

**Regional
Solid Waste
Management
Plan**

1995 – 2005



METRO

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Housekeeping Changes - 1997

Housekeeping Changes – 1998

Ordinance No 00-851B

For the Purpose of Amending the Regional Solid Waste Management Plan Regarding Goals, Objectives and Recommended Strategies for the Management of Household Hazardous Wastes

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For the Purpose of Amending Metro Code Chapter 5.01 Related to Solid Waste Facilities.

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Solid Waste Advisory Committee

The Metro Solid Waste Advisory Committee (SWAC) meets the third Wednesday of each month, Metro Regional Center, Conference Room 370, 8:30 - 10:30 AM (unless otherwise announced). Call Connie Kinney 797-1643 if you would like to receive copies of SWAC meeting agendas.

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METRO

January 17, 1996

To the Citizens of the Metro Region:

We at Metro are pleased to deliver a 10-year plan to the region that proposes creative ways to manage solid waste resources.

These specific plan recommendations were developed by the Regional Solid Waste Advisory Committee (SWAC) which includes citizen and government representatives, as well as waste haulers, material processors, and other private sector representatives. SWAC made careful adjustments to these recommendations after conducting a year-long public review process. I am very proud of the fine work represented by this document and feel the citizens of Metro have been well-served by the committee's hard work. Significant contributions by the Metro Council, Metro Executive Officer and Oregon Department of Environmental Quality have sharpened the Plan's scope.

The Regional Solid Waste Management Plan emphasizes waste prevention and reduction and resource conservation with a commitment to public education, technical assistance and consistent cooperation with local governments. It addresses head-on the challenges the region faces today and in the near future.

When fully implemented, this new plan will prevent an additional estimated 315,000 tons of waste from being landfilled each year. To put this ambitious goal into perspective, this translates to a reversal of a decades-long trend of increased disposal. We expect that by the year 2005 the region will realize a 10% decrease in waste disposed in spite of a projected population and employment increase that is expected to be 18 and 24 percent respectively.

Specifically, this plan will accomplish the following objectives by the year 2005:

- Increase the regional recycling rate from the current 41% to 53%;
- Exceed the state's recovery goal of 50% by 2% (52% by the year 2000);
- Recycle an additional 104,000 tons of waste annually by targeting low-participation neighborhoods for special campaigns and working with businesses to recycle more paper and containers;

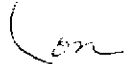
- Build on the success of current building industry recycling efforts and recover an additional 41,000 tons each year through source-separation of materials;
- Launch organic waste recovery systems for business and residences and divert 117,000 tons of food waste each year
- Prevent 23,000 tons of waste from being generated each year through an aggressive, region-wide media campaign for residences and businesses
- Eliminate the need to build a new regional transfer station due to increased waste reduction

Metro's approach to implementing the Plan's objectives is innovative and will rely on continued cooperation among Metro, local governments, and the private sector. The recommended and alternative practices in the Plan include enforceable performance standards while also encouraging creative new approaches.

In the last 10 years the region's recycling rate nearly doubled from 22% to 41%. Metro closed the St. Johns Landfill, built two state-of-the-art transfer stations, and found a long-term solution for the safe disposal of the region's waste. The next decade must be no less revolutionary. This updated Regional Solid Waste Management Plan represents the important first step toward fully realizing the region's potential to reduce waste and improve services to Metro's customers.

Metro is proud to present this consensus document to the citizens of our region. We look forward to building a better future, cleaner environmental and a brighter and more resourceful partnership between your Metro government and the people of our community.

Sincerely,



Jon Kyistad
Councilor, District 3
Chair, Regional Solid Waste Advisory Committee
Chair, Council Regional Environmental Management Committee

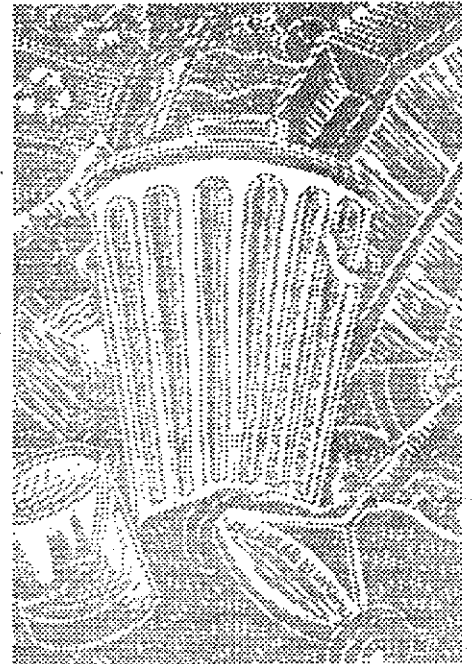
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Regional Solid Waste Management Plan (RSWMP) Planning and Public Involvement Process

Regional Solid Waste Advisory Committee (SWAC) identified key planning issues and goals; developed practices, implementation plan and monitoring system in concept	Fall '94 - Feb '95
RSWMP Status Report, which included a summary of Task 1 above, distributed for review and comment to SWAC, Metro officials, DEQ, local government staff and officials, neighborhood organizations, and other interested parties	Mar - Jun '95
SWAC developed RSWMP recommended practices, implementation plan, and monitoring system in detail	Feb - Jun '95
<p>Staff conducted public information and involvement efforts</p> <ul style="list-style-type: none"> . Roundtable meetings conducted; recommendations solicited from public . Letter sent to interested parties about planning process and schedule . RSWMP Status Report sent to interested parties (see Task 2 above) . Telephone survey of 1,000 households conducted . Meetings conducted with local government councils and advisory groups . Five regional public meetings conducted . Public review and comment - Preliminary Draft RSWMP . Public review and comment - Final Draft RSWMP . Council conducted public hearings on Final Draft RSWMP 	<p style="text-align: right;">1994</p> <p style="text-align: right;">Aug '94</p> <p style="text-align: right;">Mar - Jun '95</p> <p style="text-align: right;">Apr - May '95</p> <p style="text-align: right;">May - Nov '95</p> <p style="text-align: right;">Jun '95</p> <p style="text-align: right;">Jul - Oct '95</p> <p style="text-align: right;">Oct - Nov '95</p> <p style="text-align: right;">Nov '95</p>
Preliminary draft RSWMP distributed (with a summary of public comments received to date), to the Executive Officer, Council Solid Waste Committee, SWAC, DEQ, and other interested parties	Jul 10, 1995
SWAC considered public comments and revised Draft RSWMP; approved draft RSWMP for delivery to the Executive Officer	Jul 19, 1995
SWAC's recommended RSWMP delivered to the Executive Officer (with comments received to date from the public, local governments, and others)	Aug '95
Executive Officer's recommended RSWMP delivered to the Metro Council, SWAC, and other interested parties; final public involvement report made available to all interested parties	Oct '95
Oregon Department of Environmental Quality (DEQ) staff reviewed and preliminarily approved final draft RSWMP	Oct '95
Metro Council conducted hearings and adopted the RSWMP	Nov '95
Oregon Environmental Quality Commission (EQC) review and approval of RSWMP	Jan '96

Section 1

Background Information



The Context of the Plan

The Regional Solid Waste Management Plan (RSWMP) gives the metropolitan region direction for meeting solid waste needs during the next decade (1995-2005). Population in the region is expected to increase by nearly 200,000¹ people by the year 2005. If orderly growth is to occur, our ability to provide solid waste services is critical. With growth in solid waste, the current system, already nearing capacity in some areas, is likely to be overloaded.

The region has two basic options for dealing with future solid waste. One is to provide more disposal capacity, either by building new disposal facilities, or modifying ones that already exist. The second option is to reduce the demand for disposal services by expanding existing waste reduction programs.

The complexity of developing a balanced mix of waste reduction and disposal options makes regional coordination essential. A mixture of jurisdictions and private businesses own, regulate and operate our solid waste system. Twenty-four cities, three counties, Metro, the Oregon Department of Environmental Quality, private waste haulers and private owners of solid waste facilities are involved in the system.

With the RSWMP, our region will have a unified blueprint to ensure that efforts of all parties are coordinated and that individual parts of the system function properly as a whole. The Plan will also give city and county officials a regional guide to help implement their local solid waste programs.

Why a Regional Solid Waste Management Plan?

The daily movement of solid waste in the metro area results in issues that extend beyond individual jurisdictional boundaries and creates a need for coordination and cooperation.

The RSWMP is a document that:

- Serves as a regional framework for the coordination of solid waste practices.
- Provides the region with a prioritized program of solid waste system improvements during the coming decade.
- Establishes regional solid waste goals and objectives, including a waste reduction goal and a benchmark system to monitor progress toward the goals.

¹Source: Metro Data Resource Center, May 1995. Includes growth forecasts for Clackamas, Multnomah and Washington counties.

Chapter 1

Introduction

Our region will have 200,000 more people by the year 2005. The challenge is to reduce the amount of waste or pay more and more for disposal.

The complex mix of public and private involvement in solid waste in our region makes cooperative planning essential.

The RSWMP provides the framework within which regional solid waste practices can be coordinated.

- Satisfies state law requiring the development of a waste reduction plan for the Metro region (ORS 459). Chapters 5 through 9 are the primary part of this Plan that deal with waste reduction.

Adoption of the RSWMP represents:

- Completion of a state requirement for development of solid waste management plans.
- Endorsement of the overall level of investment in solid waste facilities and programs needed to serve the region during the next decade.
- Endorsement of a set of 10-year regional priorities for improving the solid waste system.
- Endorsement of the interrelated roles of investments in disposal capacity and waste reduction and recycling efforts.
- Endorsement of the regional elements of the solid waste system and the extent of Metro's interests in the subregional systems.
- Replacement of the 1988 Regional Solid Waste Management Plan including its amendments: Waste Reduction Chapter, Plan Development and Amendment Chapter, Special Waste Chapter, Yard Debris Plan, Local Government Facility Siting Standards, Illegal Dumping Chapter, Metro West Transfer and Material Recovery System Chapter and Household Hazardous Waste Chapter.

Landfill capacity has diminished as a primary issue. It has been replaced by the issues of transfer station capacity, waste reduction, flow management and financing.

There are several solid waste management areas in which long-term recommendations have not yet been fully developed and integrated into the Plan. These are:

- Household hazardous waste
- Disaster debris management
- Illegal dumping
- Local government land-use facility siting policies

Incorporation of these elements into the 1995-2005 RSWMP is expected to be completed during FY 1995-96. Information in the previous RSWMP regarding illegal dumping and facility siting policies should continue to be referred to for guidance until this work is completed.

Solid Waste Issues Addressed by the Plan

Since the start of this region's cooperative solid waste planning efforts, the issues have grown in complexity. The initial emphasis

was on siting and ownership of landfills and transfer stations. The majority of coordination occurred among Metro, local governments and the state to solve the immediate problem caused by the closure of St. Johns Landfill in North Portland. During the late 1980s, a waste reduction plan was developed that was designed to lead the region to a recycling level of more than 50 percent.

The issues faced by the region now are substantially different. With more than 15 years remaining on the existing contracts for transport and disposal of much of the region's waste at Columbia Ridge Landfill, landfill capacity is not a crisis issue (of course, conserving landfill capacity remains a high priority). The long-term capacity of the existing transfer system to handle the region's growth is more of a key issue in 1995. In particular, can waste reduction practices be implemented that forestall the need for additional transfer capacity?

