Objective 6.2: Implement health and safety plans that meet or exceed current minimum legal standards.

Options for realizing these objectives include: reducing task redundancy associated with moderate to high employee injury and/or toxic exposure risk; and setting safety standards above minimum requirements in the industry.

Goal 7.0 Provide training and education on implementing sustainability practices

Objective 7.1: Train key regional waste industry employees, government waste reduction staff and political officials in adopted sustainability practices.

Objective 7.2: Inform suppliers, contractors and customers of the adoption of sustainability goals and practices.

Options for realizing these objectives include: participating in training programs focused on sustainability that are designed to address business model concerns; learning peer-to-peer from businesses that have already adopted and successfully implemented sustainability practices; and developing and employing proposal and procurement standards to encourage standard evaluation criteria based on sustainability practices and programs adopted by others.

Goal 8.0 Support a quality work life

Objective 8.1: Pay a living wage and benefits to all workers.

Objective 8.2: Promote community service.

Objective 8.3: Strive to employ a diverse work force.

Options for realizing these objectives include: determining and implementing living wage compensation levels for workers; encouraging employee involvement in charitable giving and other community service projects; developing programs to "give back" to the communities in which the facility or services operates; and employing affirmative action principles in recruiting, hiring, training and promoting.

Goal 9.0 Employ sustainability values in seeking vendors and contractors

Objective 9.1: Request sustainability plans from potential vendors and contractors.

Objective 9.2: Assist vendors and contractors in achieving sustainable practices.

Objective 9.3: Support local vendors when feasible.

Options for realizing these objectives include: providing guidance and criteria standards for vendor sustainability plans or practices; promoting training and education programs to assist vendors in employing sustainable practices; and establishing affirmative purchasing policies for local companies that are able to provide needed services.

Monitoring and implementation methods

Metro will establish and coordinate a sustainable operations work group of policy and technical participants. The work group will develop priorities and strategies for achieving the objectives, and will report on progress annually to the Regional Solid Waste Advisory Committee and Metro Council.

Chapter VI
Plan implementation, compliance and revision

A. Overview

The RSWMP is primarily a policy and program guidance document designed to enable the region to meet its waste reduction and sustainable operations goals and objectives, thereby conserving resources and improving solid waste management practices. Progress on the goals and objectives identified in Chapters IV and V rely on coordination and cooperation among public and private sector parties in the region. In addition to cooperative efforts, the Plan contains areas of required compliance for local governments as established in Metro Code Chapter 5.10.

The coordinated implementation of waste reduction and sustainable operations objectives in Chapters IV and V of the Plan, are addressed in these pages as are the regional service standard, and the process by which alternatives to the standard are proposed, evaluated and approved.

Key factors guiding Plan implementation, performance and compliance include:

- Ensuring coordination and cooperation among governments and the private sector while allowing flexibility in developing solutions.
- Monitoring and evaluation of implementation strategies and programs.
- Using benchmarks and targets to measure overall Plan performance.
- Meeting state statutory requirements and goals.
- Ensuring compliance with Metro Code Chapter 5.10.

B. Coordinated implementation of the Plan

Metro is responsible for coordinating and participating in various efforts to implement Plan objectives as well as assessing Plan performance. A coordinated implementation program will ensure that Plan-related programs and strategies are put in place in an effective and consistent manner throughout the region. Metro and local governments' annual work plans and various regional work groups are important to these coordinated implementation efforts.

C. Annual waste reduction work plans

Annual work plans developed by Metro and local governments are the primary means for ensuring that basic waste reduction services are provided, and for developing the specific programs and activities necessary to reach regional waste reduction goals identified in Chapter IV.

Metro provides per-capita funding allocations to help support local government activities carried out under this Plan. Funding is contingent upon receipt of satisfactory annual work plans and reports from the local jurisdictions.

Annual work plan tasks and associated per-capita funding are formalized via annual Intergovernmental agreements between Metro and local jurisdictions or local cooperatives. Cooperatives are required to have formal agreements in place with members to authorize the cooperative to act and implement programs on the local jurisdiction's behalf.

Compliance with state law

All local jurisdictions are required to comply with the provisions set forth in state law (OAR 340-090-0040 and ORS 459A). Metro has been designated by the state as the agency to report on compliance for the region's three-county area. Local jurisdictions provide data to Metro to assist with this annual responsibility. As part of the annual work plan, local jurisdictions must provide documentation indicating they are continuing full implementation of the program elements required as part of the Opportunity to Recycle Act (OAR 340-090-0040 and ORS 459A).

Metro will review annual reports for compliance with state law. Programs appearing to be out of compliance will be reviewed with the local jurisdictions described in Section I of this chapter.

Maintenance of existing programs

Local governments and Metro currently provide basic recycling collection and education services that generally exceed minimum state requirements. During the development of the annual work plan, Metro and local governments will review the status of these existing programs, and evaluate methods to improve services, ensuring continued compliance with minimum state requirements and ensuring forward progress. Metro will continue to assist local governments in maintaining such programs.

Regional program areas

Within the annual waste reduction work plan, regional work groups will develop programs and activities designed to achieve the waste reduction goals and objectives as specified in Chapter IV. Each year, the annual work plan will identify which sector or sectors to focus on: single-family residential, multi-family residential, business, building industry, commercial organics or perhaps other areas. These work plans will address the individual needs, barriers and particular circumstances affecting each sector and provide specific action steps, staffing and budgets for achieving the objectives of the Plan. This annual planning process allows for a flexible and rapid response to changing conditions. The process also enables the region to quickly phase out those programs or activities that prove less effective, and allows for shifting efforts and resources between areas as the need arises.

Annual work plans are developed in cooperation with regional work groups and the Regional Solid Waste Advisory Committee according to the following schedule.

August/September
Work plan development for next fiscal year begins. Metro and local government program area work groups (organics, building industry, business, multi-family) and the local government recycling coordinators' work group review and amend plans and associated budgets.

November/December
Draft overall framework of the annual plan developed by Metro and local government staff.

January
Interim reports from jurisdictions receiving over $100,000 in funding allocations in previous fiscal year.

February 28
Metro, with local government assistance, produces annual waste reduction report to the DEQ on previous year's activities as requested by the DEQ.

March-April-May
Regional public involvement - regional SWAC review and recommendation of drafts Metro Council consideration and adoption of annual waste reduction work plan.

Metro budget hearings.

Local government budget hearings.

June-July
June 1 - Annual Plans due from local governments.

Intergovernmental agreements drafted.

Plan implementation begins at start of fiscal year (July 1st).

August 1
Final program progress reports on previous fiscal year's activities due from local governments

November
Intergovernmental agreements for grant funding approved by Metro and local governments and per-capita funding allocations distributed by Metro to local governments to support the maintenance of existing programs.

In addition to the elements in the annual work plans, regional work groups meet to address specific issues or sectors of the wastestream or improvements to the solid waste system. These can be government-only or a combination of Metro, local governments, the DEQ, and the private sector. These work groups play an important role in ensuring realization of Plan goals. They may also assist in evaluating programs or recommending Plan revisions. Regional work groups help implement objectives identified in Chapters VI and V of the Plan.

D. Education services

Regional education and outreach supply the information residents and businesses need to make environmentally responsible choices in their daily lives. Metro and local governments provide a wide range of information thorough a variety of media. The Metro recycling information hotline responds to nearly 100,000 calls per year and the companion website has a host of tools and

resources available. Local governments provide ongoing outreach and education through mailed materials and public events.

Metro and local governments will work cooperatively to develop and distribute education materials for households and businesses. Metro will research and provide technical assistance on the most effective methods to educate households and businesses on waste reduction options. Local governments, haulers and Metro will cooperate and communicate on the implementation of the education programs. Implementation of the education services objectives in Chapter IV will be coordinated through the intergovernmental work groups.

Metro and local governments will continue to provide school waste reduction education programs. Metro and local governments will provide technical assistance to school recycling programs and will collaborate on the development and distribution of education materials to meet local needs. Implementation of these objectives will be coordinated with various waste reduction work groups and the Regional Solid Waste Advisory Committee.

E. Hazardous waste management

Homeowners use a variety of products in their daily lives, some of which pose risks to human health and the environment during use, storage and disposal. Historically, the region's approach has been to provide safe disposal alternatives through public facilities and collection events, but there has been a steady move towards increased education and outreach regarding hazardous waste prevention.

Metro will continue to provide annual reports as required by permits for hazardous waste collection. Implementation of the objectives in Chapter IV will be coordinated with various waste reduction work groups and reported to Metro Council and the Regional Solid Waste Advisory Committee.

F. Product stewardship

Product stewardship is an approach to managing the lifecycle costs of a product in which a product's designer, producer, seller and user share the responsibility for minimizing the product's environmental impact throughout all stages of the product's life cycle. The concept aspires to recast the system of product responsibility from resting primarily on governments to having others (consumers, retailers, and manufacturers) share in reducing the product's impacts.

Implementation of these objectives in Chapter IV will be coordinated with various waste reduction work groups and reports will be provided to Metro Council and the Regional Solid Waste Advisory Committee.

G. Sustainable operations workgroup

The committee charged with development of the sustainable operations goals and objectives in Chapter V envisioned a collaborative implementation strategy. Metro will convene a standing work group of policy and technical participants to develop priorities and strategies for implementing the sustainable operations objectives. Research will identify actions or options that could be employed to achieve those targets, as well as their costs and benefits. Metro will establish and staff the work group and prepare an annual report on the region's progress toward these goals.

H. Plan performance

This section describes how regional waste reduction progress will be monitored and measured, as well as the methods for assessing programs and activities implemented under the Plan. The following approaches will guide these efforts:

- Use indicators that allow early identification of potential problems.
- Support continued development of simple, timely and consistent reporting systems.
- Require appropriate levels of information from local governments and the private sector.

Measuring progress

Historically, the regional waste reduction rate has been the primary benchmark of Plan performance. Emphasis continues on that measure, but other means of assessing the solid waste system's performance (e.g., progress on objectives for sustainable operations) will be implemented and reported. In addition, the Plan will be amended by 2010 to incorporate a new set of numerical goals beyond the last benchmark year of 2009.

Table 6 (see Chapter II) shows the Plan's design to reach the 64% waste reduction goal through targeting efforts in the residential (single and multi-family) and commercial (business, building industry and commercial organics) sectors. The Plan will also monitor performance through per capita measures (for generation, disposal and recycling) and in terms of the waste reduction hierarchy (i.e., prevention, recycling and composting, energy recovery and disposal).

Program monitoring and evaluation

The programs and activities developed and implemented as part of the Metro and local government annual work plan are critical to reaching regional goals and objectives. In recognition of that fact, Metro establishes intergovernmental agreements with local governments to ensure all jurisdictions in the region are represented in ongoing regional waste reduction activities and in fulfilling requirements of the annual waste reduction work plans. Implementation schedules and monitoring and evaluation components are incorporated within the annual work plan. Using qualitative and quantitative measures, performance on the annual work plan is evaluated for both accountability and effectiveness. These performance measures, combined with the annual DEQ material recovery survey report, are used to assess progress and are reported to the Regional Solid Waste Advisory Committee and Metro Council annually.

For the basic services provided under the annual work plan, local governments' annual reports document efforts completed each year. The report details each task's implementation date, as well as relevant status reports and results. These annual reports serve as the basis for monitoring the status of basic services and existing programs and Plan progress, as well as fulfilling required annual reporting to the DEQ.

Additional program evaluations

When more information is required regarding the efficiency and effectiveness of the programs designed to implement Plan recommendations, additional program evaluations will be conducted. Evaluations may also be performed when alternative policies or programs are proposed, or to examine how the regional system may operate better as a whole. (Studies of contamination issues at material recovery facilities are an example of such evaluations.)

I. Plan compliance and enforcement

While the success of the Plan depends primarily on maintaining cooperative working relationships among Metro, the DEQ, local governments and the private sector, in order to fulfill the recycling provisions set forth in state law and Chapter 5.10 of the Metro Code, the Plan also requires local governments to:

1. Maintain recycling services that are consistent with the Regional Service Standard, or have a Metro-approved alternative program.
2. Implement a business recycling requirement

These requirements are described below.

