

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



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

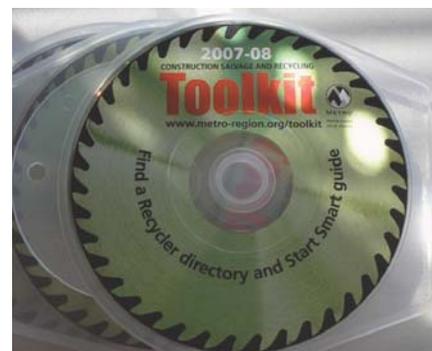


technical assistance linking food businesses with food rescue agencies. An interactive web tool on Metro's website assists donors in finding the closest food rescue organization.

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 desk-side 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.

¹Bottle 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**

<u>Calendar Year 1995</u>	<u>Tons</u>	<u>Share</u>
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.	<u>30,261</u>	<u>3.40%</u>
Total	298,930	33.90%
All Other Haulers	583,144	66.10%
Total Delivered by Haulers	882,074	100%
 <u>Calendar Year 2006</u>		
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	<u>49,944</u>	<u>4.90%</u>
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

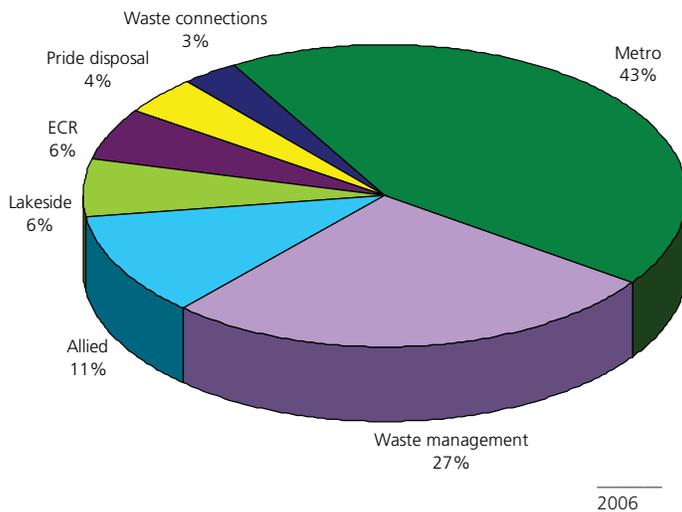
1. Facilities overview

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/private-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