Although there has been significant progress overall in waste reduction, many difficulties were experienced with large-scale "post-collection" recovery technologies that were to be substantial contributors to the region's long-term recycling goals. The goal now is to build on these experiences to best manage the region's waste during the next 10 years.

Funding and solid waste rates are also more of an issue than they were in the 1980s. Essentially all Metro solid waste activities are paid for through tip fees collected at disposal sites. As certain users take actions to avoid the high cost of disposal, the cost of Metro's waste reduction programs, hazardous waste management, solid waste planning and other non-disposal activities are paid by fewer and fewer ratepayers. Is there a more equitable and stable way to pay for certain solid waste services? Does the revenue system send the right "signals" to consumers and others to help accomplish policy objectives such as waste prevention?

Metro's Role in Solid Waste Planning

Metro is responsible for solid waste planning within the tri-county region of Multnomah, Washington and Clackamas counties. Following is a summary of the legislative authority under which Metro has developed the RSWMP. Metro's authority to develop an RSWMP derives in part from ORS 459.017 (b), which states that "local government units have the primary responsibility for planning for solid waste management." Metro was designated the local government unit responsible for solid waste planning for the local area under State of Oregon Executive Order 78-16.

The RSWMP was adopted by Metro to be a functional plan as specified in ORS 268.390. A functional plan is one that sets out detailed information, policies and standards for a specific function of government, such as transportation, water resources or solid waste. In addition, ORS 459.095 states that local government solid

Metro is the local government unit responsible for solid waste planning within the urban portion of the tri-county region.

waste contracts, resolutions and ordinances must be consistent with the Plan. Metro is also required by ORS 459.055 and ORS 459.340 to develop and implement a waste reduction program.

The Regional Solid Waste Management Plan formally establishes Metro's and local governments' commitments to a waste reduction program for the next ten years. While all local governments, including cities, counties and Metro have solid waste management authority, Metro is specifically responsible for preparing, adopting and enforcing the regional plan.

Every local government within the metro region has an obligation to be actively involved in the implementation of the Plan's waste reduction efforts. The Plan ensures local government adoption of the Plan's waste reduction recommendations through an annual review and approval process of local governments annual waste reduction work plans.

It is expected that local governments will voluntarily participate in this process since availability of Metro Challenge funds are contingent on this approval. However, in the event a local government decides not to participate in the process or to adopt or fail to adopt waste reduction practices consistent with the Plan, Metro will take appropriate action to ensure that the jurisdiction fulfills its waste reduction obligations.

In 1994 Oregon adopted a statewide solid waste management plan. This plan includes the statement that "local jurisdictions should prepare and regularly update solid waste management plans."

The Organization of the Regional Solid Waste Management Plan

The Introduction has provided the planning, statutory and decision-making context of the RSWMP. The remaining chapters are organized as follows:

- Chapter 2 provides background information on the metro region including a recap of key solid waste legislation, a discussion of Metro and local government roles in delivering services and a discussion of current solid waste practices in the region.
- Chapter 3 includes projections about the future growth of the region and how that growth could affect the solid waste system.
- Chapter 4 summarizes the current key issues relating to waste reduction, transfer stations, other solid waste services and

facilities (including household hazardous waste), revenue equity and stability and changing collection and disposal technology.

- Chapter 5 states the goals and objectives to be accomplished by adoption of the new regional plan. Goals and objectives are included for the entire solid waste system: solid waste facilities (such as transfer stations, landfills and recovery facilities), waste reduction, the revenue system and household hazardous waste.
- Chapter 6 outlines an implementation plan for the solid waste practices recommended in Chapter 7.
- Chapter 7 contains recommended solid waste practices for the next 10 years regarding waste reduction, waste transfer and disposal and household hazardous waste that will achieve the RSWMP goals and objectives.
- Chapter 8 describes possible planning solutions to achieve an equitable and stable Metro solid waste financing system that will achieve the RSWMP goals and objectives.
- Chapter 9 describes the future performance of the solid waste system once the recommended practices are implemented. Included are target benchmarks and a description of a system measurement program for monitoring plan performance that includes periodic waste characterization studies and recycling level surveys.
- A glossary of terms and technical appendices are provided at the end of this document.

Introduction

This chapter reviews legislation relevant to solid waste management in the metro region and describes solid waste practices in place in 1995.

Key Solid Waste Legislation

There are several pieces of national, state and local legislation that help give perspective and direction to the Regional Solid Waste Management 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 first of its kind in the nation. Its purpose was to 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 also 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 establishes an overall recovery level goal of 50 percent by the year 2000. The metro tri-county region is required to achieve a recovery level of 40 percent by 1995.

The Oregon Recycling Act also mandated the development of a statewide solid waste plan by 1994, the performance of waste composition studies and required that cities with a population greater than 10,000 population and the metro area implement certain waste reduction practices. Certain materials, such as whole tires and lead-acid batteries, are banned from landfills. A tax credit, scheduled to sunset in 1995, was established for the purchase of recycling equipment. The act also specifies purchasing preferences by government agencies for materials with high percentages of recycled content and high degrees of reusability/recyclability.

Chapter 2

Current Solid Waste Practices

The Oregon Bottle Bill passed in 1971 was the first major piece of recycling legislation in Oregon and the only program of its kind in the nation.

Mandatory provision of residential curbside recycling was created with the passage of the 1983 Opportunity to Recycle Act.

The 1991 Oregon Recycling Act established recovery level goals for every waste shed in the state. The metro region's goal is 40 percent by the year 1995.

Among other things, the act established minimum recycled content requirements for newsprint, telephone directories, glass containers and rigid plastic containers sold in Oregon. Curbside collection of plastics will not be required under the act until a stable market price for the containers exists that covers at least 75 percent of collection costs. The act also established requirements for recycling rigid plastic containers 8 ounces to 5 gallons in volume. These must be recycled at a 25 percent rate, be reusable or have 25 percent recycled content by the year 1996.

Subtitle D requirements were created to ensure that solid waste disposal facilities and practices do not have adverse effects on health or the environment.

Subtitle D and Landfill Closure Requirements. The United States Environmental Protection Agency (EPA) recognized that improper disposal practices for municipal solid waste can pose a significant environmental threat to surface and groundwater. In response to these findings, the EPA was directed by Congress to develop rules to establish minimum national standards to ensure that "no reasonable probability of adverse effects on health or the environment" will result from solid waste disposal facilities or practices. On October 9, 1991, the EPA adopted standards for landfills (Resource Recovery and Conservation Act (RCRA), Subtitle D, 40 CFR Part 258).

The standards covered location restrictions, design criteria, financial assurance criteria and closure requirements for disposal facilities. The standards did not affect the closure of St. Johns Landfill because they took effect after the landfill had already stopped accepting municipal solid waste. In the closing of St. Johns Landfill, however, the spirit of the law has been followed. For example, financial assurance criteria for the closure have been met and groundwater monitoring will occur at the site for up to 30 years.

Judicial solid waste flow control decisions have not significantly diminished Metro's authority to operate its existing solid waste system.

Flow Control. The state of Oregon and the electors of the region have given Metro authority to manage solid waste in the region. Metro has exercised that authority by constructing transfer stations, implementing waste reduction and recycling programs and adopting and implementing the Regional Solid Waste Management Plan.

Metro's solid waste flow control authority is contained in Chapter 5.05 of the Metro Code. There were a number of court cases in 1994 involving flow control and subsequent decisions have limited the extent to which local jurisdictions can limit or direct the flow of solid waste. Metro's administrative flow control procedures nevertheless remain intact, as does Metro's ability to assess user fees and excise taxes on each ton of solid waste from the region. An outside entity wishing to participate in the Metro system must still obtain designated facility status and an inside entity must obtain a franchise using similar procedures. Haulers must still apply for a "nonsystem license" to deliver waste to a facility that is not designated or franchised.

Backyard Burning Ban. In 1983, the Oregon Environmental Quality Commission (EQC) found that "a ban on backyard burning in the Portland metropolitan area was necessary to meet air quality standards and that alternatives to burning were reasonably available to a substantial majority of the people in the affected area." In November

1984, the EQC adopted rules that banned open burning of yard debris in certain areas, encouraged the development of alternative disposal methods and emphasized resource recovery.

This decision was instrumental in the development of alternative methods of managing yard debris. The region has been recognized nationwide for its yard debris processing system and curbside collection programs.

Government Roles in the Solid Waste System

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 from regulation and has exempted some businesses that generate small quantities of hazardous waste.

State Level. The Oregon Department of Environmental Quality (DEQ) has several roles in the solid waste system. One is to enforce the solid waste statutes, including the mandated recycling goals and to measure recovery rates. The DEQ also provides technical assistance to Metro, counties and cities and offers grants. The DEQ prepares and adopts a state solid waste management plan and approves the RSWMP.

Regional Level. Metro is responsible for solid waste functions and other "matters of metropolitan concern" according to its charter. Metro owns two transfer stations, franchises a third and administers contracts with landfills and other disposal facilities.

Metro is also responsible for solid waste planning. As a part of these responsibilities, Metro must develop a comprehensive waste reduction program for the region. This program reflects a commitment to waste reduction policies.

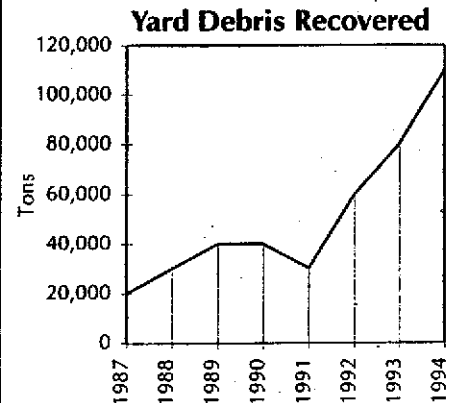
Local Level. Cities and counties have responsibility for designing and administering solid waste and recycling collection programs for their jurisdictions. These activities must be in compliance with all state and Metro legislation and solid waste plans. These include the Opportunity to Recycle Act, the Oregon Recycling Act and the Regional Solid Waste Management Plan. In all jurisdictions, garbage and recycling collection services are provided by private haulers who are permitted or franchised by their respective jurisdictions.

Current Solid Waste Practices

When examining the current flow of solid waste throughout the region, several key conclusions are evident:

- Most of the waste in the region is still being disposed, nearly a million tons of the total 1.6 million tons generated.
- Most of the waste that is not source separated and ends up in the mixed waste stream is landfilled. Post-collection recovery from mixed waste currently does not account for much diversion.

The backyard burning ban encouraged the development of alternative yard debris management methods.



Metro is responsible for regional solid waste system planning and for disposal of solid waste.

Cities and counties design and administer their own solid waste and recycling collection programs.