Compliance with the regional service standard

In addition to meeting state requirements, all jurisdictions in the Metro wasteshed must meet the regional service standard. The regional service standard is designed to ensure a comprehensive and consistent level of service for the region and assists in meeting state recovery goals. The elements, summarized below, go beyond the minimum state requirements, and constitute the regional service standard under this Plan. More detailed information about the regional service standard elements is provided in Metro Code Chapter 5.10 and the related Administrative Procedures.

a) Single-Family Residential:

   1. Ensure provision of at least one durable recycling container to each residential customer.
   2. Ensure provision of weekly on-route collection of all standard recyclable materials.[1]
   3. Provide a weekly or equivalent residential yard debris collection program.

b) Multifamily Residential: Ensure provision of a regular collection program of the standard recyclable materials for each multi-family dwelling community having five or more units.

c) Business: Ensure provision of a regular collection program of the standard recyclable materials from businesses.

d) Education & Outreach: Provide a recycling education and promotion program to all generators that supports the management of solid waste according to the waste reduction hierarchy.

Metro has been designated by the State as the reporting agency for the region's three county area and local jurisdictions are to provide data to Metro to assist with this annual reporting responsibility. Metro will review Annual Reports for compliance with the regional service standard and state law. Those programs that appear to be out of compliance will be reviewed with the local jurisdiction and will be subject to enforcement procedures identified in Metro Code 5.10.

[1]Standard recyclable materials are defined in Metro Code Chapter 5.10 and the related Administrative Procedures. All changes to the standard recyclable materials will be mutually decided by Metro, local governments, the DEQ, processors and market representatives.

Alternative programs - review and approval process

An alternative program is a solid waste management program or service that is proposed by a local government and differs from those referenced in the Regional Service Standard in this Plan.

Alternative programs allow for flexibility in meeting the Plan goals and objectives, as long as performance requirements are achieved. Because the Plan's waste reduction program and activities are developed through a collaborative approach, this approach should be maintained when a local government is considering undertaking an alternative program. The local government should consult with Metro, the DEQ and other local government partners in early planning stages. These consultations may provide information or generate options that would eliminate consideration of an alternative program. If an alternative program is still sought after this recommended informal consultation, the local government must follow the alternative program process outlined below. This process is intended to ensure that proposed programs are consistent with Plan direction, and at a minimum, demonstrate the same level of expected performance as the regional service standard.

Use of alternative program process

An alternative program process needs to be employed when a local government proposes programs or services that would depart from the regional service standard as described in this chapter.

Process for application and review of an alternative program:

1. Departures from state requirements

Since State requirements are part of the regional service standard, all programs receiving approval by Metro will also meet the DEQ standard. However, the reverse is not true. The DEQ may approve a local program change that, while meeting the minimum state requirements, does not comply with the regional service standard. Therefore, local jurisdictions are encouraged to contact Metro about program alternatives to avoid a confusing two-stage process.

2. Departures from the regional service standard

Any local government seeking alternative program approval will submit an application to the Metro solid waste and recycling director that demonstrates how the alternative program will perform at the same level or better than the Plan program. This performance standard will be based on criteria that will include, as appropriate, the following:

- Estimated participation levels;
- Estimated amounts of waste prevented, recycled, recovered or disposed;
- Consistency with the waste reduction hierarchy and the source separation priority;
- Economic and technical feasibility;
- Estimated impact on other waste reduction activities.

The application will contain a description of the existing program, the Plan program (if applicable) and the proposed alternative program. (Metro may require a pilot program to evaluate the performance of a proposed alternative.) The applicant will provide information comparing the existing and proposed alternatives for:

- Types of materials collected;
- Frequency of collection for each material;
- Levels of recovery (by material, if applicable).

Metro's solid waste and recycling director must determine whether to approve the proposal. These decisions may be appealed or an exception may be requested as specified in Chapter 5.10 of the Metro Code. Metro will include the DEQ in each review. If the approval is accompanied by a revision to the Plan or administrative procedures for the Plan, such revision will be submitted to the DEQ.

Compliance with the business recycling requirement

In addition to the regional service standard, all jurisdictions in the region must comply with the business recycling requirement. The purpose of the business recycling requirement is to provide an opportunity for businesses to work with local governments to provide recycling education, to create a consistent standard throughout the Metro region, and to increase recycling, thereby assisting the Metro region in meeting recovery goals, conserving natural resources, and reducing greenhouse gas emissions. The elements of the business recycling requirement are summarized below. More detailed information on the requirement is provided in Metro Code Chapter 5.10 and the related Administrative Procedures.

1. Local government implementation: Local governments must adopt code language that complies with the following.

(a) Businesses shall source separate all recyclable paper, cardboard, glass and plastic bottles and jars, and aluminum and tin cans for reuse or recycling;

(b) Businesses and business recycling service customers shall ensure the provision of recycling containers for internal maintenance or work areas where recyclable materials may be collected, stored, or both; and

(c) Businesses and business recycling service customers shall post accurate signs where recyclable materials are collected, stored, or both that identify the materials that the business must source separate for reuse or recycling and that provide recycling instructions.

2. Business exemptions: Local governments may exempt a business from some or all of the business recycling requirement as determined by designated local government staff.

3. Business compliance: Local governments shall establish a method for ensuring business compliance or enter into an intergovernmental agreement with Metro that provides for Metro to provide compliance services for the local government. Metro will provide compliance services to interested local governments through an intergovernmental agreement.

Metro will provide a model ordinance for use by local governments. Local governments will provide information related to program adoption, implementation and performance as outlined in the related Administrative Procedures. Those programs that appear out of compliance will be reviewed with the local jurisdiction and subject to enforcement procedures identified in Metro Code 5.10.

J. Plan revisions

The RSWMP is intended to allow sufficient flexibility for its implementation to adjust programs without needing to amend or revise the Plan itself. Measurements of regional progress, program monitoring and evaluation, and special evaluation studies will help determine if the Plan may require a mid-course correction. If it is uncertain whether a change requires an amendment, the issue will be discussed with the SWAC and/or Metro Council, and a consensus developed.

Because the RSWMP includes policies and plans that affect diverse interests, amendments will be written through a cooperative process between Metro, cities, counties, solid waste industry representatives, citizens and other affected parties. As described above, the Plan will be monitored on an ongoing basis to determine if additional assessment is required. In addition, a five year review will determine whether major revisions are needed. Revisions could include policy changes, major additions or changes to programs or amendments to ensure Plan uniformity and consistency.

Proposed revisions can be initiated by any interested party and will undergo review by Metro's Solid Waste & Recycling Department Director. If the Director determines a revision should be considered, it will be referred to the SWAC for review and recommendation. A SWAC recommendation will then be forwarded to the Metro Chief Operating Officer and Metro Council.

(Chapter VI. Section I. Plan compliance and enforcement, amended by Ordinance No. 08-1198, Sept. 18, 2008.)

Appendix A
Key solid waste laws

There are several state laws that help give perspective and direction to the activities in this Plan.

The Oregon Bottle Bill. The Oregon legislature passed the Oregon Bottle Bill in 1971 and it took effect on October 1, 1972. This bottle bill was the fi rst of its kind in the nation. Its purpose was to reduce litter and divert all beer and carbonated beverage containers from the waste stream so that they could be reused or recycled. The bill requires that a refund be paid to any person who returns empty soft drink or beer bottles or cans to a retail store.

1983 Opportunity to Recycle Act. The Opportunity to Recycle Act, passed by the Oregon legislature in 1983, was ground-breaking legislation that required:

- Residential on-route (curbside) recycling collection in cities of 4,000 or more people.
- Recycling at solid waste disposal sites.
- Education and promotion programs designed to make all Oregonians aware of opportunities to recycle and the reasons for recycling.

Although Oregon already had an extensive recycling infrastructure, both private and public, before the passage of the act, the system was enhanced through this legislation. The recycling programs called for have been implemented throughout the state.

1991 Oregon Recycling Act. In 1991, the Oregon legislature took recycling legislation a step further and passed the Oregon Recycling Act. Among other things, the Oregon Recycling Act established a recovery level goal of 50% by the year 2000. The Metro region was required to achieve a recovery level of 40% by 1995.

The Oregon Recycling Act also mandated the development of a statewide solid waste plan by 1994 and the performance of waste composition studies and required cities with a population greater than 10,000 population and the Metro area to implement certain waste reduction practices. Certain materials, such as whole tires and leadacid batteries, were banned from landfi lls. The act also specifi ed purchasing preferences by government agencies for materials with high percentages of recycled content and high degrees of reusability/recyclability.

Finally, the act established minimum recycled-content requirements for newsprint, telephone directories, glass containers and rigid plastic containers sold in Oregon.

1997 2% Credits for Waste Prevention. The session produced a bill that provided a means of enabling local governments to obtain credit for more than just their recycling programs. The program allows 2% credits for wastesheds such as Metro that establish and maintain programs in waste prevention, reuse and backyard composting. DEQ has established guidelines and evaluation criteria for wastesheds that allow them to earn up to 6% total credits toward their recovery goals for qualifying programs.

2001 State and Wasteshed Goals. In 2001, although most of the wastesheds in the state were meeting their individual required recovery goals, DEQ confi rmed to the legislature that these accomplishments were nevertheless not going to produce a statewide recovery goal of 50%. The legislature responded with HB 3744 (amending ORS 459.010) that set a statewide recovery goal of 45% for 2005 and 50% for 2009 and adjusted individual wasteshed goals. Metro's goal became 62% by 2005 and 64% by 2009 (these rates can include any credits received under the "2% waste prevention credits" program).

The bill set out review procedures regarding the goal:

If a wasteshed does not achieve its 2005 or 2009 waste recovery goal, the wasteshed shall conduct a technical review of existing policies or programs and determine revisions to meet the recovery goal. The department shall, upon the request of the wasteshed, assist in the technical review. The wasteshed may request, and may assist the department in conducting, a technical review to determine whether the wasteshed goal is valid (ORS 450.010(6)(e)).

In addition, HB 3744 established statewide waste generation goals:

- By 2005, there will be no annual increase in per capita municipal solid waste generation;
- By 2009, there will be no annual increase in total municipal solid waste generation.

Electronics - Oregon HB 2626. Creates a producer responsibility system for the management of obsolete electronics where manufacturers will either provide collection and recycling for their e-waste or pay for a program that's contracted by the state. The legislation requires safe, convenient and environmentally sound recycling of specific electronic devices such as televisions and computers. Programs will begin operating in January 2009. Beginning in January 2010, electronic devices will be banned from disposal.

Metro's Solid Waste Obligations and Authorizations under State Law. In addition to the key solid waste laws noted above, Metro has additional obligations and authorizations related to solid waste management for the wasteshed. Oregon Revised Statutes (ORS) Chapter 459 covers solid waste management administration roles, disposal sites, hazardous waste management, enforcement and penalties.

ORS 459A covers reuse and recycling program requirements in the state. Oregon Administrative Rules (OAR) Chapter 340 sets out implementation standards, reporting requirements, recovery rate requirements, recovery rate calculation methods, etc. The following state law chapters and sections specifically pertain to the region's waste and toxicity reduction plans, policies and programs:

ORS 459.055
Prepare and adopt a waste reduction program.

ORS 459.250
Provide recycling collection at transfer stations.

ORS 459.340
Implement the program required by 459.055.

ORS 459.413(1)
Establish permanent HHW depots.

ORS 459.413(2)
Encourage use of HHW collection.

ORS 459A.010
Require waste reduction program elements and reporting.

ORS 459A.750
School curriculum and teachers' guide components.

OAR Chapter 340, Division 90
Implementation standards & reporting requirements.

ORS 268.317(5)-(7) & 268.318
Solid waste regulatory authority.

ORS 268.390
Functional planning authority.

ORS 459.095
Local government compliance with RSWMP.

Appendix B

Regional Disaster Debris Management Plan

The Regional Disaster Debris Management Plan (RDDMP) is intended to enhance the preparedness of the Portland metropolitan area to deal with the removal and disposition of debris generated by a natural or human-caused disaster. The RDDMP specifies goals and objectives for disaster debris removal and disposal, describing potential implementation strategies to ensure that disaster debris efforts are coordinated, efficient, effective, and environmentally sound.