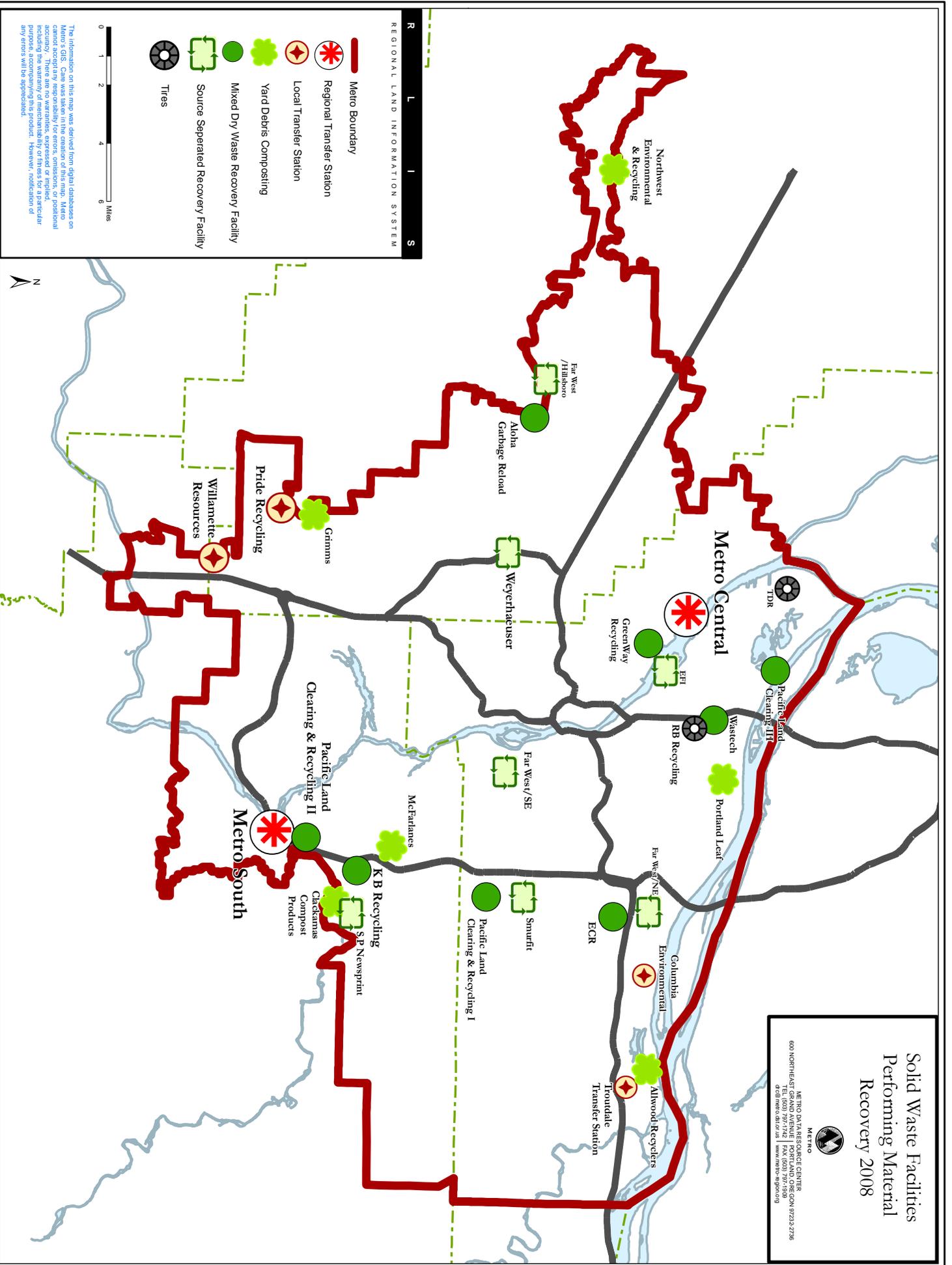
*Approximately 26,500 tons of solid waste are delivered to the Forest Grove transfer station in transfer vehicles and do not utilize transfer station capacity. The capacity shown is a nominal capacity based on the average load size in the region.

**Columbia Environmental is not yet operational.

Solid Waste Facilities Performing Material Recovery 2008



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R L I S
 REGIONAL LAND INFORMATION SYSTEM

- Metro Boundary
- Regional Transfer Station
- Local Transfer Station
- Yard Debris Composting
- Mixed Dry Waste Recovery Facility
- Source Separated Recovery Facility
- Tires