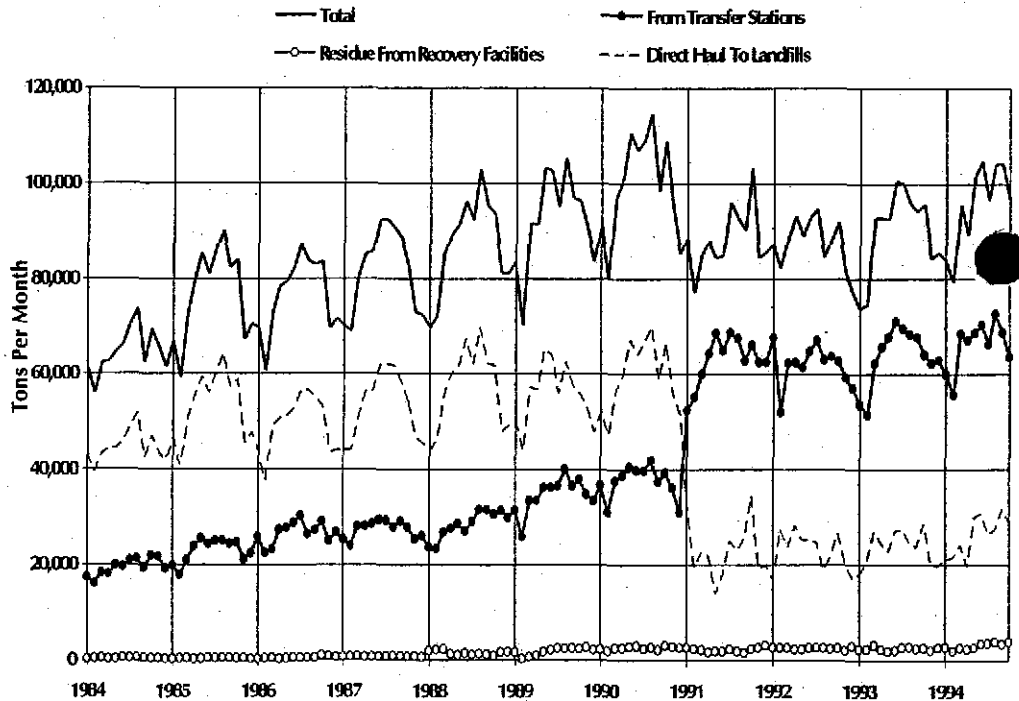
- Commercial waste haulers handle most of the mixed waste in the region, eight times more material than self-haulers. The opposite is true of source-separated recyclables and yard debris. These materials are mostly either self-hauled or collected and hauled by private recyclers that do not hold franchises for the collection of refuse and recyclables.

Commercial haulers and private market recyclers both play an important role in collecting recyclables.

Waste Disposal

Since 1984, the total amount of waste landfilled each year has grown from about three-quarters of a million tons to a little more than one million tons (Figure 2.1 below). Waste reduction programs, like residential curbside recycling, have been very effective in reducing certain types of waste. However, population growth, a strong economy and other factors have resulted in a continuing growth in the amount of waste landfilled.

Figure 2.1 - Amount of Regional Waste Landfilled (tons)



Note: The St. Johns Landfill closed in 1991 and the transfer station system became fully operational.

What do we landfill? Despite recent advances in recycling, there is still a significant amount of recyclable paper left in the wastestream. The same is true of yard debris. About 48,500 tons of yard debris were landfilled in 1994.

Other major components of the wastestream are food and non-recyclable paper. Together they made up about one-quarter of all waste landfilled. While this organic waste can potentially be recovered as soil amendments, there is currently no large-scale program in place to collect, compost and market this material.

Recyclable paper and food waste comprise 39 percent of the region's waste.

In order to achieve high levels of waste reduction, recovery of this organic waste may be necessary.

See Table 2.2 in Appendix A for a summary of components landfilled.

Collection Services

Refuse. Refuse collection service in the metro region is provided solely by private waste companies. There are no publicly owned waste hauling companies. However, jurisdictions handle collection differently, as summarized below:

Washington County: With one exception, garbage service for both residential and commercial customers is franchised. The exception is the city of Banks, where garbage service is not franchised. There are currently 26 haulers that serve Washington County. The 10 cities are responsible for their own hauler franchising, while the county administers the franchises in the unincorporated areas.

Clackamas County: Garbage service for both residential and commercial customers is franchised. There are currently 25 haulers that serve Clackamas County. The 12 cities are responsible for their own hauler franchising, while the county administers the franchises in the unincorporated area.

Multnomah County: Residential garbage service in Multnomah County is franchised. There are currently 63 haulers that serve Multnomah County. Each of the six cities administer its own franchises. Commercial garbage service is franchised in the east county cities of Gresham, Wood Village, Troutdale and Fairview, but not within Portland and its urban services boundary.

Recyclables. The success of the region's recycling programs is partly due to two key elements of the system. First, the region has emphasized source-separated recycling. Currently, most recyclables are collected by haulers and separated into material types at the source. This allows the materials to hold a higher market value and reduces the need for sorting facilities. There are no publicly funded processing centers for the area's recovered materials. Second, the region is fortunate to have extensive local markets for most collected materials. Local markets make recycling more cost effective because transportation costs are kept low and the markets are more stable as they depend mainly on the local flow of materials.

All Metro jurisdictions have weekly curbside collection of recyclables on the same day as garbage service. A summary of current residential curbside programs is shown in Table 2.3. Yard debris recycling programs are summarized in Table 2.4. Both charts are located in Appendix A of this document.

Refuse collection in the metro region is provided by private waste companies, which are franchised or licensed by cities and counties.

The region's recycling success has been at least partly due to the investment in a source-separated collection method and the existence of local markets for collected materials.

A predominance of privately owned solid waste facilities in the region has helped to create diversity and flexibility in the system.

Even if there are no further improvements in waste reduction, the metro region has sufficient landfill capacity beyond 10 years.

Facilities and Services

Planning issues related to the region's facilities and services are outlined below. For a complete list of facilities in the region, see Table 2.5 in Appendix A. The Glossary provides descriptions of facility types.

Landfills. During the past 10 years, there has been a large increase in the capacity of landfills serving the Pacific Northwest. The trend has been toward large regional landfills that receive waste by rail, barge or long-haul trucks. Table 2.6 below summarizes the projected capacity of major landfills in the Pacific Northwest:

Table 2.6 - Regional Landfill Capacity

Landfill	Current Capacity		Potential Capacity	
	Space (tons)	Projected Fill Date	Space (tons)	Projected Fill Date
Columbia Ridge	10,300,000*	1999	60,000,000*	2040
Finley Buttes	9,000,000	2037	40,000,000	2192
Hillsboro	1,080,000	1997	5,700,000	2020
Lakeside Reclamation	664,200**	2001	NA	NA
Riverbend	4,200,000	2020	4,200,000	2020
Roosevelt	40,000,000	NA	NA	2040

*Tonnage space used or researched for Metro area waste.

**Estimated

Source: DEQ Integrated Resource and Solid Waste Management Plan, January 1994

Current capacity - currently permitted by the DEQ

Potential capacity - estimated addition space capacity

Fill date - assumes the current rate of fill

NA - Not available

Facilities. 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.

Most solid waste facilities are privately owned. Only Metro South and Metro Central transfer stations are 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 purpose of this system is to handle all of the waste the region produces in the most efficient, economical and environmentally sound way possible. In the last few years, several new types of private facilities have opened in response to solid waste needs in the region. The major types of facilities in the 1995 system inventory are as shown in Table 2.5. Map 2.1 shows the location of the facilities in the region. Table 2.5 and Map 2.1 are in Appendix A.

Transfer Station Services. Three regional transfer stations currently provide waste transfer services to the entire region. These facilities accept waste from collectors and transfer the waste to tractor trailers for delivery to landfills.

The capacity of Metro transfer stations is a function of their ability to physically load out wastes and to provide service to customers without long waiting lines. Simple calculations show that a transfer station with a single compactor could process up to 250,000 tons per year. Two compactors would double this capacity to more than 500,000 tons per year.

Metro Central has three compactors and Metro South has two. On a load-out basis alone, the regional transfer station capacity would therefore be more than 1.25 million tons per year. However, the actual capacity of the system is lower due to a variety of constraints including facility designs, site layouts, the mix of public and private vehicles arriving at the facility and regulatory and permit requirements. This physical load-out capacity is also not distributed uniformly with respect to where waste is generated in the region.

Even though it has three compactors, Metro Central was designed to accommodate 548,000 tons per year. Subject to traffic control issues, the facility could probably accommodate substantially more tonnage. However, it is located such that tonnages beyond the design standard would not be expected to arrive at the facility. The Forest Grove facility currently processes slightly more than 70,000 tons per year. Given its design and low rate of use by self-haulers, the facility could probably process 100,000-120,000 tons per year.

It is estimated that Metro South Station is able to handle at least 400,000 tons per year without major operational and off-site traffic problems. Tonnage delivery in 1994 was 387,417 tons. The facility is projected to handle 384,000 tons in 1995. Although site layout is a constraint, a major problem at Metro South is that wastes entering the facility in small vehicles account for almost 60 percent of the transactions at the facility but only 10 percent of the tonnage. If the number of these types of transactions were reduced, the facility might be able to operate efficiently at higher tonnages.

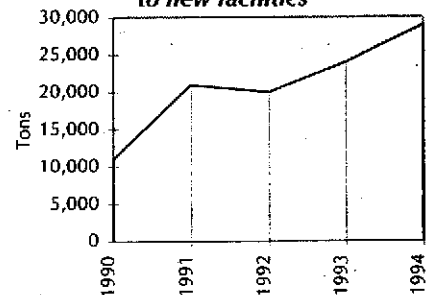
Mixed Dry-Waste Processing Facilities. The region's mixed dry-waste (paper, wood, metal, glass) processing facilities are privately owned and operated. As tip fees have increased the services these facilities provide have become more economically viable.

Household Hazardous Waste Facilities. There are currently two permanent household hazardous waste facilities in the metro region, located at the Metro South and Metro Central transfer stations. These facilities are equipped to handle relatively small quantities of household hazardous waste.

Providing adequate and uniform service levels throughout the region is important. In 1995, approximately 60 percent of the region's

On a simple load out basis, regional transfer station capacity is more than 1.25 million tons per year. A number of constraints, however, make actual capacity lower.

Recovery of mixed dry waste has increased due to new facilities



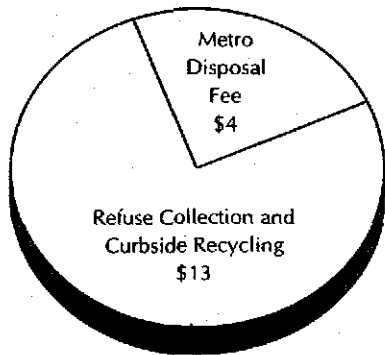
households were located within 20 minutes of either of the two facilities. Providing service to the areas not easily served by the permanent sites is now being handled by "satellite" collection events.

Solid Waste Management Costs

Throughout the metro region, rates for the collection of residential waste are established through city or county franchises. Except for the city of Portland, rates for the collection of non-residential waste are also established through collection franchises. In 1994, the average rate charged to single-family residential customers for 32-gallon weekly collection was \$17 per month.

Garbage bills paid by households and businesses include the cost of waste and recyclables collection and disposal. Disposal fees at public transfer stations are established by Metro. Disposal fees at other facilities are established by the private owner (in some cases these fees are also regulated by counties or cities).

About 25 percent of the average monthly garbage bill for single-family households goes to Metro to pay for transfer, disposal and other Metro solid waste activities.