The RDDMP is based on seven principles:

1. Ensure debris management efforts are coordinated and cooperative throughout the region.
2. Manage disaster debris according to the federal and state-mandated hierarchy describing solid waste practices:
   - Reduce
   - Reuse
   - Recycle
   - Recover
   - Landfill
3. Use local resources for collection, recycling, and disposal before seeking outside assistance.
4. Restore normal garbage collection and disposal as quickly as possible.
5. Ensure accurate and organized debris and expense tracking systems.
6. Manage disaster debris in a fiscally responsible manner that minimizes the economic impact of debris processing.
7. Ensure the health and safety of the public and all parties involved in debris management.

Plan background

The RDDMP is a component of the Regional Emergency Management Plan being developed by the Regional Emergency Management Group (REMG). The REMG was formed in 1994 through an Intergovernmental Agreement among agencies in the five-county, bi-state Portland/Vancouver metropolitan area. The purpose of REMG is to: 1) recommend policy and procedures on regional emergency management issues; 2) develop an ongoing, inter-jurisdictional training and exercise program; 3) establish mutual aid agreements to ensure effective management of resources during an emergency; 4) coordinate efforts in the region to obtain funding for emergency management matters; and 5) develop a regional emergency management plan.

The REMG has two committees – a technical committee (REMTEC) comprises emergency management professionals and a policy advisory committee (REMPAC) that includes an elected or appointed official from each of the signatory agencies.

The RDDMP is also part of the Regional Solid Waste Management Plan (RSWMP). The RSWMP is the document that gives the Portland metropolitan region (encompassing Washington, Multnomah and Clackamas counties) direction for meeting solid waste objectives through 2017.

Plan development process

In 1995, the disaster debris removal subcommittee of REMTEC created a disaster debris management goal and five objectives. The goal and objectives were adopted by the Metro Council and included in the 1995-2005 RSWMP, serving as the guide for development of the RDDMP.

In January 1996, a task force of local government officials and private sector interests was formed. The task force met monthly over a nine-month period to develop the RDDMP. The resulting plan provided guidelines and recommendations for management of disaster debris. However, the Plan did not define the actions or details that need to occur in a debris management program, nor did it outline the responsibilities of Metro and other local governments in the disaster debris management process. Metro Council adopted the plan in May 1997.

In 2004, the disaster debris advisory group of local government officials and private sector interests was reconvened for the purpose of updating the 1997 RDDMP. The Regional Disaster Debris Management Advisory Group met several times over a three-month period, completing its work in July 2004. The result of the group's effort was a policy document that created a framework for preparing a separate operational plan to define the actions and responsibilities of the various parties involved in debris management.

Throughout both the 1995 and 2004 planning processes, REMTEC, the Solid Waste Advisory Committee (SWAC), the Metro Council, local governments, Oregon's Office of Emergency Management (OEM), and the U.S. Army Corps of Engineers (USACE) were kept apprised

of the Plan's contents and progress, and were asked to comment on the drafts of the task force's work. A final draft of the RDDMP was also sent for review and comment to neighborhood associations, haulers, and other interested parties.

Next steps: The RDDMP sets policy direction, but doesn't define the actions or details that need to occur within a debris management program. Instead, the RDDMP calls for the development and maintenance of a separate operational plan to define the actions of the different parties involved in debris management. Without the operations plan, the RDDMP by itself provides little actual guidance to the region's emergency managers to ensure that the debris is managed in accordance with the principles and objectives described in this document and the RSWMP.

Metro's role in disaster debris planning

Metro is responsible for solid waste planning within the tri-county region of Washington, Multnomah, and Clackamas counties.

Metro's authority to develop the RSWMP derives in part from ORS 459.017(b), which states that "local government units have primary responsibility for planning for solid waste management." Metro was designated as the local government unit responsible for solid waste planning for the local area under State of Oregon Executive Order 78-16. The RSWMP was also created, in part, to address a requirement under ORS 459.055 and ORS 459.340 that Metro develop and implement a waste reduction program.

The RDDMP was developed and is included within the RSWMP to ensure that debris management activities after a disaster are effectively coordinated and address the waste management hierarchy. Consistent with ORS 401.015 to 401.105, 401.260 to 401.325, and ORS 401.355 to 401.580. The RDDMP plans for the management of disaster debris at the local level, requesting state and/or federal assistance when the appropriate response to an event is beyond the capability of the local governments to manage the event. The operational plan being developed under the policy guidance of the RDDMP will include appropriate intergovernmental agreements between Metro and cities and counties within the region to help ensure that debris activities are coordinated and effective.

Consistency with other plans

The RDDMP is consistent with disaster debris management plans adopted by counties within the tri-county metropolitan area and with the State of Oregon's Emergency Operations Plan. The RDDMP is also consistent with and embraces the incident management principles outlined in the National Response Plan (NRP) and the National Incident Management System (NIMS).

The NRP was adopted by the Federal Government in 2004 to "integrate Federal Government domestic prevention, preparedness, response, and recovery plans into one all-discipline, all-hazards plan" under the authority of the Secretary of Homeland Security. The NIMS provides a consistent nationwide framework to standardize incident management practices and procedures. It integrates existing best practices into a nationwide approach that is applicable at all jurisdictional levels and across functional disciplines in an all-hazards context. A key aspect of the NIMS is its adoption of the Incident Command System (ICS) as the standard model for incident management.

Acknowledgements

The RDDMP was developed with the cooperation and assistance of many people in the region's solid waste industry and emergency management system. The following members of the 2004 Regional Disaster Debris Management Advisory Group were especially helpful in giving their time and expertise to ensure a thorough, thoughtful and highly usable regional plan.

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Definition of terms and acronyms used in this plan

Acronyms

CBRNE	Chemical, biological, radiological, nuclear or explosive
CEG	Conditionally Exempt Generator
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
JIC	Joint Information Center
MRF	Materials Recovery Facility
NIMS	National Incident Management System
RDCC	Regional Debris Coordination Center
RDDMP	Regional Disaster Debris Management Plan
REIC	Regional Information Coordinator
REMG	Regional Emergency Management Group
USACE	U.S. Army Corps of Engineers

Terms

Stafford Act

Provides the federal authority for FEMA's role in managing federal disaster assistance including Coordinating the Presidential declaration process; helping assess damage after a disaster; evaluating a governor's request for assistance; working with state and local governments in a joint partnership to implement the various assistance programs; coordinating the activities of federal agencies and volunteer organizations; and managing the President's disaster relief fund.

Emergency

Any natural or human-caused situation that results in or may result in substantial injury or harm to the population, or substantial damage to or loss of property. As defined by the Stafford Act, an emergency is any occasion or instance for which, in the determination of the President, Federal assistance is needed to supplement state and local efforts and capabilities to save lives and to protect property, public health and safety.

Major disaster

As defined under the Stafford Act, "any natural catastrophe or, regardless of cause, any fire, flood or explosion in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under the Act to supplement the efforts and available resources of states, local governments and disaster relief organizations in alleviating the damage, loss, hardship or suffering caused thereby."

Life cycle of an incident

Emergency response phase

The period following the onset of disaster, which is dominated by immediate reactions to eminent threats. Response activities include the immediate and short-term actions to preserve life, property, environment, and the social, economic and political structure of the community.

Emergency recovery phase

The period in which a community restores services and rebuilds facilities after a disaster. Recovery involves actions needed to help individuals and communities return to normal. Recovery programs are designed to assist victims and their families, restore institutions to sustain economic growth and confidence, rebuild destroyed property and reconstitute government operations and services. These actions often extend long after the incident itself. Recovery programs include mitigation components designed to avoid damage from future incidents.

Preparedness

Under the NIMS, preparedness encompasses the full range of deliberate, critical tasks and activities necessary to build, sustain and improve the operational capability to prevent, protect against, respond to and recover from domestic incidents. Preparedness involves actions to enhance readiness and the ability to quickly and effectively respond to a potential incident. Preparedness also includes procedures to share information and disseminate timely notifications, warnings and alerts.

Prevention and mitigation

Actions taken to interdict, disrupt, preempt, avert or minimize a potential incident. This includes Homeland Security and law enforcement efforts to prevent terrorist attacks and hazard mitigation measures to save lives and protect property from the impacts of natural disasters and other events. Includes long-term activities to minimize the potentially adverse effects of future disasters in affected areas.

Joint information center (JIC)
Established to coordinate the federal public information activities on-scene, the JIC is the central point for all news media at the scene of the incident. Public information officials from all participating federal agencies should collocate at the JIC. Public information officials from participating state and local agencies also may collocate at the JIC.

Regional debris coordination center (RDCC)
A center established to coordinate the flow of information among emergency managers and the public about debris management. The RDCC will provide a pre-planned method of determining regional debris needs and priorities as each event develops, communicating with responding agencies and ensuring that regional recovery efforts are in line with established solid waste recycling and disposal goals, public safety needs, financial assistance to communities, and in accordance with FEMA disaster debris public assistance reimbursement requirements.

Conditionally exempt generator (CEG)
Any non-household generator of hazardous waste, including businesses, government agencies, nonprofit organizations, etc. that generates less than 220 pounds of hazardous waste per month and complies with other federal and state requirements to maintain CEG status.

Exempt hazardous waste
Any unwanted hazardous products not subject to full regulation under Oregon and federal hazardous waste laws.

U.S. waste management hierarchy
The Environmental Protection Agency (EPA) and Oregon solid waste management hierarchy: Reduce, Reuse, Recycle, Recover, Landfill.

Putrescibles
Matter that rots or decays, such as food waste.

Putrescible surge
Occurs after a disaster, when people throw away food and other putrescible material stored in freezers and refrigerators after electrical power has been interrupted for an extended period.

Universal waste
A relatively new category of hazardous waste, formerly fully regulated, but now subject to less stringent disposal regulations promulgated by the U.S. EPA in May 1995. Includes batteries, mercury-containing thermostats pesticides, and (in Oregon) fluorescent light tubes.

Local government debris removal coordinator
Person designated by each city or county to coordinate that jurisdiction's management of disaster debris.

National response plan
A consistent, nationwide framework to standardize incident management practices and procedures.

Types of disasters
Although this plan is written for both large and small disasters (whether natural or human-caused), for the purposes of this plan, three types of emergencies require different levels of debris management programs and inter-agency coordination. The following descriptions are used to illustrate the general differences among normal day-to-day garbage flows and these three levels. (Please see the Disaster Debris Management Operations Plan for more information on trigger points, chain of command, individual roles and responsibilities and methods used to deliver programs and information.)

Normal operations
Examples
Households or businesses set out waste and recycling in containers ranging from 20 gallons to 40 cubic yards. Additionally, a lesser quantity of waste and recycling is self-hauled by generators to recycling, composting, and solid waste facilities, as well as landfills. Over 100 recycling and composting facilities operate in the Metro region.

Flow of debris
Waste and recycling is collected by a commercial garbage hauler or independent recycler. Depending on what part of the Metro region the customer is in, the haulers are either "free market" or franchised by a city or county. Collected waste may be hauled to the closest MRF, garbage transfer station or a local dry waste landfill. Recycling is delivered to a source-separated recycler or a MRF, where the recyclables are sorted. The customer pays for the full cost of collection, recycling or disposal services.

Command and control
State law lays out some of the required recycling opportunities. Cities and counties administer the franchise agreements with private haulers in franchised areas. Metro operates two waste transfer stations, and transports waste to the Columbia Ridge Landfill in Eastern Oregon. Landfills and MRFs are regulated by DEQ and Metro. Metro also licenses certain types of recycling and composting facilities.

Level 1

Trigger Point

Declaration or anticipation of a declaration of a disaster by an authorized official of a city or county within the Metro boundary, without a governor-declared state of emergency or a residentially declared disaster.

Examples

Minor earthquake, silver thaw event, trees downed by microburst type of windstorm.

Examples of possible debris programs

Limited- or short-term special city- or county-sponsored collections or special drop sites, information given to affected citizens. Debris collection and management handled by local staff with local resources.

Flow of debris

Other than a small increase in volume, the flow of debris will be little different than normal operations.

Command and control

Management of disaster response and recovery actions is under the control and direction of individual affected cities, districts, and counties, exercised either through individual agencies acting in their areas of responsibility and/or through local EOCs operated under the incident command system. Only limited regional coordination is required.