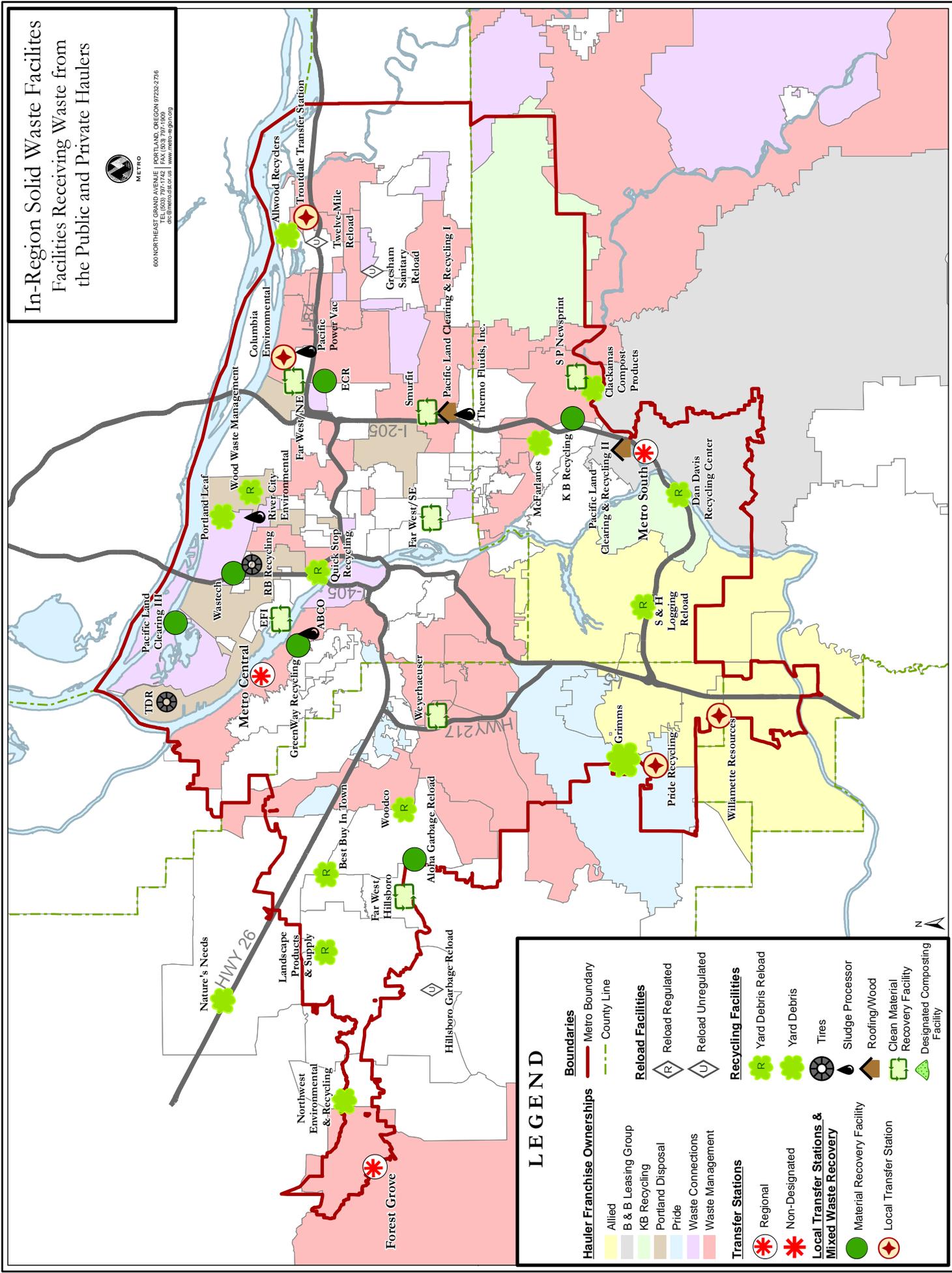
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In-Region Solid Waste Facilities Facilities Receiving Waste from the Public and Private Haulers



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LEGEND

Hauler Franchise Ownerships	Allied	B & B Leasing Group	KB Recycling	Portland Disposal	Pride	Waste Connections	Waste Management
Transfer Stations	Regional	Non-Designated	Local Transfer Stations & Mixed Waste Recovery	Material Recovery Facility	Local Transfer Station		
Boundaries	Metro Boundary	County Line	Reload Facilities	Reload Regulated	Reload Unregulated	Recycling Facilities	Yard Debris Reload
			Yard Debris	Tires	Sludge Processor	Roofing/Wood	Clean Material Recovery Facility
			Designated Composting Facility				