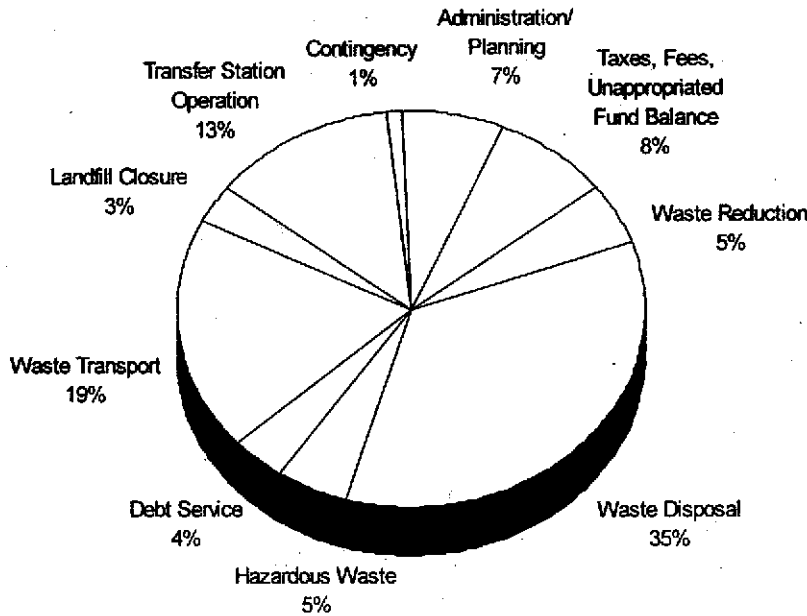


Metro solid waste activities are funded almost entirely by revenues collected through tip fees at transfer stations, franchised landfills and recovery facilities and landfills outside the metro region that are designated to receive waste from the metro region. The Metro fee at transfer stations increased during 1989 through 1992 primarily due to increasing waste transfer and disposal costs and closure costs of the St. Johns Landfill.

The higher tip fee has undoubtedly been one of the primary factors that has stimulated increased waste reduction activities. This is particularly true of large manufacturing businesses that generate significant quantities of heavy waste. During the past few years, many manufacturing businesses have implemented a wide range of practices to avoid payment of the tip fee, ranging from installation of dewatering equipment to arrangements with landfills to use industrial waste as daily cover.

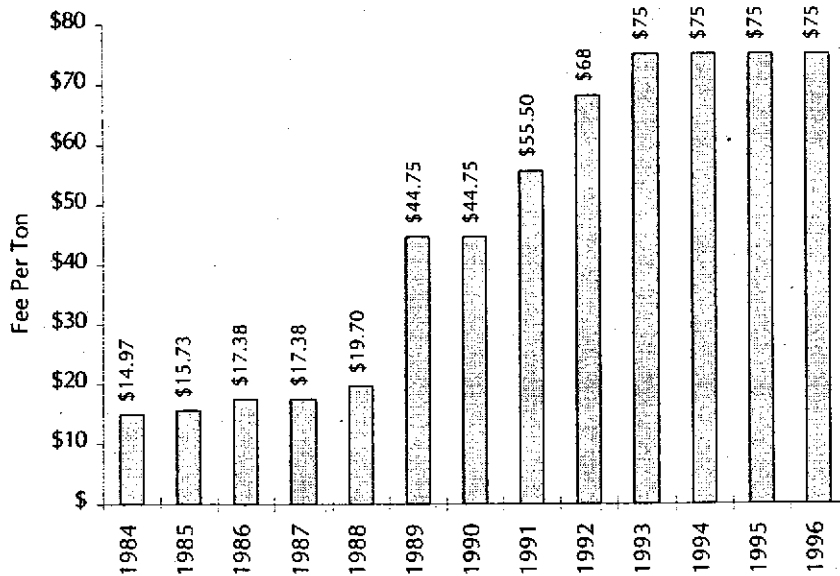
Approximately \$56 million will be collected through Metro solid waste fees during FY 94-95 to pay for the various Metro solid waste activities. The allocation of these activities to the Metro tip fee assessed at Metro transfer stations is shown in Figure 2.7.

Figure 2.7 - Allocation of Metro Tip Fee, \$75 Per Ton



Questions regarding the current practice for collecting solid waste fees in the region lead to several issues that will be addressed in this plan. Does the region's solid waste fee system send the right signals to waste generators in terms of encouraging waste reduction behavior? Are there inequities among various groups of ratepayers that can be corrected by alternative funding mechanisms? As the solid waste system continues to change during the next 10 years, will there be a stable revenue source?

Figure 2.8 - Metro Tip Fee 1984-1996



These tip fee rates include pass-through fees such as the DEQ fee and community enhancement fees.

One of the primary factors stimulating waste reduction activities has been higher tip fees.

Dealing With an Uncertain Future

Recent history has taught us that in the solid waste business one should "expect the unexpected." Planning for a 10-year period entails anticipating economic conditions and subsequent market responses that have innumerable factors influencing them. Solid waste planning in the Portland metropolitan region is especially challenging due to the public-private partnership that exists within the industry here.

There are two primary sources of uncertainty that affect the future of the solid waste system. The first source is internal to the solid waste system. There is uncertainty regarding the success of planned management practices and anticipated performance levels of those practices. The second source of uncertainty is external to the solid waste system and encompasses all factors influencing the region such as the future states of our population, economy and technology. How many people will migrate to the region? What will be the employment level? How will emerging technologies alter the quantity and quality of waste generated for a given business activity?

Pinpointing future conditions is not an undertaking of this plan. Instead, it recognizes that these sources of uncertainty allow for a large number of future outcomes for the solid waste system. Some may be more likely than others, but all are possible. The 10-year forecast scenarios described below represent a range of uncertainty in the solid waste future.

Future Scenarios

Because economic growth and the success of new waste prevention practices are major determinants of the amount of solid waste disposed in the region, they serve as the basis for forecast scenarios. A high-waste growth scenario would evolve from high regional growth and low-performing recycling programs. A low-waste scenario comes about when low regional growth is combined with well-performing recycling programs. Table 3.1 shows that, under such assumptions, regional waste could range from 1.1 million tons disposed per year to 1.4 million tons per year by 2005.

The 10-year forecast of solid waste disposal portrays a broad range of growth banded by a low scenario where the amount of waste declines at an annual rate of -0.5 percent and by a high scenario where waste disposed increases by 2.0 percent per year.

The solid waste system must be planned to meet any growth within this overall range. More emphasis, however, will be placed on the medium-growth scenario.

Following are illustrations of the kinds of events that could happen. It is unlikely that the future will evolve precisely as described in any one of these forecast scenarios, but each is plausible.

Chapter 3

Growth and the Regional Solid Waste System.

There are two primary sources of uncertainty when dealing with the future of the solid waste system: our ability to estimate the effect of planned practices successfully and our ability to know the future state of our population, economy and technology.

Economic growth and the success of new waste prevention practices serve as the basis for forecast scenarios.

Table 3.1 - Disposed Tonnage Under Three Scenarios

Delivered To	Year 1995	Year 2005		
		Low Scenario	Base Case	High Scenario
Transfer stations	792,500	855,400	938,700	1,099,900
All other facilities	251,200	272,100	297,600	348,100
Total waste	1,045,695	1,127,500	1,236,300	1,448,000

High Scenario: High Growth and Low-Waste Reduction Performance

The next decade could be characterized by strong world, national and regional economies. The region has recovered from the mild recession of the early 1990s and currently is outpacing the nation's economy. Under this scenario, the economy continues to boom. The suburban areas of Portland continue to emerge as national centers for research and production in the fields of biotechnology, computers and advanced materials. The region continues to attract significant numbers of immigrants. Demand for housing and new business space continues to fuel construction activity in the region.

The high-growth scenario is modeled by doubling the "expected" growth in Metro's 2040 regional planning process.

If this strong economy is coupled with unsuccessful waste reduction programs, the highest amount of solid waste will be disposed. Even with mandated waste reduction goals, there is no certainty that further waste reduction will occur. Market prices for recyclable material could decline. Increasing competition for waste could drive down the costs of disposal, decreasing the "avoided cost" incentive that drives many of the current waste reduction practices.

Unsuccessful implementation of new waste reduction practices is modeled by holding per-capita and per-employee disposal amounts constant at current levels. The region would not meet mandated waste reduction goals under this scenario.

Base Case Scenario: Expected Growth and Status Quo Waste Reduction

This scenario serves as a base case for the analysis in this report, as it draws out the consequences of continuing to do business as usual. This scenario is modeled by projecting future growth as the growth expected in Metro's 2040 regional planning process.

In the base case scenario, existing waste prevention programs are expanded but no new practices are implemented. Education and promotion campaigns are successful in getting more of the region's residents to participate in existing recycling programs. Dry-waste

If the economy booms and waste reduction practices are unsuccessful, the region will landfill more than 1.4 million tons in the year 2005.

processing facilities are expanded to serve the entire region. However, no new waste reduction technologies are implemented. No major investments are made in waste processing and recovery capacity for organic waste.

While there would be less growth in waste disposed under this scenario, mandated waste reduction goals would still not be met.

Low Scenario: Low Growth and High-Waste Reduction Performance

While not likely, it is possible that a deep recession could occur in the Pacific Northwest. Employment in the lumber and wood products industry could significantly decline. Growth in employment in other industries might not expand as expected. Regional unemployment would likely increase as economic activity declines. With higher unemployment could come less immigration and demand for new construction activity.

Low growth is modeled as half the amount in the "expected" Region 2040 base case.

The lowest amount of waste to be disposed would occur if this slow economy is coupled with successful waste prevention programs. This is modeled by targeting the equivalent of a 50 percent statewide recovery rate by the year 2000, as mandated by state law and then continuing this declining rate of waste disposal to the year 2005.

Geographic Distribution of Growth

While the total amount of waste in the region during the next 10 years cannot be predicted with certainty, where waste will be generated in the region is better known.

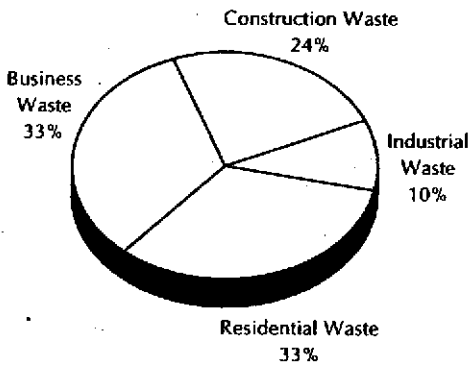
Population growth forecasts show the continuation of the recent trend toward rapid residential development in the suburban areas of Washington, Clackamas and East Multnomah counties. Already established areas, such as much of the city of Portland, are already nearly fully developed and have only moderate amounts of infill and redevelopment potential available. The question this poses for a regional solid waste management plan is how to best serve those areas that will potentially have this dramatic increase in growth. Existing facilities and programs are not necessarily already geared toward their needs.

There will also be rapid employment growth in the suburban areas. Major commercial centers are developing outside of the downtown Portland area. As with the changes in residential population, this shift in employment growth will affect the regional solid waste system during the next 10 years. Programs, facilities and collection systems, for example, will have to take these changes into account.

The region would not meet mandated waste reduction goals if there were a moderate economy and expansion of existing waste prevention practices, but no new practices are implemented.

The recent trend toward rapid development in the suburban areas of the region will likely continue. How will the solid waste needs of these areas best be served?

Waste Disposed by Type of Generator



As population and employment increase, the volume of waste generated by the construction and demolition industry will significantly increase.

Changes In Waste Characteristics

During the next 10 years, changes will occur not only in the distribution of waste, but in the type of waste, as well. With the expansion of the regional economy, a diversification of businesses has also occurred. Historically, the Portland area has constituted the center of urban services for one of the nation's major timber producing regions. In recent years, however, the regional economy has complemented continued growth in the durable manufacturing sector with significant increases in employment in the finance, insurance, real estate, trade and service sectors. In addition, the composition of employment in the manufacturing sector has shifted toward electronics manufacturing industries.