Level 2

Trigger point

Gubernatorial declaration or anticipation of a declaration of a state of emergency in one or more of the region's three counties (Washington, Multnomah, Clackamas).

Examples

Moderate earthquake, 100-year flood.

Examples of possible debris programs

Longer-term special city- or county-sponsored collections, or special drop sites and information to affected citizens. Debris collection and processing costs could overwhelm local resources. Metro may provide monetary assistance and/or reduce disaster debris recycling or disposal fees, and may open temporary debris sorting or reload facilities.

Flow of debris

Other than volume increases, no significant difference from normal day-to-day operations. Debris is likely to go to the same solid waste facilities and landfills, or be stored for short periods of time before recycling or disposal.

Command and control

Management of disaster response and recovery actions is still primarily under the control and direction of individual affected cities, districts and counties, generally exercised through on-scene incident commanders and local EOCs operated under the incident command system. State agencies may be responding to their own incidents while supporting local government missions. A greater degree of regional coordination is required, and coordination of resource and mission requests from local jurisdictions will take place at both state and regional levels. In extraordinary circumstances, the Governor may choose to assert direct control of certain local resources and assume command of certain normally local activities.

Level 3

Trigger point

Presidential declaration or anticipation of a declaration of a disaster area in one or more of the region's three counties.

Examples

Extensive flooding, Cascadia subduction zone earthquake. (Note: The Cascadia subduction zone is a very long, sloping fault stretching from mid-Vancouver Island to Northern California. Because of the extensive fault area, the Cascadia Subduction Zone could produce a large earthquake, magnitude 9.0 or greater, if rupture occurred over its whole area.)

Examples of possible debris programs

Special, longer-term city-county- or USACE may establish a mission to work with the local jurisdiction in charge to run collections or special drop sites. Extensive information to affected citizens. Possible Metro monetary assistance coordinated with FEMA assistance and reduced disaster debris recycling or disposal fees at collection centers. Debris collection and processing costs very likely to overwhelm local and regional resources.

Flow of Debris

Likely to be drastically different than normal operations. Debris is likely to go to different solid waste facilities and landfills or be stored for long periods of time before being recycled or disposed.

Command and Control

Although local jurisdictions retain responsibility for directing disaster response and recovery actions within their boundaries, coordination demands are greatly increased due both to the overwhelming nature of the event and to the influx of federal and state resources

requiring management. The typical national model calls for local resources (county/city/district) to be supplemented by state resources and federal resources acting generally to perform missions requested by the local jurisdiction or the state. In the Metro region, an additional level of government exists, with jurisdiction over regional aspects of disaster debris management. In a Level 3 event, Metro and the Regional Debris Coordination Center might be expected to provide coordination between city/county activities and state/federal activities, including establishing debris management missions to be performed by USACE, and ensuring effective and efficient use of regional resources including local hauling, and disposal resources.

Roles of participants involved in disaster debris management

The detailed roles, responsibilities, authorities and reporting requirements of all of the public and private parties involved in managing disaster debris vary based on the type and severity of the disaster. Elaboration on this kind of information will be available through the companion document to the RDDMP, the Disaster Debris Management Operations Plan, in late 2007.

Disaster debris management goal

In the event of a major natural or human-caused disaster such as an earthquake, windstorm, flood or homeland security incident, the regional solid waste system is prepared to quickly restore delivery of normal refuse services. The system has the capability of removing, sorting, reusing, recycling, and disposing of potentially enormous amounts of debris.

Objective 1.0. Ensure the coordination, communication and commitment of local, state and federal governments and the private sector.

Objective 2.0. Develop and provide both accurate and reliable information to use to predict the types and quantities of debris from a disaster event and information about the resources available for responding to and recovering from disasters.

Objective 3.0. Develop an emergency response phase plan that coordinates emergency debris management services and maximizes public health and safety.

Objective 4.0. Develop a recovery phase plan that maximizes the amounts of materials recovered and recycled, and minimizes potential environmental impacts.

Objective 5.0. Provide for flexible fiscal and financial arrangements that promote efficient and effective implementation of response and recovery plans.

Objective 64.0. Ensure that disaster debris resulting from a homeland security incident is managed in such a way to identify and preserve potential crime scene evidence.

Objective 1.0 – Ensure that debris management efforts are coordinated

Develop and maintain a working group of emergency managers, local government solid waste staff, solid waste haulers and other parties to coordinate the activities of the public and private entities involved in disaster debris management.

Key concept and approach

Properly coordinated disaster debris management efforts will be critical to ensure that those efforts are orderly, efficient and effective.

Key elements

a) Create a Disaster Debris Operations Plan in cooperation with all of the public and private entities involved in regional disaster debris management. This Operations Plan describes the roles and responsibilities for the parties involved and the timing for delivery of the key components listed. The Operations Plan is a companion document to the RDDMP and is being created by the Regional Disaster Debris Management Task Force.

b) Create a process and schedule by which the Regional Disaster Debris Management Advisory Group will meet, for the purpose of creating and maintaining the Disaster Debris Management Operations Plan. (The advisory group contains members of REMG, solid waste and recycling local government, and hauling industry representatives.)

c) Develop standard operating procedures and job descriptions for the staff who will operate the RDCC.

d) Prepare mutual aid agreements among local governments as necessary.

Roles and responsibilities

The Disaster Debris Management Operations Plan, a companion document to the Regional Disaster Debris Management Plan, will describe the roles and responsibilities for the parties involved and the timing for delivery of the key elements listed.

Objective 2.0 – Develop strategies for sharing and disseminating information

Ensure that current and usable information is available to plan and implement disaster debris removal.

Key concept and approach

To plan for and implement disaster debris removal activities, certain information must be available to those involved in these activities. It is also important that this information is updated regularly.

Confusion is the common denominator of disasters. The havoc and destruction caused by a major disaster creates conditions that make confusion inevitable. Basic necessities of life – water, food, and shelter – may be difficult or impossible to obtain; utility services may be disrupted or destroyed; streets may be filled with debris, making travel slow and hazardous; and the emotions of citizens and officials may be taxed to the breaking point.

Among the many demands created by disaster conditions, government agencies should be prepared to tell the community when, where, and how garbage collection will resume, as well as to provide special instructions for collecting, sorting, reporting and processing disaster debris.

Key elements

a) Inventory regional solid waste disposal, recycling and processing facilities, including location, storage, processing, and market capacities, and material specifications.

b) Assess capacity of regional markets to absorb recyclables produced by recovery activities, including market specifications.

c) Predict debris tonnage, by geographical area and type of debris.

d) Inventory potential temporary debris disposal sites around the region.

e) Predict the need for Metro hazardous waste management services.

f) Develop real-time assessment of system capacity for debris removal.

g) Create a process for updating contact information for city, county, state, and federal emergency management and debris removal staff.

Roles and responsibilities

The Disaster Debris Management Operations Plan, a companion document to the Regional Disaster Debris Management Plan, will describe the roles and responsibilities for the parties involved and the timing for delivery of the key elements listed.

Objective 3.0 – Develop emergency response phase strategies

The emergency response phase coordinates and mobilizes resources and efforts, with the priority on immediate services that will preserve life, safety and public health.

Key concept and approach

In order for disaster debris management programs to be ready to rollout following a disaster, the majority of the planning and interagency coordination, including drills and exercises, should occur during peacetime, well in advance of any actual emergency situation. During the time period when responders' efforts are focused on life, safety, and health issues, the parties responsible for planning debris removal have a limited window of opportunity to gather data and fine-tune how debris management programs will be implemented. The response phase can last anywhere from two hours for small emergencies, to two weeks or more in major disasters. During this time period, a response strategy should be finalized that would mobilize resources, including executing contracts for debris removal. Priorities established for the removal of putrescible surge and debris in critical areas of the community, such as emergency transportation corridors.

Key elements

a) Designate Metro and local government debris removal coordinators.

b) Develop a regionally coordinated plan for the gathering and dissemination of information.

c) Define the activities of and activate and staff the Regional Debris Coordination Center.

d) Develop criteria to determine the extent of need and the degree to which regional or local response is required.

e) Execute contracts with haulers and contractors responsible for initial work, until local resources are exhausted.

f) Execute intergovernmental agreements and mutual aid agreements as required, e.g., between haulers and/or governments.

g) Recommend that franchise agreements include a description of the triggers and the process for the suspension of the standard franchise agreement in a disaster situation.

h) Develop criteria for the prioritization of cleanup areas.

i) Develop criteria for the selection of properties that may be appropriate places to stage debris collection, recycling, processing, reload or disposal. Identify potential debris sites and make financial arrangements with owners of potential sites.

j) Work with local, state and federal agencies to identify and find mutually agreeable solutions to potential conflicts between proposed disaster debris management programs and existing solid waste and environmental protection system conditions. (Examples include hauler franchise agreements/boundaries; Metro Designated Facility Agreements; Metro Non-System License Agreements; Metro solid waste facility licenses or franchises; the need to collect Metro, city, county or state fees/taxes on disaster debris tons disposed; DEQ landfill permitting; air or water quality discharge permitting; open burning regulations; Federal Endangered Species Act requirements; and the Marine Protection. Research and Sanctuaries Act.)

k) Update and track the real-time operational status of the designated emergency transportation routes throughout the region in order to manage resources during the disaster recovery process.

Roles and responsibilities

The Disaster Debris Management Operations Plan, a companion document to the Regional Disaster Debris Management Plan, will describe the roles and responsibilities for the parties involved and the timing for delivery of the key elements listed.

Objective 4.0 – Develop emergency recovery phase strategies

The emergency recovery phase is generally defined as the period in which a community restores services and rebuilds after a disaster. Disaster debris management efforts in the recovery phase should minimize environmental impacts to the greatest extent possible and be handled according to the solid waste management hierarchy (reduce, reuse, recycle, recover, landfill). The duration of the recovery phase varies depending on the disaster; it may take weeks, months or years.

During the early part of the recovery phase, the importance of disaster debris management activities moves to the forefront. People are concerned with getting rid of the debris material that resulted from the disaster, and getting on with the process of rebuilding. Recovery phase strategies are designed to help jurisdictions make the process of managing disaster debris more efficient and effective, and to give them the information and the tools they may need to make better decisions.

Key concept and approach

Debris disposition should be handled in an efficient, orderly and cost-effective manner that minimizes adverse environmental impacts, respects the solid waste management hierarchy and supports overall health and safety efforts. To ensure that equipment, labor and services are supplied efficiently and cost effectively, existing local resources used to manage disaster debris should be used in accordance with the solid waste hierarchy. State and federal resources will only be utilized once local resources are exhausted.

Key elements

a) Develop guidelines for removal of debris from residential, commercial and government properties consistent with the solid waste management hierarchy - reduce, reuse, recycle, recover, landfill - while balancing the preservation of health and safety and the environment.

b) Coordinate multi-jurisdictional debris clearing efforts.

c) Continue efforts to mobilize local resources by executing contracts with haulers and contractors.

d) Create disaster debris removal contracts that include language requiring recycling and prescribing recycling methods and locations.

e) Develop guidelines to manage and operate temporary drop-off, reload, recycling, processing, or disposal sites.

f) Develop strategies to mitigate the surge of putrescible.

g) Develop guidelines to properly collect and process or dispose exempt hazardous waste.

h) Develop a process for business and household cleanup efforts including a plan that defines the process, time limits, requirements and restrictions.

i) Develop contingency procedures to collect, sort, recycle and dispose of debris in the event that usual options are unavailable.

j) Develop guidelines to prevent and control illegal dumping.

k) Develop guidelines for the use of burning or ocean dumping as a disposal option.

Roles and responsibilities

The Disaster Debris Management Operations Plan, a companion document to the Regional Disaster Debris Management Plan, will describe the roles and responsibilities for the parties involved and the timing for delivery of the key elements listed.

Objective 5.0 – Develop fiscal/financial arrangements

Ensure that disaster debris management activities will be properly and efficiently funded, through coordination among public agencies and the private sector. Ensure compliance with all applicable federal, state and local disaster assistance requirements and proper accounting procedures.