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

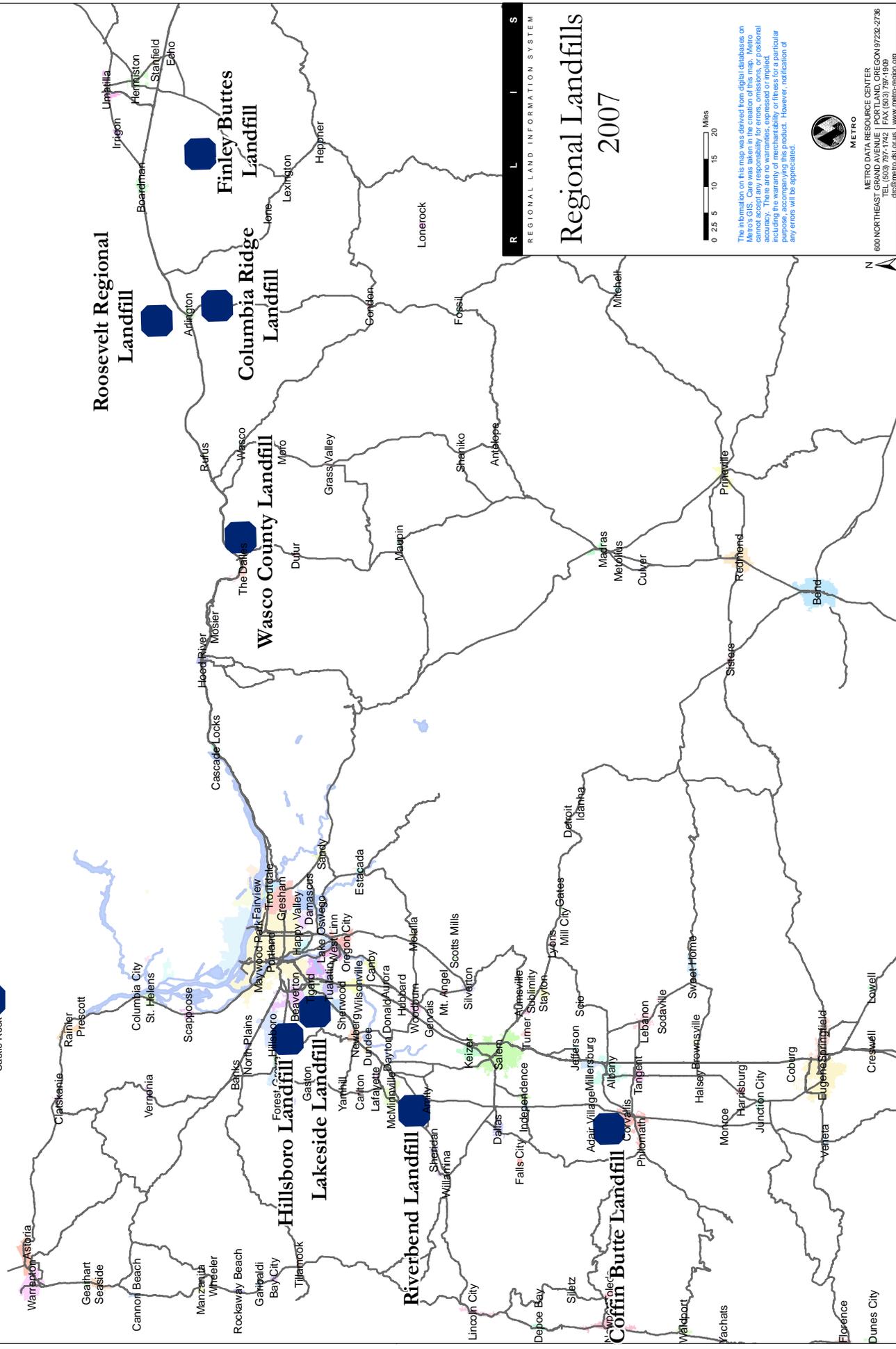
	<u>Ownership</u>	<u>Remaining Capacity (millions of tons)</u>
Designated facilities		
Columbia Ridge	Waste Management	263
Roosevelt Regional	Allied Waste	135
Finley Buttes	Waste Connections	120
Hillsboro	Waste Management	6
Lakeside Reclamation	Grabhorn	1
Coffin Butte	Allied Waste	20
Northern Wasco	Waste 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.



Weyerhaeuser Regional Landfill



R L I S
REGIONAL LAND INFORMATION SYSTEM

Regional Landfills 2007



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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).