Commercial and industrial businesses, excluding construction and demolition, produce about 43 percent of the region's waste. Not only is the volume of that waste important, but its composition is crucial as well. Effective programs and strategies for managing the type of waste that the new mix of businesses will produce depend upon the expected composition. Finance, insurance and real estate businesses produce quite different types of solid waste than do industries that manufacture computer components or wood products.

With regional growth, one can expect an increase in construction and demolition waste. The latest estimates show that construction and demolition waste currently accounts for about one-fourth of the region's wastestream, as disposed. Both the volume and composition of an increase in construction and demolition waste will need to be considered in the solid waste management plan.

Impact of Growth On the Solid Waste System

Any one of these forecast scenarios (or some other one) could happen in the metro region. Each scenario will have a different impact on the region's solid waste system. Key questions are whether transfer and disposal capacity will be adequate, whether there will be increasing urban pressure on siting solid waste facilities in the metro region and whether there will be sufficient market capacity for recovered waste materials.

Introduction

The purpose of this chapter is to describe the key solid waste planning issues that are addressed in the Regional Solid Waste Management Plan.

Regional Waste Reduction

How to manage municipal solid waste is part of a broader issue: management of natural resources consumed to produce products discarded as waste. Good resource management includes policies that encourage reduction, reuse and recycling in order to conserve our natural resources: air, water, land, energy and raw materials.

Key Issues

What level of waste reduction can be achieved? The Waste Reduction Chapter of the former Regional Solid Waste Management Plan, adopted in 1989, established a waste reduction goal of 50 percent by the year 2000 and 56 percent by the year 2010. Some of the waste reduction activities that were planned to achieve this goal have not been as successful as expected, particularly those regarding processing of organic waste. The new regional plan must draw upon lessons learned in the past in order to set new realistic goals.

How much should the region spend on new waste reduction practices? And how should the costs be allocated? Whether high levels of waste reduction are attainable depends in part on how much the region is willing to invest in new waste reduction practices. Some new practices will require financial commitments by private businesses, governments and citizens. Often, new practices may require significant changes in our behavior as consumers or businesses. While the long-term costs of recycling may be lower than landfilling, particularly when the value of resource conservation is considered, the direct costs for some waste reduction alternatives could be higher than landfilling.

How should responsibility for waste be allocated between consumer and manufacturer? In the metro region, waste disposal is primarily the responsibility of consumers who pay private waste companies for collection and disposal. Some countries, such as Canada, Germany and France have shifted the financial responsibility for waste from consumers to manufacturers. The goal is to provide an incentive for industry to produce less wasteful packages and products.

While the national or state level may be most appropriate for implementing such a shift in responsibility, there are options that could be implemented at the regional level that would shift more of the responsibility for waste to the manufacturers of consumer products.

Chapter 4

Key Solid Waste Planning Issues

Wise regional resource management will require waste reduction, reuse and recycling to achieve conservation.

Regional strategies for waste reduction could include public education, market development, new collection programs and facilities and legislative requirements.

What options are available to reduce waste and which ones are to be recommended as regional priorities? Waste reduction options can be based on a number of fundamental strategies including: (1) creating more demand and incentives for recycling through education and market development, (2) creating more opportunities for recycling through new collection programs and recovery facilities or (3) using legislative measures to make recycling a required practice.

Service Provision – Transfer Stations

Metro Central and Metro South transfer stations currently receive most of the region's waste from haulers and transfer it to the Columbia Ridge Landfill. A third transfer station in Forest Grove receives approximately 10 percent of the region's waste from haulers that is transferred to another general purpose disposal facility. While these facilities are logistically sited for most haulers in the region, certain outlying areas of the region are less well served. Metro's past policy has been to support uniform levels of transfer station service throughout the region.

Toward that end, the facilities plan adopted in 1991 recommended that two transfer stations be located in the western part of the Metro region (one of these would have expanded or replaced the existing Forest Grove facility). After further review of costs and tonnage, Metro subsequently decided not to proceed with either facility.

Key Issues

Can the three existing facilities meet the future demand for transfer services in the region? If waste diversion activities do not expand, there could be 200,000 to 300,000 more tons of waste delivered annually to transfer stations by the year 2005, under expected regional growth scenarios.

Under what conditions would the region be willing to make the financial investment in additional transfer stations or other means to provide more uniform levels of service? Decisions not to proceed with new transfer stations were based in part on a recognition that rising tip fees and waste reduction efforts had produced fundamental changes in the solid waste system. There may be more cost-effective methods of providing uniform levels of services than constructing a new transfer station.

If no new transfer stations are constructed, what methods are available for maintaining reasonable service levels at existing facilities? Increasing tonnage at transfer stations does not necessarily mean a decline in service to haulers using the facility or increased impacts on the surrounding area. A variety of methods are available to deal with potential problems including redirecting haulers to under-used facilities, restricting use of a facility during peak hours or otherwise modifying the facility and its operations.

There may be more cost-effective ways to provide uniform levels of services than constructing a new transfer station.

Careful planning will be required to conveniently accommodate more customers at the region's transfer stations.

Service Provision – Other Facilities

The RSWMP identifies roles of the private and public sectors to provide solid waste recycling and disposal services during the next 10 years. While most recycling and recovery facilities in the region are operated by the private sector, effective operation depends upon coordination among all players – private and public.

Private initiatives in both source-separated recycling and mixed waste recovery facilities for dry waste have been responsible for a major portion of new recycling in recent years.

Key Issues

How should recovery facilities for mixed waste be managed within the solid waste system? Recovery facilities could become an important part of the region's effort to reach its recycling goals. Metro franchise requirements need to be reviewed to ensure a level playing field among processors.

For example, current Metro policy is to avoid vertical integration of collection and processing. This policy was intended to prevent unfair advantages to those haulers who also own landfills. However, in order to expand the availability of mixed dry waste recovery services, it has been suggested that current policy be changed to eliminate such restrictions.

Will private initiative provide an adequate level of recovery capacity for mixed dry waste? Current practice is to rely on the private sector to provide most of the mixed waste recovery in the region. In order to meet regional recycling goals or provide more uniform access to this type of service, the public sector – particularly Metro – may need to arrange for greater provision of the service.

If recovery of food and other non-recyclable organic waste is a regional priority, what services will be provided by the public and private sectors? A successful regional plan to develop an organics recovery system will require partnerships among generators, haulers, local governments, Metro and the solid waste industry. A variety of issues may require coordination including: development of collection routes, potential use of transfer stations as reload or transfer sites and procurement of reliable and environmentally sound processing capacity.

Given recent siting difficulties among yard debris facilities, should yard debris be more strongly regulated? Yard debris composting has become a critical part of regional recycling efforts. Licensing or franchising of yard debris composting facilities has been suggested as a method of stabilizing service, mitigating environmental impacts and thereby removing barriers to siting.

Recovery of mixed dry waste materials (paper, wood, metal and glass) from the waste stream will emerge as an important strategy if the region is to achieve 50 percent recovery by the year 2000.

The recovery of food waste and other organic material from business or residential waste would require a high degree of regional coordination.

Metro's solid waste revenue system should be adequate, stable, equitable and help achieve the region's waste management goals.

Revenue Equity and Stability

Metro's solid waste activities are funded almost entirely from tip fees collected at transfer stations, landfills, designated facilities and franchised waste recovery facilities. In addition to waste transfer and disposal, activities funded by these revenues include landfill closure, household hazardous waste management, waste reduction programs and solid waste planning.

Unlike waste transfer and disposal costs, the costs of these latter activities do not vary with the amount of waste delivered to transfer stations and landfills. Furthermore, these activities have regional significance, suggesting that a broader revenue base is more appropriate.

There are an increasing number of management options for select waste types that are exempt from Metro fees. If this trend continues, the burden of paying for Metro's regional solid waste activities will increasingly fall on the narrower segment of ratepayers that continue to deliver waste to transfer stations and landfills.

Key Issues

What funding mechanisms are available as alternatives to the tip fee for costs not associated with transfer and disposal?

- Fees or deposits on products that require disposal through Metro's household hazardous waste facilities and on other materials that have extraordinary disposal or management costs.
- Billing fees for fixed costs of the solid waste system directly to generators (households and businesses) through the property tax bill, utility bills, jurisdictions or haulers.
- A fee system (either as a surcharge or a license/franchise fee) for facilities that benefit from Metro's activities, but do not currently contribute to the cost of the system.
- Change policies at franchised processing and disposal facilities. Changes could include elimination of all waivers for materials delivered to a landfill and processing fees based on the end use of the recovered materials.

Role of Solid Waste Facilities as Collection Technology Changes

As collection technologies evolve, transfer stations and other facilities could be used in new ways to increase efficiency and effectiveness and thereby reduce costs for the ratepayers of the region.

One emerging change in collection technology is the use of co-collection trucks that have separate compartments for different waste

streams. While such systems have typically been used for the co-collection of refuse and recyclables, there might be opportunities for other combinations of materials, such as refuse and yard debris.

Key Issues

How likely are co-collection or other new technologies to emerge in the region? Collection services in the region are provided by dozens of private haulers that vary in size from one-truck family businesses to very large corporations. Over time, these firms will undoubtedly adopt new practices - including co-collection - when they are more profitable.

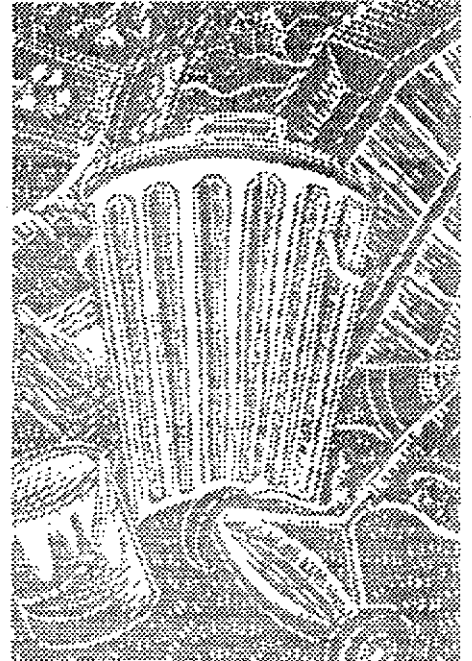
What type of economies could be realized with new technologies such as co-collection? In addition to reducing on-route costs, there may be economies if co-collected materials had "one-stop" tipping facilities available to them. Capital and operating costs for the dual tipping facility could also be reduced as existing facility space and equipment could be used. For example, yard debris and refuse could be co-collected and delivered to Metro transfer stations. Refuse could be transferred to the landfill and yard debris transferred to processors.

How could development of these systems be coordinated to ensure the lowest total cost to regional ratepayers? Without regional coordination and development of appropriate infrastructure such as dual tipping facilities, there may not be adequate incentive for individual haulers to adopt a new technology. Cooperation among Metro, local governments and haulers may be required to determine what benefits might be achieved by jointly embracing new technologies.

Efficiency and cost savings should drive changes in waste collection and processing technology.

Section 2

The Regional Solid Waste Management Plan



Introduction

This chapter presents the overall policy framework within which the specific solid waste goals, objectives and actions described in the RSWMP were developed.

These policies reflect the region's vision for managing solid waste. The goals, objectives and policies are not mutually exclusive. That is, any decision regarding solid waste will need to consider all applicable policies.