Key concept and approach

The communication and coordination of disaster debris management efforts between and among jurisdictions and pertinent agencies is important to ensure that efforts are not duplicated and that recordkeeping is accurate. These and similar types of problems can strain resources, impair the ability to be reimbursed by FEMA, and potentially jeopardize other sources of funding.

Key elements

Develop regionally coordinated systems and procedures for the following:

- Tracking system for disaster debris management expenses, including collection, hauling and processing and/or disposal costs incurred.
- Tracking system for disaster debris tons recycled, processed, and/or disposed at each facility in the region.
- Contingency procedures for fee collection at public and private solid waste facilities.
- Fraud control procedures.
- Contract language that protects Metro and local governments from legal liability resulting from illegally dumped or uncollected disaster debris.
- Mitigation plan to minimize future costs for disaster debris collection and disposal.
- Standard form contracts for facilities, contractors and haulers that establish scope and schedule of work, contract price and payment methods, obligations, etc.

Roles and responsibilities

The Disaster Debris Management Operations Plan, a companion document to the Regional Disaster Debris Management Plan, will describe the roles and responsibilities for the parties involved and the timing for delivery of the key elements listed.

Objective 6.0 – Ensure preservation of crime scene evidence

The events of September 11, 2001 changed the way in which emergency managers view and manage solid waste resulting from a terrorist attack or suspected terrorist attack. Preserving the integrity of and documenting the chain of custody for several thousand tons of debris/evidence requires that solid waste and recycling staff, haulers, and anyone else who touches the debris have a plan and coordinate their activities much more closely with emergency managers and law enforcement officials.

Key concept and approach

The communication and coordination of disaster debris handling from a chemical, biological, radiological, nuclear or explosive incident needs to be well-coordinated among all parties who will come in contact

with the debris. The management strategy for this type of event will likely require larger staging and sorting areas, with less emphasis on volume, speed and material recovery, and more space for law enforcement staff to sort, collect, warehouse and take possession of potential evidence.

Key elements

a) Invite law enforcement officials to participate in the Disaster Debris Management Advisory Group to share with the task force the requirements for preserving crime scene evidence.

b) Coordinate debris removal activities with local, state and federal law enforcement agencies to get their recommendations on the sections of the Disaster Debris Management Operations Plan that relate to crime scene evidence.

c) Create standard operating procedures for tracking and handling debris from several different scenarios of CBRNE incidents.

d) Create procedures to ensure that the information on crime scene preservation in the Disaster Debris Management Operations Plan remains current.

Roles and responsibilities

The Disaster Debris Management Operations Plan, a companion document to the Regional Disaster Debris Management Plan, will describe the roles and responsibilities for the parties involved and the timing for delivery of the key elements listed.

Appendix A – Conditions for Metro Regional Disaster

Debris Disposal Assistance

EXECUTIVE ORDER NO. 67

EFFECTIVE DATE: March 28, 1997

SUBJECT: CONDITIONS FOR METRO REGIONAL DISASTER DEBRIS DISPOSAL ASSISTANCE

PURPOSE:

The purpose of this Executive Order is to identify the conditions under which Metro will provide regional disaster debris disposal assistance. No formal criteria currently exist to guide Metro on the level of response to events that generate substantial amounts of debris in short periods of time. In the past, this has hindered the timely coordination of response among local governments, haulers, and residents in the region. It has also caused delays in Metro's ability to provide assistance.

The criteria in this Executive Order will be followed by Metro in the event of a disaster or other emergency that produces a substantial amount of debris. These criteria are to be incorporated into a set of standard operating procedures for managing emergencies by Regional Solid Waste and Recycling (SW&R) as those procedures are developed.

CONDITIONS FOR METRO REGIONAL DISASTER DEBRIS DISPOSAL ASSISTANCE

Metro desires to provide assistance for disaster debris disposal to citizens and local governments in the region in order to help protect public safety, health, and welfare and to minimize the hardships created by natural or man made disasters that produce substantial amounts of debris. To enable Metro to provide this kind of assistance in a consistent and orderly manner, SW&R will be developing a set of standard operating procedures for emergency and disaster situations. These procedures will be used in conjunction with the Regional Disaster Debris Management Plan to guide and direct the decisions and actions of SW&R personnel during an emergency or disaster. When completed, the SW&R standard operating procedures will be incorporated into the Metro Emergency Operations Plan.

Until these standard operating procedures have been developed, at least one of the following conditions must occur before Metro may initiate disaster debris assistance. Different conditions will trigger the different levels of response that are described below. If one or more of these conditions have been met, SW&R may immediately mobilize an appropriate response, as described below. Unless one or more of these conditions have been met, no Metro disaster debris assistance may be initiated without prior recommendation of the Executive Officer and approval of Metro Council. The conditions and appropriate responses are:

I . Declaration of a disaster by an authorized official of a city or county within the Metro boundary. Without a governor declared state of emergency or presidential declared disaster, upon request by the official declaring the disaster, Metro response will be limited to non monetary assistance, such as provision of volunteers and information dissemination through Metro Recycling Information. The response may involve re allocation or prioritization of work to address specific needs.

2. Governor declaration of a state of emergency in one or more of the three counties in the Metro region (Washington, Multnomah, Clackamas). Metro response may include monetary assistance. The exact nature and level of the response is to be assessed at the time of the event and each event will be assessed individually. Assistance efforts under a governor declared state of emergency may be less restrictive than #1, above, but will be more restrictive than under #3, below.

3. Presidential declaration of a disaster area in one or more of the three counties in the Metro region Washington, Multnomah. Clackamas). Metro response may include monetary assistance. The exact nature and level of the response is to be assessed at the time of the event and each event will be assessed individually. Assistance efforts under a presidential declaration may be more aggressive than #1 or #2 above, due to the potential of federal disaster relief.

When one or more of the above conditions have triggered a response, the SW&R Director or his designee will meet to determine the exact and immediate course of action SW&R should take. The intent is to allow SW&R to be able to respond quickly and decisively in these events. SW&R management will take the first possible opportunity to brief the Metro Executive Officer and Council on the specifics of the response. The Council must approve, and the Executive Officer must be consulted on commitments by Metro to long term responsibilities or major expenditures, or that conflict with the above criteria for Metro disaster debris assistance.

Possible Services / Assistance Metro May Provide

The particular services or assistance Metro may choose to provide if one or more of the above conditions are met should always be determined at the time of the event. Each disaster event will be different. The needs particular to that disaster will become apparent at that time, and solutions appropriate to those needs are to be explored. However, any assistance implemented by Metro should recognize and be consistent with the implications of the following:

- Services and assistance to the region's residents should be provided through a partnership between local governments and Metro. As outlined in the Regional Disaster Debris Management Plan (RDDMP), local governments have primary responsibility for the collection and hauling of waste in their jurisdictions and ensuring that that collection is appropriate and adequate. Metro has primary responsibility for ensuring safe and adequate disposal options. Metro and local governments should strive to provide collection, hauling, and disposal services for disaster debris that are cooperative, efficient, and work well as a system.
- Controlling fraud is an important element in any kind of assistance or service provision. Fraud is best controlled when all of the service providers Metro, local governments, haulers, and private disposal facilities work together to ensure that the guidelines established for assistance or services are abided by. Control of fraud is also aided by the existence of clear guidelines for the allocation of any government assistance funds.
- The Federal Emergency Management Agency (FEMA) has issued guidelines that it uses to reimburse local and state government agencies for debris removal. If a disaster is presidential-declared, thereby making FEMA assistance available, services and assistance offered by local and state governments for disaster debris must follow these guidelines if FEMA reimbursement is expected. In general, FEMA views debris removal from private property as the responsibility of the individual property owner aided by insurance settlements and assistance from volunteer agencies. FEMA assistance is not available to private property owners for this purpose. However, local or state governments may pick up and dispose of disaster related debris placed at the curb by those private individuals, as long as the service is carefully controlled with regard to extent and duration. Also, if the debris on private business and residential property is so widespread that public health, safety, or the economic recovery of the community is threatened, the actual removal of debris may be eligible.

ORDERED by the Executive Officer this ____ day of___ 1997.

Mike Burton, Executive Officer

Appendix C
Disposal System Planning

Final Report

Metro Transfer System Ownership Study

Prepared for

METRO
PEOPLE PLACES • OPEN SPACES

June 2006

Prepared by

CH2MHILL
CH2M HILL
P.O. Box 91500
Bellevue, WA 98004

In association with ECODATA, Inc.

Executive Summary

Background

The Disposal System Planning Project (DSP) is a component of the Regional Solid Waste Management Plan update. The project will be completed in two phases. Phase 1 began in 2005. Phase 2 is expected to begin in FY 2006-07. The primary purpose of Phase 1 is to answer the question: *What is the best way to deliver safe, environmentally sound and cost-effective disposal services to this region?* An important component of this question is Metro's role in the disposal system. The primary purpose of Phase 2 will be to implement the decisions of Phase 1.

Over time, the private solid waste industry has become more concentrated, both nationally and locally. Since 1998, Metro has recognized the public and political interests in relaxing its role as the primary provider of services, and has begun to franchise limited private transfer operations throughout the region for commercial haulers. Given growing pressure from transfer station interests within the industry to accelerate the pace of private facility authorizations, this project will take a step back and take a comprehensive look at what is the best course for the region as a whole for the long-run.

Project Purpose

The purpose of this transfer system ownership study is *to analyze different transfer station ownership options to provide information for the Metro Council to decide what Metro's role should be in the disposal system*. The analysis has four essential elements:

1. The project team worked with the Council and various stakeholders to identify the criteria to be used for evaluating the quality of the disposal system—cost, material recovery, equity, flexibility, etc.
2. The project team worked with stakeholders to construct different ownership options that address the transfer component of the regional solid waste system. Options investigated include public ownership of all transfer facilities, mixed public and private ownership, and a totally privately owned system.
3. The ownership options were analyzed against the performance criteria listed above.
4. Finally, the Metro Council will make a decision. A choice, for example, of a totally private system implies that Metro should ultimately exit the disposal business. The choice of a mixed public-private system, on the other hand, implies that Metro should remain in the business. The choice of a public system implies an increased role for Metro in the provision of transfer system services.

Approach

The choice of system ownership option is dependent upon a number of factors that relate to the ultimate objectives and values of the region's residents, businesses, and industry stakeholders. The Metro Council is responsible for making decisions about the transfer system that best meet these objectives and values. It is important to consider the environmental, social, and financial aspects of different system ownership options, and to be aware of risks that may need to be managed should changes to the current system be implemented. Thus, the analysis of different system ownership options was conducted from the following perspectives:

- Documentation and consideration of stakeholder input
- Analysis of Metro solid waste system economics
- Definition of system options
- Value Modeling of non-monetary aspects of system options
- Economic analysis of system options
- Risk Assessment of system options

Results and Conclusions

Competition in the Metro Disposal System

The Metro disposal system can be viewed as a series of inter-related elements: collection, transfer/processing, transportation, and disposal (waste reduction, recycling, and source-separated processing are not typically considered to be part of the disposal system). Economic theory and the results of the analysis of the system suggest the following conclusions about competition in the Metro disposal system:

- Collection: Commercial collection in the City of Portland is arranged by subscription i.e., multiple firms compete for business in a competitive market. Residential collection, and commercial collection outside the City of Portland, is provided under a system of exclusive franchises. Thus, there is no competition for the majority of collection services in the Metro region.

  It is estimated that collection accounts for 81 percent of the total cost of residential disposal, and a very high percentage of the total cost of commercial disposal. As a result, the greatest opportunity to inject competition into the Metro disposal system is in collection, which is the responsibility of local government and outside the control of Metro.

- Transfer/processing: A fundamental fact about transfer stations is that there is little competition in the provision of transfer/processing services regardless of whether these services are provided by the public or private sector. This occurs for a number of reasons. First, it is only economic to deliver waste to a facility relatively close to the collection route resulting in a type of "natural geographic monopoly". Second, collection firms that are vertically integrated (i.e., they own transfer stations and/or landfills) gain an additional margin of profit by delivering waste to a station they own: it often makes economic sense for such firms to drive past a transfer station they don't own and

continue on to deliver waste at a station they do own. Finally, transfer and processing per-ton costs decline as more tons are received; this results in a seeming paradox in which prices paid for transfer can ***increase*** as more transfer stations are put in place.