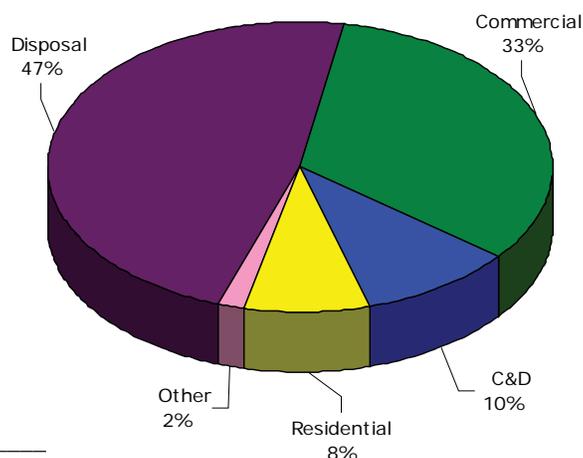
F. Material recovery and disposal trends

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.

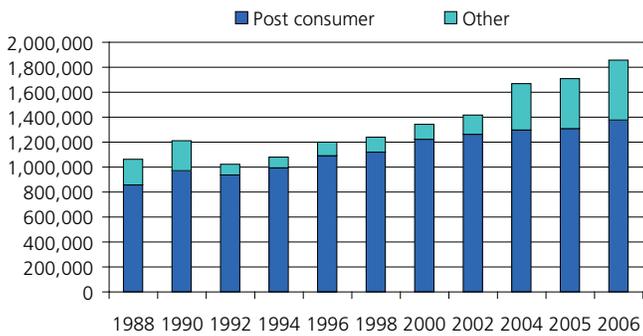
The 1995-2005 RSWMP followed on this accomplishment by setting recovery goals of 52% by 2000 and 56% by 2005. In 1997, the state legislature recognized the importance of encouraging waste prevention and passed a statute that allowed wastesheds to receive “credits” for waste prevention efforts. As a result 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.

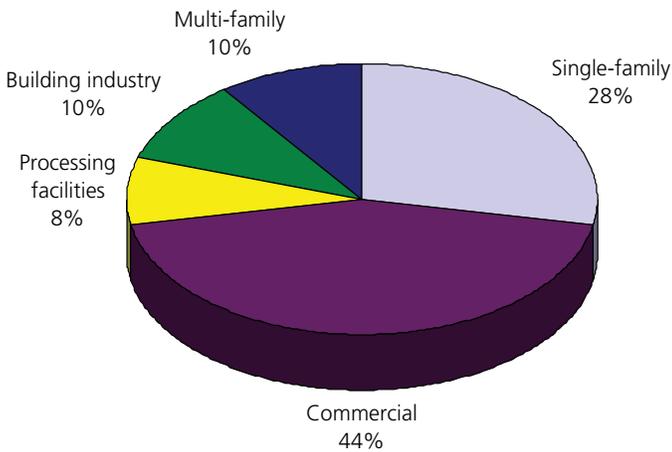
Figure 3
Historical disposal tonnages



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).

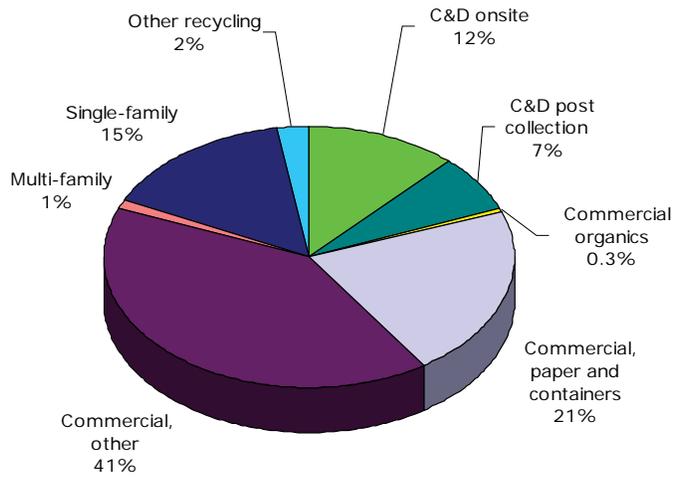
Figure 4
Waste disposed by generator source



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.
¹Multi-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.

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.

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.

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%

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-term 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.