History

The RSWMP policies are built upon waste decisions and plans adopted during the past two decades. The most significant benchmarks of Metro and its predecessors include:

- 1973 Metro's predecessor, the Metropolitan Service District (MSD), requests funding from the state to develop a Solid Waste Management Plan for the metropolitan region.
- 1974 The MSD adopts a solid waste management plan (also called the "CORE-MET" plan).
- 1978 Metro is reconstituted as a directly elected metropolitan government with responsibility for solid waste management and authority to fund its activities through fees, bonds and borrowing state funds.
- 1986 A waste reduction plan is adopted by Metro.
- 1987 Formal revision of the 1974 Solid Waste Management Plan as a "functional" plan is initiated. The new document is called the Regional Solid Waste Management Plan (RSWMP).
- 1988 The Metro Council formally adopts and the DEQ approves the RSWMP. Included are goals, policies and a chapter on general-purpose landfills. Other chapters are completed over time.
- 1989 The Environmental Quality Commission (EQC) orders Metro to implement either the work plan in Metro's 1986 Waste Reduction Program or the EQC's alternative. A Waste Reduction chapter is adopted that replaces the 1986 Waste Reduction Program and incorporates elements of the EQC Order.
- 1990 Chapters on plan development and special waste are adopted and added to the RSWMP.

Chapter 5

Regional Solid Waste Policy

- 1991 A Yard Debris Recycling Plan is adopted and incorporated into the Waste Reduction Chapter. A chapter on illegal dumping is adopted. A plan for transfer stations in Washington County is incorporated into the facilities chapter. A chapter on local government solutions is adopted and added to the RSWMP.
- 1992 A chapter on hazardous waste is adopted and added to the RSWMP.
- 1993 The Metro Solid Waste Advisory Committee reviews the solid waste revenue system and makes recommendations to the Metro Council.
- 1995 Major revision of sections of the RSWMP related to waste reduction, facilities, some aspects of hazardous waste management and solid waste revenues is completed.

Regional Solid Waste Management Plan Goals and Objectives

Any plan of this scope must have a guiding vision. The preceding history clearly illustrates an evolving solid waste policy that recognizes the values inherent in protecting the region's environment, providing adequate levels of waste collection and disposal services and efficiently allocating finite fiscal resources.

The vision of this plan can be summarized as follows:

Solid waste is viewed by citizens of the region as a resource to be managed. We understand that the conservation of natural systems – soil, water, air and biological diversity – sustain both economic prosperity and life itself and that the protection of our natural systems requires changes in consumption of resources. In order to build a sustainable future together, we recognize the link between integrated waste management and the conservation of resources as an integral part of the regional decision-making process.

The overall goal of the RSWMP is:

Continue to develop and implement a Solid Waste Management Plan that achieves a solid waste system that is regionally balanced, environmentally sound, cost-effective, technologically feasible and acceptable to the public.

As used in this plan, goals are value-based statements about what is desirable to achieve in the long run. They are broadly worded and express ideals. The objectives are more specific milestones that lead to goal attainment. Performance benchmarks, presented in Chapter 9, are measurable characteristics of the solid waste system that will be used to monitor the success or failure of objectives as they are acted upon.

System-Wide Goals and Objectives

Goal 1 - The Environment. Solid waste management practices that are environmentally sound, conserve natural resources and achieve the maximum feasible reduction of solid waste being landfilled are implemented by the region.

Objective 1.1. The guiding policy for waste management in the region is based on the following priorities:

- Reduce the amount of solid waste generated
- Reuse material for the purpose for which it was originally intended
- Recycle material that cannot be reused
- Compost material that cannot be reused or recycled
- Recover energy from solid waste that cannot be reused, recycled or composted so long as the energy recovery facility preserves the quality of air, water and land resources
- Dispose of, by landfilling, any solid waste that cannot be reused, recycled, composted or from which energy cannot be recovered.

Goal 2 - Education. Residents and businesses of the region are knowledgeable of the full range of waste management options, including waste prevention and reduction, that are available to them.

Objective 2.1. Provide for public education regarding the costs and benefits of alternative waste management practices in a coordinated fashion such that duplication is avoided and consistent information is provided to the public.

Objective 2.2. Involve the public in five-year updates of the Regional Solid Waste Management Plan. More frequent Plan revisions may be made as conditions warrant.

Objective 2.3. Standardize waste reduction services within the region to the extent possible to minimize confusion on the part of residents and businesses and construct cooperative promotion campaigns that cross jurisdictional boundaries.

Goal 3 - Economics. The costs and benefits to the solid waste system as a whole are the basis for assessing and implementing alternative management practices.

Objective 3.1. System cost (the sum of collection, hauling, processing, transfer and disposal) is the primary criterion used when evaluating the direct costs of alternative solid waste practices rather than only considering the effects on individual parts of the system.

Objective 3.2. The economic and environmental impacts of waste reduction and disposal alternatives are compared on a level playing field in order that waste reduction alternatives have an equal opportunity of being implemented.

Objective 3.3. After consideration of technical and economic feasibility, Metro will support a higher system cost for waste reduction practices to accomplish the regional waste reduction and recycling goals.

Objective 3.4. Government and private industry will work cooperatively to identify, explore and confirm the cost and reliability of emerging solid waste technologies.

Objective 3.5. Implement a system measurement program to provide data on waste generation, recycling and disposal sufficient for informed decision-making and planning.

Goal 4 - Adaptability. A flexible solid waste system exists that can respond to rapidly changing technologies, fluctuating market conditions, major natural disasters and local conditions and needs.

Objective 4.1. Implement an integrated mix of waste management practices to provide for stability in the event that particular alternatives become viable.

Objective 4.2. Government regulation is the minimum necessary to ensure protection of the environment and the public interest without unnecessarily restricting the operation of private solid waste businesses.

Objective 4.3. Facilities that handle, process, buy and sell source-separated recyclables remain in private ownership in order to maintain greater flexibility to rapidly respond to changing market conditions.

Objective 4.4. Integrate local solid waste solutions into the solid waste management system.

Objective 4.5. Solid waste facilities may be publicly or privately owned, depending upon which best serves the public interest. A decision on ownership of transfer and disposal facilities shall be made by Metro on a case-by-case basis.

Objective 4.6. Metro shall encourage competition when making decisions about transfer station ownership or regulation of solid waste facilities in order to promote efficient and effective solid waste services. Metro shall consider whether the decision would increase the degree of vertical integration in the regional solid waste system and whether that increase would adversely affect the public. Vertical integration is the control by a private firm or firms of two or more of the primary functions of a solid waste

system - collection, processing, transfer and hauling and disposal.

Goal 5 - Performance. The performance of the solid waste system will be compared to measurable benchmarks on an annual basis.

Goal 6 - Plan Consistency. The Regional Solid Waste Management Plan shall be integrated with other Metro, state, local government, community and planning efforts and shall be consistent with existing Metro policies for managing solid waste.

Objective 6.1. The RSWMP shall be consistent with the adopted Region 2040 Plan and the Regional Framework Plan, when it is adopted.

Objective 6.2. The RSWMP shall be consistent with the State of Oregon Integrated Resource and Solid Waste Management Plan.

Objective 6.3. Each city and county shall provide appropriate zoning to allow planned solid waste facilities or enter into intergovernmental agreements with others to assure such zoning. Whether by outright permitted use, conditional use or otherwise, appropriate zoning shall utilize only clear and use objective standards that do not effectively prohibit solid waste facilities.

Objective 6.4. Metro and local governments shall work together to ensure that solid waste facilities and services are positive contributions to the region.

- a. For any community providing a solid waste "disposal site," as defined by ORS 459.280, Metro shall collect a fee to be used for the purpose of community enhancement.
- b. Solutions to the problems of illegal dumping and to other adverse impacts caused by changes in the waste management system shall be cooperatively developed.
- c. To the extent that tonnage limits and other locally imposed restrictions would prevent Metro from fully using its facilities to carry out this Plan, Metro reserves its authority to override such restrictions, after receiving public comment, by action of its council.

Objective 6.5. The RSWMP shall be recognized through city and county comprehensive plan policies and ordinances governing the siting, permit review and development standards for solid waste facilities.

Waste Reduction Goals and Objectives

Goal 7 - Regional Waste Reduction Goal. The regional waste reduction goal is to achieve at least 50 percent recycling rate by the year 2005. Per capita disposal rates and reductions in waste generated attributable to waste prevention programs are also acknowledged to be key waste reduction indicators. The region's interim goal for the year 2000 is the 52 percent recovery rate as defined by state statute.

Goal 8 - Opportunity to Reduce Waste. Participation in waste prevention and recycling is convenient for all households and businesses in the urban portions of the region.

Goal 9 - Sustainability. Secondary resource management is a self-sustaining operation.

Objective 9.1. Include both direct and indirect costs in the price of goods and services such that true least-cost options are chosen by businesses, governments and citizens when making purchasing decisions.

Objective 9.2. Develop markets for secondary material that are stable and provide sufficient incentive for separation of recoverable material from other waste and/or the post-collection recovery of material.

Objective 9.3. Support an environment that fosters development and growth of reuse, recycling and recovery enterprises.

Goal 10 - Integration. Develop an integrated system of waste reduction techniques with emphasis on source separation, not to preclude the need for other forms of recovery such as post-collection material recovery.

Facilities and Services Goals and Objectives

Goal 11 - Accessibility. There is reasonable access to solid waste transfer and disposal services for all residents and businesses of the region.

Objective 11.1. Extend and enhance the accessibility of the infrastructure already in place for the management of the waste stream for which the RSWMP is responsible. These responsibilities include all wastes accepted by general- and limited-purpose landfills, construction and demolition wastes, household hazardous waste and hazardous waste from conditionally exempt generators.

Objective 11.2. Provide reasonable access through new transfer or reload facilities if it becomes evident that waste reduction practices and existing transfer and disposal infrastructure will be unable to keep pace with the future demand for disposal services.

Goal 12 - Recovery Capacity. A regionally balanced system of cost-effective solid waste recovery facilities provides adequate service to all waste generators in the region.

Goal 13 - Toxics Reduction. The toxicity of mixed solid waste to the environment, residents of the region and workers who collect, transport, process and dispose of waste by keeping hazardous waste out of the mixed solid waste collection and disposal system.

Objective 13.1. Manage hazardous waste based on the Environmental Protection Agency's hierarchy of "reduce, reuse, recycle, treat, incinerate and landfill."

Objective 13.2. Educate residents of the region about alternatives to the use of hazardous products and proper disposal methods for hazardous waste.

Objective 13.3. Provide convenient and safe disposal services for hazardous waste that remains after implementing prevention and reuse practices.

Goal 14 - Disaster Management. In the event of a major natural disaster such as an earthquake, windstorm or flood, the regional solid waste system is prepared to quickly restore delivery of normal refuse services and have the capability of removing, recycling and disposing of potentially enormous amounts of debris.

Objective 14.1. Provide both accurate and reliable information for use in predicting the consequences of a major disaster and an inventory of resources available for responding to and recovering from disasters.

Objective 14.2. Develop a phased response plan that coordinates emergency debris management services and maximizes public health and safety.

Objective 14.3. Develop a recovery plan that maximizes the amounts of materials recovered and recycled and minimizes potential environmental impacts.

Objective 14.4. Provide for innovative and flexible fiscal and financial arrangements that promote efficient and effective implementation of response and recovery plans.

Objective 14.5. Ensure the coordination and commitment of local, state and federal governments and the private sector.

Goal 15 - Facility Regulation. Metro's methods for regulatory control of solid waste facilities will include a system of franchising, contracting, owning and/or licensing to ensure that disposal and processing facilities are provided and operated in an acceptable manner.

Metro Revenue System Goals and Objectives

Goal 16 - Revenue Equity and Stability. To ensure that the Metro solid waste revenue system is adequate, stable, equitable and helps achieve the goals of the Regional Solid Waste Management Plan.