Metro injects one important element of competition into the transfer/processing market in the region by bidding out the operation of their stations. This helps lower the total cost of disposal for local governments that use the Metro transfer rate as a benchmark for establishing the disposal component of the collection rates charged by the franchised collection firms they regulate.

- Transportation: Transportation of waste from a transfer/processing facility to a disposal facility is generally done at competitive market prices. There are few barriers to entry and many trucking firms willing to compete for this business. Barge and rail transport also have the potential to be competitive with trucking for transportation of waste from Metro to distant landfills.
- Disposal: At least 90 percent of the wet waste in the region is disposed of at a Waste Management landfill under the terms of a contract that was procured years ago using a competitive process in a market with few options for disposal. The price paid by Metro is equal to or lower than that paid by other jurisdictions in the Pacific Northwest that have long-term contracts for disposal at regional landfills. Today, however, there are multiple firms with regional landfills that would be interested in providing disposal services to Metro. It is possible that the disposal price paid by Metro is higher than the price it would pay in a competitive market for disposal, or if its disposal contract were re-bid. Metro is legally bound to this contract through 2014, and the contractor can extend the contract until 2019. After this contract expires, it is possible that Metro would realize a reduction in the price paid for disposal.

Metro as Regulator and Competitor

During the conversations with stakeholders conducted as part of this project, one concern expressed by private transfer station operators is that Metro is both their regulator and a competitor. This concern exists for a couple of reasons. First, as tons flow to private facilities rather than a Metro-owned facility, Metro's per-ton cost of transfer increases. The transfer station operators believe that this provides an incentive for Metro to limit the amount of wet waste delivered to the private stations thus limiting private sector growth and revenue-generating potential. Second, Metro establishes fees and taxes that must be paid by private facility owners: some private facility owners feel that those fees and taxes are too high. They particularly dislike paying for Metro general government and paying for certain services and costs associated with the Metro transfer stations.

A very different perspective is held by the independent collection firms that were interviewed. They were of the unanimous opinion that there should be no private wet waste transfer stations in the region: their interests would be best served by a system in which Metro owns all transfer stations ***and*** disposal facilities. This is mainly because vertically integrated firms that provide collection and transfer and/or disposal services have a competitive advantage over firms that provide only collection services. The vertically integrated firms are both competitors and service providers to smaller independent firms. It is safe to conclude that continued Metro ownership of transfer stations will result in a

collection market that includes more small independent collection companies than would be the case if Metro did not own any transfer stations.

The independent dry waste processing facility owners interviewed felt the Metro should continue to both own and regulate facilities.

Surveys of both commercial and self-haul customers (households and businesses) indicated a high degree of satisfaction with the level of service provided by Metro. When asked where they would take waste should the Metro station they were using close, the majority of self-haul customers said they would use the other Metro facility or had no idea where they would go.

Metro Disposal System Economics

The analysis of the economics of the Metro solid waste system results in the following conclusions and recommendations:

- The greatest potential for cost savings is in collection; which is outside Metro's control.
- Metro rates are used in setting collection fees, which is good, particularly when Metro competitively procures transfer station operation services. This injects an important element of competition in a market that otherwise would not have many characteristics of a competitive market. Therefore, Metro should try to maximize competition in contracting for each of these services. For example, it could consider evaluating price as a function of distance in its disposal contract, or perhaps jointly procuring transfer, transport, and disposal or transport and disposal.
- In recent years, national solid waste firms have increased market share in the local solid waste industry. These firms seek to achieve vertical integration to maximize profits. Without measured steps by Metro and/or local government to preserve competition, vertical integration, profitability, and prices are likely to increase in the Metro region.
- Economies of scale are significant in transfer, thus, adding transfer stations increases per-ton costs. Also, handling small loads increase per-ton costs compared to handling large loads. Therefore, Metro should be careful to not allow too much excess capacity in the region's transfer system: adding stations reduces throughput at existing facilities and thereby, other things equal, increases the cost of transfer.
- Significant unused transfer capacity exists in the region.
- Transfer is the smallest cost component of the transport, transfer, and disposal system.
- On average, Metro transports waste to landfills a greater distances than does the private sector.
- The private sector typically earns its highest profit margins on disposal.

Evaluation of Different Ownership Options

The advantages and disadvantages of private, public, or a hybrid public-private ownership of the Metro region transfer system were analyzed from a variety of perspectives, including:

- An analysis of how well each option met the Metro Council's stated values
- The estimated cost of each option
- The risk associated with each option

A variety of methods including in-person interviews, surveys, and focus groups were used to elicit the opinions of key stakeholders such as private facility owners, independent waste collection firms, independent dry waste facility owners, local government representatives, Metro staff members, and Metro transfer station users. The opinions of stakeholders were used to help define the system options and analyze the performance of the options in meeting Council objectives.

A brief summary of the results of the value modeling, economic analysis, and risk assessment follow.

Value Modeling

The Metro Council outlined the following values associated with the disposal system:

1. Protect public investment in solid waste system
2. "Pay to Play"- Ensure participants pay fees/taxes
3. Environmental Sustainability- ensures system performs in an sustainable manner
4. Preserve public access to disposal options (location/hours)
5. Ensure regional equity- equitable distribution of disposal options
6. Maintain funding source for Metro general government
7. Ensure reasonable/affordable rates

These values were reworded slightly to facilitate analysis. One value (ensure reasonable/affordable rates) was captured in the economic analysis, and one additional value was added: Ensuring support from system participants.

The results of the value modeling analysis indicate that the public system is clearly preferred to the other ownership options. The results of a sensitivity analysis of the relative importance of each Council value indicate that this result is not sensitive to the relative importance assigned to each value.

One additional sensitivity analysis was performed that incorporated challenges associated with implementation. That analysis showed that as more importance is placed on the difficulties associated with acquiring existing private transfer stations, the hybrid system eventually becomes preferred to the public system.

Economic Analysis

The cost of the three systems is not likely to have a large impact on the cost of the Metro solid waste system. Regardless of the option selected, costs are not expected to increase or decrease by more than about two percent. Other findings of the economic analysis include:

- The hybrid is the only option with the potential to reduce system costs.
- Both the public and the private options are projected to increase system costs (i.e., collection, transfer, transportation and disposal). The cost increase for the public option is estimated at 0.1% to 0.7% and the increase for the private option is estimated at 1.4% to 2.2%.

- The largest cost impacts occur in the collection market; although Metro does not control collection, collection costs can be affected by Metro's actions.
- Increasing the number of transfer stations tends to increase the cost of transfer, but these increases can be more than offset by decreases in collection costs.
- These cost estimates depend on a series of assumptions that are of course subject to variance; while different assumptions would result in different cost estimates, it is not likely that the relative ranking of the options would change.
- The key impact of the Private option is the likely further concentration of the collection industry, increased vertical integration, a probable reduction in the number of small independent collection firms, and probable cost-plus price creep.

Risk Assessment

There is considerable uncertainty at this time about exactly how any of the system options would be implemented and exactly how aspects of the system would develop through time. When considering major new programs or system changes, it is important that organizations such as Metro evaluate the risk associated with such changes by identifying, assessing, and develop strategies to manage those risks.

Risks were identified by the project team during a brainstorming exercise during which 10 risks and 6 related uncertainties were identified that may be relevant to the choice of ownership option. Once identified, a qualitative assessment of these risks was performed. The assessment was done using a qualitative risk signature approach in which the signature for each risk was determined by first assessing the likelihood and impact for each risk, then using a risk matrix to determine if the risk is low, medium, high, or critical.

The assessment of risks is shown in Exhibit E-1. The results of the assessment indicate that there is more risk associated with implementing the private system than the public or hybrid system. However, the only risk scored as critical is challenges associated with implementation in the public system. The hybrid system has relatively low risk.

EXHIBIT E-1
Risk Assessment

Risk	Risk Signature		
	Private	Public	Hybrid
1. More difficult politically to collect regional system fee and excise taxes	High	Low	Low
2. Metro's credit rating could worsen if it is perceived to be less able to collect taxes	High	Low	Low
3. It could be more costly and more difficult administratively for Metro to respond to future changes in state-mandated Waste Reduction requirements	High	Low	Low
4. It could be more costly and more difficult administratively for Metro to deliver new WR/R initiatives	High	Low	Low
5. Potential increase in vertical integration and potential resulting increases in transfer station tip fees	High	Low	Low
6. Reduced ability to meet dry waste recovery targets	Medium	Low	Low
7. Additional cost to Metro of fulfilling Disposal contract	Medium	Low	Low
8. Inability or added cost to maintain current level of self-haul and HHW service	Medium	Low	Low
9. Likelihood of successful flow control challenge	High	Low	Low
10. Political challenges or protracted legal proceedings resulting from condemning private transfer stations or allowing wet waste franchises to expire	Medium	Critical	Low

Summary of Results

A summary of the results of the value modeling, economic analysis, and risk assessment are shown in Exhibit E-2. The results for each option are as follows:

- The private option has the lowest value score, has the highest projected cost increase, and the most risks that would need to be managed.
- The public option has the highest value score, small projected cost increases, and one critical risk that would need to be managed.
- The hybrid system has a value score between the two other options, neutral or possibly decreased cost, and no significant risk.

EXHIBIT E-2
Summary of Results

	Private	Public	Hybrid
Values – Results of value modeling analysis. Normalized scores where the best score =1, worst score =0.	0.35	0.62	0.49
Cost – Estimated long-run percent change in system cost (i.e., collection, transfer, transport, disposal).	Low: 1.4% High: 2.2%	Low: 0.1% High: 0.7%	Low: -0.5% High: 0.1%
Risk – 10 measured risk signatures that incorporate likelihood and criticality. Each risk rated low, medium, high, or critical.	6 High 4 Medium	1 Critical 9 Low	10 Low

Appendix D
System Improvements Work Plan

Following the transfer system analysis, several other system issues need further analysis and policymaker review. The end result desired is a set of System Management Principles to guide future Metro decisions. A summary of these key system issues, a system improvements work plan, follows:

(1) Wet waste allocation – Metro allocates wet waste in the system through tonnage authorization limits on local transfer stations and by granting non-system licenses for the 10% of wet waste not committed to our disposal contract. (These tonnage limits are a form of economic regulation.) The issue of policy drivers for determining future wet waste allocations in the region has been raised as part of the Disposal System Planning process. The primary desired outcome in waste allocation is that the ratepayer should benefit.

(2) Public/private pricing – The Rate Policy Subcommittee's report, presented to SWAC in March 2006, identified several areas to address in regional tip fees. These included the sensitivity of the public facilities to tonnage shifts and the private facility economics that improve with an increase in the tonnage charge and transaction fee and/or a drop in the Regional System Fee (RSF) and excise tax, even in the absence of any other change in cost or service to the private facility. Local government regulators have expressed concern that changes in fees for transfer and disposal services may not be directly related to costs or service. The desired outcome of addressing system finance issues at the heart of this matter is that the ratepayer should benefit.

(3) Self-haul services at the region's solid waste facilities - Approximately one-fourth of the region's solid waste is delivered to facilities by other than licensed or franchised haulers. These self-haul loads at the region's facilities contain about 30 to 40% recoverable material, but achieving high levels of material recovery from self-haul loads is hampered by insufficient space, small load sizes and a demand for services that sometimes exceeds the capacity of the facilities receiving the waste. A balance between demand and capacity is needed, with the desired outcome being the efficient provision of service to these customers and higher recovery of self-hauled loads. Whether this should be more generator-focused (in reducing or managing demand) or more facility focused (increasing capacity to serve self-haul in the region) or a combination is a key question.

(4) Facility regulation – Metro controls the entry of new facilities into the solid waste system. The highest barriers to entry are for transfer stations or any other facilities handling wet or putrescible waste. Metro authorizes new transfer facilities from time to time after conducting cost/benefit and/or impact analysis. Previous cost/benefit studies have relied on measures of system cost, tip fee impacts, access, or travel time reductions. A recent local transfer station authorization was granted (Columbia Environmental) after consideration of these criteria, as well as an ad hoc criterion of supporting smaller, independent haulers in the region. Applicants and decisionmakers alike might benefit from clear guidance on the circumstances under which new transfer applications might be granted. Another issue in facility regulation that has been raised at the Metro Council is whether Metro should rate-regulate private transfer facilities as part of approved entry into the marketplace. The desired outcome on this issue is a determination of clear entry standards and regulatory controls on transfer facilities.