Objective 16.1. Charges to users of Metro-owned disposal facilities will be reasonably related to disposal services received. Charges to residents of the Metro service district who may not be direct users of the disposal system should be related to other benefits received.

Objective 16.2. There will be sufficient revenues to fund the costs of the solid waste system.

Objective 16.3. The revenue system will help the region accomplish management goals such as waste reduction and environmental protection.

Introduction

This chapter of the Plan describes the process for development, adoption, implementation, assessment and revision of the RSWMP. The emphasis is on regional cooperation and consensus building among cities, counties, Metro, the Department of Environmental Quality (DEQ), the solid waste industry and citizens in solid waste management. Figure 6.1 summarizes the process.

The RSWMP is a plan of waste prevention, recycling and disposal practices to enable the region to meet its recycling, recovery and disposal goals and objectives. The process described in this chapter is based on the following key points:

- Strong public involvement - This includes acknowledgment of the Plan by local governments, Metro and DEQ. Commitment by all regional parties (including local governments, Metro, DEQ, the private sector and the general public) will be achieved through participation in the RSWMP development, adoption and approval process.
- The importance of implementation - Recommended practices will not just "happen." Coordination and cooperation among governments and the private sector will be required.
- Flexibility in developing local solutions - While recommended practices will be the standard, a process must exist for development and adoption of viable alternative practices.
- Making objective measurements is critical to assessing the Plan's progress - The RSWMP will include monitoring and evaluation of both Metro and local programs and establishment of a system of regional recycling and disposal benchmarks.
- A process for prescribing corrective actions if goals are not being achieved - The region cannot afford to wait until the end of a five- or 10-year planning cycle before making modifications to the RSWMP.

The Process

Figure 6.1 on the next page provides a conceptual outline of the process that consists of three main sets of activities:

- | | |
|------------|--|
| Phase I. | Plan acknowledgment and adoption |
| Phase II. | Implementation program |
| Phase III. | Monitoring, plan assessment and corrective actions |

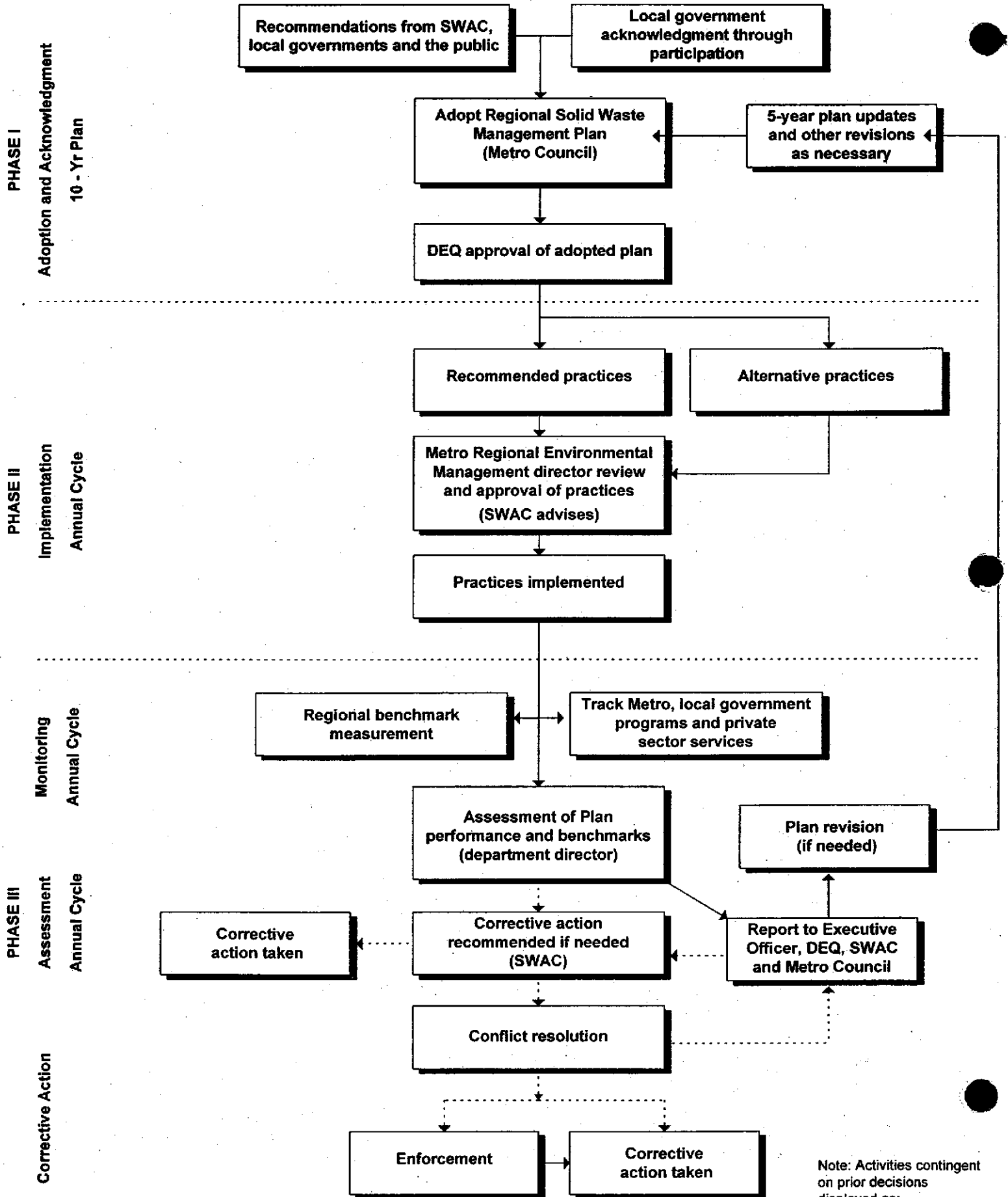
Phase I. Plan Acknowledgment and Adoption

The central element of Phase I is the Metro Council's adoption of the RSWMP including the goals, objectives and recommended practices. Acknowledgment and commitment to the RSWMP by

Chapter 6

Plan Adoption and Implementation

Figure 6.1 - Adoption, Implementation and Assessment Process



Metro, local governments, DEQ and the private sector will be achieved through active participation of all parties in the development of the RSWMP. Commitment to implement the Plan will be shown through ongoing involvement in the Metro Solid Waste Advisory Committee (SWAC), regional work groups and Metro/local government annual work plans. The adopted RSWMP requires formal DEQ approval.

To ensure that all interested parties, including the public, have opportunities to participate in the Plan development process, Metro will coordinate and conduct public involvement and education programs. SWAC membership and the specific types of public involvement efforts that would be conducted for any major revision of the RSWMP are discussed later in this chapter.

Phase II. Implementation Program

The purpose of the implementation program is to make recommended practices happen. The implementation process, however, will allow the development of alternative practices where required by local conditions. As explained in Chapter 7 of the RSWMP, any local government proposing an alternative practice is required to demonstrate that the alternative will perform at the same level as the recommended practice. The director of Metro's Regional Environmental Management Department will review and approve alternatives to recommended practices. This review will occur as part of the Metro/local government annual work plan cycle described below. Metro will consider various ways to provide financial support, when necessary to achieve RSWMP goals.

Implementation will require the following types of coordination efforts:

- Metro/Local Government Annual Work Plans - Metro will continue to coordinate annual planning cycles. Annual work plans ensure that planning is conducted with a regional, as well as local, perspective, provide for shared resources and eliminate duplication. Local governments and Metro will cooperatively develop their work plans to determine which recommended solid waste practices or alternative practices will be implemented and/or continued during the next year. Metro's annual work plan will provide technical assistance and support to aid local governments in implementation of recommended solid waste practices or alternative practices. Metro has provided grant funds to local governments to help carry out work plans since 1990. When determining future funding, consideration should be given to local government efforts to maintain existing programs and implement new recommended practices.

Annual work plans will be reviewed by Metro's director of Regional Environmental Management. If a work plan includes alternative practices, the director will confirm that the local government proposing an alternative has demonstrated that the alternative will perform at the same level as the recommended practice. Annual work plans will be reviewed by the SWAC for the purpose of recommending whether the work plan should be approved by the Metro Executive Officer and Council. Annual work plans will then be presented to the Metro Executive Officer and Council for final approval (see Appendix C, Year Six Metro and Local Government Waste Reduction Plans).

- Regional Work Groups - Work groups involving Metro, local governments, DEQ and the private sector will continue to study regional problems and recommend program implementation strategies. These work groups will play an important role to implement the new RSWMP. They may also assist to evaluate programs and, if necessary, recommend revisions to the Plan. Table 6.2 shows examples of work groups that met during 1995 to address regional solid waste issues. There are other ad hoc groups not included in this table. New groups form and existing groups disband as issues arise and are resolved. Metro will review the general activities of work groups annually to determine which should disband or whether new groups should be formed.
- Local Government Implementation Efforts - Once annual work plans are developed, local government staff will work with elected officials, citizen advisory groups and waste haulers to manage collection franchises and set service rates to achieve annual work plan goals and objectives.
- Metro Implementation Efforts - Metro will conduct demonstration projects, special studies and other research designed to remove barriers to implementing specific recommended or alternative practices.
- Private Sector Efforts - The private sector will continue to develop and expand recycling and recovery services including drop-off and buy-back centers, material recovery facilities and collection services. Metro efforts will also include continued development of markets for recovered materials and support of firms and industries that use recovered materials in their manufactured products.

Metro is responsible for coordinating implementation efforts and ensuring that all such efforts:

- Maintain consistency with RSWMP goals, objectives, recommended practices and the State of Oregon Integrated Resource and Solid Waste Management Plan.

Table 6.2 - Examples of 1995 Regional Work Groups

Work Group	Representation	Issues Addressed
ADVISORY GROUPS:		
Regional Solid Waste Advisory Committee (SWAC)	Citizens, waste haulers, recyclers, solid waste facility operators, state, local and regional governments	Provide advice to the Metro Executive Officer and Council on solid waste policy and matters of regional significance
Metro Solid Waste Rate Review Committee	Citizens, solid waste and recycling industry representatives, financial experts and a Metro councilor	Provide advice to the Metro Executive Officer and Council on matters relating to solid waste rate policy and rate-setting
IMPLEMENTATION GROUPS:		
Household Hazardous Waste Planning Work Group	Regional and local governments	Plan satellite collection services for communities not conveniently served by the two permanent household hazardous waste collection facilities
Local Government Recycling Coordinators	State, regional and local government staff	Coordinate annual work plans and grant fund distribution, evaluate work efforts, share information; establish sub groups as new issues arise
Waste Reduction Promotion Work Group (meet when promotional funding is available)	Regional and local governments, haulers, advertising experts	Plan and implement effective promotional and educational campaigns of a regional scope
Recycling Education Activities Committee	Recycling and waste prevention educators including state, regional and local governments; environmental organizations, interested citizens	Share information about programs to reach school-aged children and youth including curriculum, presentations and in-school recycling activities
Multifamily Support Group	Regional and local governments, PSU Recycling Program staff (The group also included waste haulers and property owners when multi-family programs were first being developed)	Plan and implement waste reduction and recycling programs, including education and promotion, for multifamily housing
Business Recycling Work Group	Haulers, recyclers, business representatives, government representatives	Plan and implement waste reduction and recycling programs for the commercial sector
Earth-Wise Building Steering Committee	Building industry associations, hauling and recycling businesses, government representatives and others	Determine Metro's role to expand recycling and waste reduction activity in the building industry; evaluate programs; plan and implement targeted education programs
Yard Debris Facility Work Group	Yard debris processors, state, regional and local governments, other interested parties	Explore options to reduce siting and operations concerns associated with yard debris compost facilities; draft facility and operational standards
Yard Debris Compost Standards Committee	Yard debris processors, state, regional and local governments, OSU Extension Service research center, Oregon Graduate Institute, other interested parties	Plan and implement programs to ensure that yard debris compost is safe for environmental and human health; established regional standards for commercial yard debris compost products; develop programs to expand markets for yard debris compost

- Demonstrate how Metro, local governments and the private sector will each contribute to achieving the RSWMP waste reduction goal.
- Implement effective programs adapted to local conditions.
- Maintain intergovernmental and private sector cooperation including development of formalized implementation mechanisms.
- Remove barriers to recommended practices or develop effective alternatives.
- Agree on the implementation schedule for recommended practices or alternatives.
- Metro is also responsible for monitoring Plan progress and reporting on results as discussed later in this chapter.