Appendix E
System and Non-System Facilities

DISPOSAL FACILITIES

Designated system facilities (outside the region, and need a Metro designated facility agreement)	**Non-system facility** (outside the region and haulers need a Metro non-system license)
Coffin Butte Landfill Columbia Ridge Landfill Finley Buttes Landfill Lakeside Reclamation Landfill Hillsboro Landfill Roosevelt Regional Landfill Wasco County Landfill Weyerhauser Landfill	Riverbend Landfill Covanta Waste to Energy (WTE) Facility

TRANSFER STATIONS

System transfer stations (inside the region, franchised or owned by Metro)	**Non-system transfer stations** (outside the region, haulers need a Metro non-system license)
Public: Metro Central Transfer Station (transfer & recovery) Metro South Transfer Station (transfer & recovery) Private: Forest Grove Transfer Station (transfer only) Columbia Environmental (transfer & recovery) Pride Recycling Company (transfer & recovery) Troutdale Transfer Station (transfer & recovery) Willamette Resources, Inc. (transfer & recovery)	Public: Sandy Transfer Station (transfer only) Private: Canby Transfer Station (transfer only) Newberg Transfer Station (transfer only) Central Transfer & Recovery Center (transfer & recovery) West Van Material Recovery Center (transfer & recovery)

MATERIAL RECOVERY FACILITIES

System facilities (inside the region, licensed by Metro)	**Non-system facilities** (outside the region, haulers need a Metro non-system license)
Aloha Garbage Company East County Recycling K.B. Recycling, Inc. Pacific Land Clearing & Recycling I (specialized) Pacific Land Clearing & Recycling II (specialized) Pacific Land Clearing & Recycling III RB Recycling (specialized) Tire Disposal & Recycling, Inc. (specialized)	None

COMPOSTING FACILITIES	
System facilities (licensed or designated by Metro) Allwood Recyclers, Inc. City of Portland Leaf Composting Facility Clackamas Compost Products, LLC Grimm's Fuel Company, Inc. McFarlane's Bark, Inc. Northwest Environmental & Recycling Cedar Grove (Everett & Maple Valley, Washington)	**Non-system facilities** (outside the region, haulers need a Metro non-system license) Nature's Needs
RELOAD FACILITIES	
System facilities (licensed or designated by Metro) <u>Dry Waste</u>: Greenway Recycling Thermofluids (specialized) Wastech <u>Yard Debris</u>: Best-Buy-In-Town, Inc. Greenway Recycling, LLC Landscape Products & Supply QuickStop (Cloudburst) Dan Davis Recycling, (City of West Linn) S & H Logging, LLC WoodCox Wood Waste Management	**Non-system facilities** (outside the region, haulers need a Metro non-system license) None

Appendix F
Waste Reduction Programs Timetable

Program Areas	Ongoing	Near term (2007-09)	Middle term (2009-12)	Long term (2012-17)
Residential	1.0 Outreach campaign; improve the quantity and quality of residential setouts. OP (see key below)			
		2.0 Identify service provision changes and incentives to increase recycling; evaluate new collection technologies. NP		
	3.0 New materials as markets allow. OP			
	4.0 Educate residents about management of yard debris and food waste. OP			
			5.0 Develop residential organics collection. NP	
Multi-family			1.0 Program assessment. NP	
	2.0 Education & outreach program. OP	2.0 Continue	2.0 Program assessment	
			3.0 Evaluate new collection technologies. RP	
Business	1.0 "Recycle at Work" outreach program. OP	1.0 Program assessment		
	2.0 Develop information and resource materials. OP			2.0 Program assessment
	3.0 Outreach campaign. OP			
		4.0 Implement waste reduction & sustainable practices at government facilities. RP		
		5.0 Identify opportunities for increasing recovery. RP	5.0 Program assessment	
	6.0 Review end markets. OP			
Building industry		1.0 Develop regionwide construction & demolition system. NP	1.0 program assessment	
	2.0 Outreach program. OP	2.0 Program assessment		
			3.0 Include sustainable practices and products at government facilities. NP	3.0 Program assessment
	4.0 Review end markets. OP			
Commercial organics		1.0 Outreach & education programs. RP		
			2.0 Enhance access to organics recovery services. NP	
		3.0 Organic waste recovery at government facilities plan. NP	3.0 Organic waste recovery at government facilities implementation. NP	
		4.0 Compost product specified for use in government projects.		
	5.0 Review end markets. OP			

Numbered programs correspond to those in Chapter IV.

OP = Ongoing Program, RP = Revised Program, NP = New Program

Appendix G

Guiding Direction: Policies, Goals and Objectives*

Regional Policies

1.0 System performance	The regional solid waste system will perform in a manner that is: • Environmentally sound. • Regionally balanced. • Cost-effective. • Adaptable to change. • Technologically feasible. • Acceptable to the public.
2.0 Preferred practices	Solid waste management practices will be guided by the following hierarchy: • First, reduce the amount of solid waste generated. • Second, reuse material for its originally intended purpose. • Third, recycle or compost material that cannot be reduced or reused. • Fourth, recover energy from material that cannot be reduced, reused, recycled or composted so long as the energy recovery facility preserves the quality of air, water and land resources. • Fifth, landfill solid waste that cannot be reduced, reused, recycled, composted or from which energy cannot be recovered.
3.0 Evaluating opportunities for sustainability	Opportunities for increasing the sustainability of business practices or programs will be evaluated based on: a) technological feasibility; b) economic comparison to current practice or conditions; and c) net environmental benefits.
4.0 Recycling services provision	Recycling services will be offered as a component of residential and commercial waste collection in the region. Recycling services will be standardized in the region to the extent possible, to minimize confusion on the part of residents and businesses and to construct cooperative promotion campaigns that cross jurisdictional boundaries.
5.0 Source separation	Source separation is the preferred approach in the region for ensuring quality secondary materials for recycling markets, but other forms of material recovery, such as post-collection separation, will not be precluded.
6.0 Market development	Enterprises that can significantly expand end-use opportunities for reuse or recycling will be fostered by the region.
7.0 New facilities	The current system of transfer stations provides reasonable access for haulers and sufficient capacity for the consolidation and transfer of solid waste to disposal facilities. New transfer stations may be considered if they provide a net benefit to the public. Factors in evaluating net benefit include capacity and access, whether the facility will be publicly or privately owned, and the impacts on material recovery and ratepayers. Other types of new solid waste facilities shall be considered if they significantly support and are consistent with the policies of this plan.
8.0 Facility ownership	Transfer facilities in the regional solid waste system may be publicly or privately owned. The public interest is best served by continued public sector facility ownership in the system. Public ownership ensures a comprehensive range of services are accessible to regional customers at equitable and affordable rates.
9.0 Facility siting	Appropriate zoning in each city or county will utilize clear and objective standards that do not effectively prohibit solid waste facilities.
10.0 System regulation	Solid waste facilities accepting waste generated within the region will be regulated to ensure they are operated in an acceptable manner and are consistent with the policies of this Plan. All facilities performing post-collection material recovery shall meet minimum recovery requirements. Regulatory control will be implemented through a system of franchises, contracts, public ownership, and licenses. Government regulation will ensure protection of the environment and the public interest, but not unnecessarily restrict the operation of private solid waste businesses.
11.0 Host community enhancement	Any community hosting a solid waste "disposal site" as defined by ORS 459.280 shall be entitled to a Metro-collected fee to be used for the purpose of community enhancement.
12.0 Disposal pricing	Charges for disposal services shall be sufficiently transparent to allow regulators to judge whether such charges are fair, acceptable, and reasonably related to the costs of services received. The establishment of charges for disposal services at publicly owned facilities shall balance cost recovery, revenue adequacy, and adopted regulations and policies, including the policies and objectives of this Plan. In addition, such charges shall be structured to ensure that the public sector is able to meet its long-term obligations such as investments, debt, contracts, and fixed costs undertaken by the public sector on behalf of the public. Charges to residents of the Metro district who may not be direct users of the disposal system should be related to other benefits received. To the extent possible, rate adjustments will be predictable and orderly to allow affected parties to perform effective planning.

*Contained in Chapters III, IV and V.

Goals	Objectives
Waste Reduction Goal: Increase the sustainable use of natural resources by achieving the waste reduction goal of 64%.	
Single-family residential	• Conduct annual outreach campaigns that focus on preventing waste, reducing toxicity and/or increasing the quantity and quality of recycling setouts. • Identify and implement service provision changes and incentives to maximize recycling, and identify and evaluate new collection technologies. • Expand curbside service by adding new materials as markets and systems allow. • Promote home composting and appropriate onsite management of yard debris and food waste. • Develop residential organics collection programs when economically and technically feasible.
Multi-family residential	• Implement a program suited to the needs of multi-family housing that is uniform and consistent throughout the region. • Provide annual regional education and outreach targeting multi-family housing. • Identify and evaluate new collection technologies for implementation on a cooperative regionwide basis.
Business	• Provide businesses with annual education and technical assistance programs focused on waste reduction and sustainable practices. • Develop information and resource materials that demonstrate the benefits of waste reduction and sustainable practices to support the business assistance program. • Conduct annual regional outreach campaigns to increase participation in the business assistance program and to promote recycling opportunities and other sustainable practices. • Implement waste reduction and sustainable practices at government facilities. • Identify and implement opportunities for increasing recovery in the business sector, including service provision options, incentives for recycling and regulation. • Periodically review end-use markets to assess cost-effectiveness, material quality and capacity.
Building industry	• Develop a regionwide system to ensure that recoverable construction and demolition debris is salvaged for reuse or is recycled. • Provide the building industry with annual outreach, education and technical assistance programs that demonstrate the benefits of green building, including building material reuse and recycling. • Include sustainable practices and products in the development, construction, renovation and operation of government buildings, facilities and lands. • Support the development of and access to viable end-use markets for construction and demolition materials.
Commercial organics	• Provide outreach and education programs for targeted businesses to support and increase organic waste prevention and diversion practices. • Enhance access to organics recovery services throughout the region. • Implement organic waste recovery programs at government facilities where feasible. • Work to ensure that compost products are specified for use in government projects. • Periodically review the viability of end-use markets and assist with market development efforts.

Goals	Objectives
Education services Goal: Increase the adoption of sustainable practices through increased knowledge, motivation and commitment.	• Provide a regional information clearinghouse and referral service. • Provide education and information services for residents and businesses that are targeted to specific waste streams, materials or generators. • Provide education programs that help teachers incorporate resource conservation concepts, including waste prevention and toxicity reduction, into their teaching. • Provide programs at the elementary level that establish fundamental concepts of resource conservation and environmental awareness through active learning experiences. • Provide programs at the secondary level (middle and high school) that will extend concepts established at the elementary level and prepare students for making responsible environmental choices in everyday adult life. • Work with schools and teachers to increase support for regional solid waste programs and create opportunities for partnerships.
Hazardous waste management Goal: Reduce the use and improper disposal of products generating hazardous waste in order to protect the environment and human health.	• Provide hazardous waste education programs that focus on behavior change. • Provide hazardous waste education programs that focus on those products whose toxic and hazardous characteristics pose the greatest risks to human health and the environment, or that are very costly to properly dispose or recycle. • Provide hazardous waste reduction messages and information to all customers bringing waste to household hazardous waste collection sites. • Coordinate hazardous waste education efforts with related efforts conducted by government agencies and community groups in the region and in other areas. • Research and develop tools to measure the generation, impacts and reduction of hazardous waste, when this can be accomplished at a reasonable cost. • Manage collected waste in accordance with the hazardous waste hierarchy: reduce, reuse, recycle, energy recovery, treatment, incineration and landfill. • Coordinate collection programs with waste reduction and product stewardship efforts. • Conduct waste screening programs at solid waste facilities to minimize the amount of hazardous waste disposed with solid waste. • Use solid waste facilities efficiently and effectively for the delivery of collection services. • Maximize the efficiency of public collection operations, search for the most cost-effective methods and place a high priority on worker health and safety. • Offer a Conditionally Exempt Generator (CEG) program to manage waste from small businesses. • Implement bans on disposal of specific hazardous products as needed to address public health and environmental concerns.
Product stewardship Goal: Shift responsibility to manufacturers, distributors and retailers for ensuring that products are designed to be nontoxic and recyclable, and incorporate the cost of the product's end-of-life management in the purchase price.	• Prioritize product stewardship activities by evaluating products based on the significance of environmental impact (e.g., resource value, toxicity), current barriers to recycling, and financial burdens on governments for recovery programs. • Implement industry-wide product stewardship agreements or individual company stewardship programs in the region. • Educate public and private sector consumers about product stewardship and, in particular, their role in purchasing environmentally preferable products. • Work at the local, regional, state and national level to develop and implement policies, such as recycled-content requirements, deposits, disposal bans and advance recycling fees, that encourage product stewardship programs.

Goals	Objectives
Sustainable Operations Goal: Reduce greenhouse gas and diesel particulate air emissions	• Implement plans for greater energy efficiency. • Utilize renewable energy sources. • Reduce direct emissions of greenhouse gases from landfills and other facilities. • Reduce diesel particulate emissions in existing trucks, barges and rolling stock through best available control technology. • Implement long-haul transportation and collection alternatives where feasible.
Goal: Reduce stormwater run-off	• Implement stormwater run-off mitigation plans.
Goal: Reduce natural resource use	• Implement resource efficiency audit recommendations. • Implement sustainable purchasing policies. • Reduce disposed waste.
Goal: Reduce use and discharge of toxic materials	• Implement toxics reduction and management plans.
Goal: Implement sustainability standards for facility construction and operation	• Implement sustainability standards for site selection. • Require new construction to meet the Leadership in Energy and Environmental Design (LEED) or equivalent program standards. • Provide incentives for existing facilities to meet LEED or equivalent program standards.
Goal: Adopt best practices for customer and employee health and safety	• Reduce injuries by automating operations where effective. • Implement health and safety plans that meet or exceed current minimum legal standards.
Goal: Provide training and education on implementing sustainability practices	• Train key regional waste industry employees, government waste reduction staff and political officials in adopted sustainability practices. • Inform suppliers, contractors and customers of the adoption of sustainability goals and practices.
Goal: Support a quality work life	• Pay a living wage and benefits to all workers. • Promote community service. • Strive to employ a diverse work force.
Goal: Employ sustainability values in seeking vendors and contractors	• Request sustainability plans from potential vendors and contractors. • Assist vendors and contractors in achieving sustainable practices. • Support local vendors when feasible.

Appendix H

Glossary of terms

These definitions are provided to assist the reader and should not be construed as policies, goals or practices of the Plan, or as amendments to the Metro Code.

Alternative program – A solid waste management program or service that is proposed by a local government and differs from those referenced by and being implemented under this Plan. At a minimum, an alternative program must demonstrate the same level of expected performance as the plan program. Alternative programs allow for local government flexibility in meeting the plan goals and objectives.

Collection service – A service that provides for collection of solid waste or recyclable material or both. (OAR 340-90-010)

Commercial organics – Waste generated by food processing operations, restaurants and institutions.

Commingled recyclables – A source-separated mixture of several recyclable materials into one collection container.

Compost – The controlled biological decomposition of organic material or the product resulting from such a process. (OAR 340-90-010)

Conditionally exempt generator (CEG) – Small businesses that generate small amounts of hazardous waste, as defined by state and federal law.

Construction and demolition waste – Solid waste resulting from the construction, repair, or demolition of buildings, roads and other structures, and debris from the clearing of land, but not including clean fill when separated from other construction and demolition wastes and used as fill materials or otherwise land-disposed. Such waste typically consists of materials such as concrete, bricks, bituminous concrete, asphalt paving, untreated or chemically treated wood, glass, masonry, roofing, siding, and plaster; and soils, rock, stumps, boulders, brush, and other similar material. (OAR 340-93-030)

Curbside collection – Programs where recyclable materials are collected at the curb for single-family units and at onsite depots for multi-family units.

End-use markets – Outlets for materials such as post-consumer paper, which are manufactured into a finished product or materials such as scrap tires that are incinerated to recover energy.

Energy recovery – The process in which all or part of the solid waste materials are processed to use the heat content or other forms of energy of or from the material. (ORS 459.005)

Franchise –The authority given by a local government (including Metro) to operate a solid waste and recycling collection service, disposal site, processing facility, transfer station or resource recovery facility. Often includes the establishment of rates by the local government.

Garbage – A general term for all products and materials discarded and intended for disposal.

Generator – A person who last uses a material and makes it available for disposal or recycling. (OAR 340-90-010)

Grits and screenings – Solids derived from primary, secondary or advanced treatment of domestic wastewater that have been treated through one or more controlled processes that significantly reduce pathogens and reduce or chemically stabilize volatile solids to the extent that they do not attract vectors.

Hauler – The person who provides collection services.

Hog fuel – Biomass fuel, usually consisting of wood waste that has been prepared by processing through a "hog" (a mechanical shredder or grinder). It typically consists of a mixture of bark, wood, sawdust, shavings or secondary materials such as pallets and construction or demolition wood.

Household hazardous waste (HHW) or hazardous waste – Any discarded, useless or unwanted chemical materials or products that are or may be hazardous or toxic to the public or the environment and are commonly used in or around households. Residential waste that is ignitable, corrosive, reactive, or toxic. Examples include solvents, pesticides, cleaners, and paints.

Local governments – For the purposes of this document, a local government is defined as a city or county within the Metro boundaries.

Materials recovery or recovery – Any process of obtaining from solid waste, by presegregation or otherwise, materials that still have useful physical or chemical properties after serving a specific purpose and can, therefore, be reused or recycled for the same or other purpose. (OAR 340-90-010, ORS 459.005)

Material recovery facility (MRF) – A solid waste management facility that separates materials for the purposes of recycling from an incoming source-separated or mixed solid waste stream.

Mixed waste – Solid waste containing a variety of recyclable and nonrecyclable material.

Multi-family – Residential dwellings of five or more units.

Non-putrescible – Commercial, residential or industrial solid waste, that does not contain food wastes or other putrescible wastes. Non-putrescible mixed solid waste (also called dry waste) includes only waste that does not require disposal at a municipal solid waste landfill (also referred to as a general purpose landfill), as that term is defined by the Oregon Administrative Rules. This category of waste excludes source-separated recyclables.

Organics – Yard debris, land clearing and food waste material.

Plan programs - The programs and services as described in Chapter II of the Plan that will enable the region to reach its 64% waste reduction goal.

Principal recyclable materials – In the Metro wasteshed these are newspaper, ferrous scrap metal, non-ferrous scrap metal, motor oil, corrugated cardboard and kraft paper, aluminum, glass containers, high-grade office paper, tin cans, and yard debris.

Product stewardship – An approach to managing the lifecycle costs of a product in which a product's designer, producer, seller and user share the responsibility for minimizing the product's environmental impact throughout all stages of the product's lifecycle.

Putrescible waste – Solid waste (other than uncontaminated or only slightly contaminated cardboard and paper products) containing organic material that can be rapidly decomposed by microorganisms, and which may give rise to foul-smelling, offensive products during such decomposition or which is capable of attracting or providing food for birds and potential disease vectors such as rodents and flies.

Recovered – Material diverted from disposal to recycling, composting or energy recovery systems.

Recovery – See material recovery.

Recovery rate – The percent of total solid waste generated that is recovered from the municipal solid waste stream.

Recyclable material – Any material or group of materials that can be collected and sold for recycling at a net cost equal to or less than the cost of collection and disposal of the same material. (OAR 340-90-010, ORS 459.005)

Recycling – Any process by which solid waste materials are transformed into new products in such a manner that the original products may lose their identity. (OAR 340-90-010, ORS 459.005)

Reuse – The return of a commodity into the economic stream for use in the same kind of application as before without change in its identity. (OAR 340-90-010, ORS 459.005)

Solid waste – All putrescible and non-putrescible wastes, including but not limited to garbage, rubbish, refuse, ashes, waste paper, and cardboard; sewage sludge, septic tank and cesspool pumpings or other sludge; commercial, industrial, demolition and construction wastes; discarded or abandoned vehicles or parts thereof; discarded home and industrial appliances; manure; vegetable or animal solid and semi-solid wastes, dead animals, infectious waste and other wastes. The term does not include: (a) hazardous wastes as defined in ORS 466.005; (b) materials used for fertilizer, or for other productive purposes or that are salvageable for these purposes and are used on land in agricultural operations and the growing or harvesting of crops and the raising of fowls or animals, provided the materials are used at or below agronomic application rates. (OAR 340-90-010, ORS 459.005, Metro Code 5.01.101)

Solid waste management – Prevention or reduction of solid waste; management of the storage, collection, transportation, treatment, utilization, processing and final disposal of solid waste; resource recovery from solid waste; and facilities necessary or convenient to such activities. Also see "State hierarchy."

Source-separated material – Material that has been kept from being mixed with solid waste by the generator in order to reuse or recycle that material.

State hierarchy – An established state priority for managing solid waste in order to conserve energy and natural resources. The priority methods are as follows: reduce, reuse, recycle, compost, recover (energy), landfill (ORS 459.015).

Subtitle C – The hazardous waste section of the Resource Conservation and Recovery Act (RCRA).

Subtitle D – Solid, non-hazardous waste section of the federal Resource Conservation and Recovery Act (RCRA).

Sustainable, sustainability, sustainable practices – Using, developing and protecting resources in a manner that enables people to meet current needs and provides that future generations can also meet future needs, from the joint perspective of environmental, economic, and community objectives. [ORS 184.421(4)]

Sustainability principles – Considers use of all economic, environmental and societal resources and is consistent with the Natural Step system conditions so that nature is not subject to systematically increasing:

1. Concentrations of substances from the Earth's crust,
2. Concentrations of substances produced by society,
3. Degradation by physical means; and in that system
4. Human needs are met worldwide.

Waste generator types are defined as follows:

- Commercially-hauled residential waste – generated from single- and multi-family housing units and hauled to disposal facilities in rear, side or front loaders, drop boxes or self-dumping trucks.
- Self-hauled residential waste – generated from single- and multi-family housing units and hauled to disposal facilities in autos, vans, pickup trucks and trailers attached to small vehicles.
- Business waste – generated from retail and wholesale businesses, offices, food and lodging businesses, food stores, education institutions, and service-related businesses.
- Industrial waste – generated from manufacturing businesses, the construction and demolition industry (but not loads containing construction waste materials), agriculture and other industrial businesses.
- Construction and demolition waste – generated from residential, business, and industrial sources containing mostly bricks, concrete, gypsum wallboard, land clearing debris, roofing and tarpaper, wood, insulation, and other building materials.

Waste prevention – Prevention or elimination of waste prior to generation, including where the product is manufactured, purchased or utilized (consumed). The design, manufacture, acquisition, and reuse of materials so as to reduce the quantity and toxicity of waste produced at the place of origin. Also used to describe practices that reduce the amount of materials that need to be managed by either recycling or disposal methods. Home composting of yard debris is generally termed waste prevention, since the material is kept out of both yard debris processing or disposal facilities. Examples also include reducing office paper use through double-sided copying and buying in bulk to reduce packaging waste.

Waste prevention credits – Provision in state law that allows wastesheds to receive up to 6% on the recovery rate for programs in waste prevention, reuse and backyard composting.

Waste reduction – A term used to encompass waste prevention, reuse, and recovery; all practices that either prevent the generation of waste or divert it from landfill disposal.

Waste stream – A term describing the total flow of solid waste from homes, businesses, institutions and manufacturing plants that must be recycled, burned, or disposed of in landfills; or any segment thereof, such as the "residential waste stream" or the "recyclable waste stream."

Yard debris – Vegetative and woody material generated from residential property or from commercial landscaping activities. Includes grass clippings, leaves, hedge trimmings, stumps, and similar vegetative waste. (OAR 340-90-010)

Zero waste - Designing and managing products and processes to reduce the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Zero waste is intended to eliminate all discharges to land, water or air that may be a threat to planetary, human, animal or plant health.