Phase III. Monitoring, Plan Assessment and Corrective Actions

Overview. Phase III consists of activities that monitor progress toward the RSWMP's goals and objectives, determine the reasons for any lack of progress and take the necessary corrective actions to put the process back on track. Possible corrective actions are listed and discussed at the end of this chapter. Monitoring and assessment of the RSWMP will include tracking programs and services at the local level, evaluating performance of key recommended practices and regional benchmark measurement of progress toward recycling and disposal system goals. Development of corrective actions will depend on the reasons for lack of progress and identification of effective remedies.

Activities conducted during this phase will be guided by the following criteria:

- Establish an effective tracking system to monitor RSWMP performance
- Use regional benchmarks to gauge progress toward goals, not as regulatory triggers
- Identify potential problems early on
- Provide a fair forum to solve problems
- Develop and/or modify programs to meet RSWMP objectives
- Provide a flexible framework to revise the RSWMP
- Adopt a simplified, consistent reporting system for local governments and the private sector that provides the appropriate level of information needed to assess RSWMP performance.

RSWMP Monitoring. Monitoring the RSWMP will be an ongoing process. Annual reports will be developed for the Metro Executive Officer, SWAC and Metro Council. Key components of the monitoring process are described below. In addition, refer to Chapter 9 for a detailed description of RSWMP performance.

- **Regional benchmark measurements.** Target benchmarks are the basis for monitoring RSWMP performance at the regional level. Benchmarks are established by estimating the expected performance of the set of recommended key practices. Potential performance of alternatives to the recommended key practices will be judged against the target benchmarks (e.g., weekly yard debris or equivalent reduction in the amount disposed). Specific types of regional benchmarks include:

General system benchmarks
(e.g., the regional recycling and recovery level survey)

Facility benchmarks
(e.g., tons delivered to transfer stations)

Disposal benchmarks
(e.g., the amount of yard debris disposed weekly by single family households)

- **Tracking local programs at city, county and franchise levels -** Metro will continue to report information from haulers, disposal and processing facilities, local governments, private recyclers and others on services being implemented.

The monitoring process will determine whether the RSWMP's recommended practices are being implemented and whether the goals and objectives in the RSWMP (including the targeted benchmarks) are being achieved. In the event that progress is unsatisfactory, a plan assessment process will be initiated.

Program evaluations will measure the effectiveness of recommended practices, policies, projects and facilities. Program evaluations will provide information on whether a program is on-course and whether resources are being allocated to the most cost-effective application.

RSWMP Assessment. Should benchmarks not be achieved, an assessment will be conducted in order to determine the causes behind a lack of progress. For major RSWMP components, an assessment will be undertaken before corrective actions are automatically taken. This assessment could include the following:

- Implementation of recommended practices or alternatives -Were recommended practices or alternatives implemented? If not, what prevented them from being implemented?
- How effective were the adopted programs?

- Annual work plans - Were they carried out? If not, why not?
- Targeted benchmarks - Were the targeted benchmarks appropriate measures of progress? If not, should the benchmarks be changed? For example, was an economic recession a primary cause for a large decline in disposal?
- Review of private sector activities - What changes in private sector activities might have contributed to a lack of progress? For example, did an anticipated new facility not come on line as expected?
- Other factors - Other factors could be examined such as the stability of markets for recycled materials, extreme weather conditions or major natural disasters.

Problem-solving and conflict-resolution procedures will be initiated if an assessment uncovers major problems or conflicts that can be resolved within the resources of the region.

Corrective Actions. The success of the RSWMP depends on maintaining cooperative working relationships among Metro, DEQ, local governments and the private sector. However, corrective actions may be needed when an assessment reveals that the actions of those involved with the RSWMP are not in compliance or are not making an adequate contribution to achieving regional goals. The type of corrective action taken will depend on who is involved (i.e., DEQ, Metro, local governments or the private sector) and will follow a logical sequence designed to achieve compliance with the Plan. Corrective actions could include (not listed in any order of priority) the following:

- Mediate a settlement
- Issue enforcement order
- Obtain a court injunction
- Impose a fine
- Withhold funds
- Metro assume greater responsibility
- Withhold a facility operation franchise

For example, if private service providers were to have implemented a program and had not, the local governments would attempt to mediate a solution with the service providers. If mediation did not achieve satisfactory results, Metro would look to take action. Metro actions would be expected to begin with conflict resolving approaches (for example, reopening mediation between local government and the service provider) then moving to more forceful approaches if compliance is not achieved (e.g., withholding Metro grant funds from the local government).¹

¹See Appendix D for a discussion of Metro's authority to implement the RSWMP.

The Solid Waste Advisory Committee will be involved as an advisor to Metro's Regional Environmental Management director, Executive Officer and Council in the development of corrective actions. This advisory role could include providing policy and technical input and review of corrective action recommendations.

Future Plan Updates

Because the RSWMP includes policies and plans that affect diverse interests, it will be amended through a regional cooperative process between Metro, cities, counties, solid waste industry representatives, citizens and other affected parties. The RSWMP will undergo annual reviews as part of the annual benchmark assessment described above. Five-year reviews will determine whether major revisions need to be made. Types of revisions could include major policy changes, major additions or changes to system programs and facilities and amendments to ensure RSWMP *uniformity and consistency*.

Proposed revisions can be initiated by any interested party and will undergo review by Metro's Regional Environmental Management 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 Council. If the council determines that a revision should be considered, a public hearing will be held as part of its deliberation process. All revisions to the RSWMP need to be adopted by ordinance. Adopted revisions will then be submitted to the DEQ for final review and approval.

Major revisions will be subject to a more extensive public involvement process described in this chapter.

Public Involvement and Education

Purpose. One important objective of the RSWMP is to promote public education and participation in all phases of the planning process. In order to accomplish this objective, the Plan will continue to be developed through a process of regional cooperation and consensus building between local governments, solid waste industry representatives and citizens.

Program Summary. Citizens will have opportunities to comment on RSWMP revisions. Metro's citizen involvement efforts will be consistent with statewide planning Goal 1, which establishes the following objectives for citizen involvement:

- Provide for widespread citizen involvement
- Assure effective two-way communication between citizens and Metro
- Provide the opportunity for citizens to be involved in all phases of the planning process

- Assure that technical information is available in an understandable form
- Assure that citizens receive a response from policy makers
- Ensure funding for the citizen involvement program

Metro will accomplish the above objectives through the program efforts described below.

Solid Waste Advisory Committee (SWAC). The committee is formed by the Metro Executive Officer and Council to advise the agency on solid waste matters of regional significance. The committee is chaired by a Metro councilor and its voting members include government, solid waste and recycling industry and citizen representatives.

Other Public Involvement Efforts. In addition to citizen representation on the committee, public involvement efforts for major revisions to the plan will include:

Newsletters will be distributed to local governments, neighborhood associations, community planning organizations, business and civic organizations and individuals interested in solid waste issues.

A mailing list of interested groups and individuals including local neighborhood associations, community planning organizations, government officials and staff, business and civic organizations and individuals interested in solid waste issues will be maintained by Metro.

Public meetings will be conducted in cooperation with local governments for the purpose of informing the general public about proposed Plan revisions and to receive comments and feedback.

Council hearings will be conducted in advance of Plan revisions.

Metro Waste Reduction Budget

The following table shows Metro's past commitment to the regional waste reduction program:

Table 6.3 - Metro Waste Reduction Budget

Fiscal Year	Budget Allocation
1988-89	\$1,040,055
1989-90	1,579,362
1990-91	2,875,465
1991-92	2,540,511
1992-93	1,835,765
1993-94	1,461,137
1994-95	2,355,606
1995-96	3,452,452*

*Reflects the merger of the Planning and Technical Services Division with the Waste Reduction Division.

Introduction

This chapter presents a set of recommended solid waste management practices designed to meet the overall goal of the RSWMP:

Continue to develop and implement a Solid Waste Management Plan that achieves a regionally balanced, environmentally sound and publicly acceptable solid waste system.

The recommended practices are also designed to achieve the goals and objectives listed in Chapter 5.

This chapter provides an overview of the strategies underlying the recommended practices, a description of how the practices were developed and adopted, details regarding each of the practices and implementation plans.

Overview of Recommended Practices

The recommended practices embody six broad integrated strategies as the best methods to achieve the RSWMP goals:

- **Invest in waste reduction before building additional transfer and disposal capacity.** If the recommended practices are implemented and growth is within expected ranges, the existing three transfer stations should provide enough transfer capacity for the next 10 years.
- **Expand the opportunity to recycle.** The past decade shows that when residents are provided convenient recycling services they *will* recycle. This "opportunity" approach has proven successful. Many of the recommendations in the RSWMP, particularly for the business sector and building industries, continue this strategy. The primary focus is to make services available to all generators.
- **Emphasize the waste reduction hierarchy.** A major new regional effort on waste prevention is envisioned in the RSWMP. Waste prevention, including reuse, is highest on the hierarchy because it not only preserves landfill space but it also conserves the largest amount of natural resources. In contrast, the regional emphasis during the past five years has been on recycling and recovery activities.

The RSWMP also recommends continued support for source-separation efforts before turning to post-collection recovery methods. A priority will also be to advance existing private and non-profit efforts in reuse, in particular those industries that work from donations ("thrifths") and the building industry's salvage of reuseable materials.

Chapter 7

Recommended Solid Waste Practices to the Year 2005

- **Maintain flexibility and encourage innovation.** The RSWMP recognizes that waste reduction in the region is entering a new era. Many of the successful programs and services brought on-line over the past five years involved the implementation of relatively well-proven techniques such as residential curbside recycling. Several recommendations, particularly those involving waste prevention, expanded business recycling and organics recovery, will require development over the next several years. The philosophy behind the recommended practices in these areas is to allow flexibility to encourage development of innovative solutions and avoid imposition of inappropriate practices.
- **Set interim target dates, define roles and responsibilities and focus on implementation issues.** Since the RSWMP allows for a large degree of flexibility in its implementation, it is important to set and maintain target dates to track accountability to objectives. In addition, the RSWMP clarifies who will be responsible for implementing programs.
- **Advance cost-effective practices for managing the region's waste.** Residents of the region strongly support waste reduction practices. At the same time, they also expect that governments will promote cost-effective programs. Recommended RSWMP practices are not expected to significantly increase the overall costs that residents pay for the management of waste. Practices that would likely be more costly in the current system, such as the collection of residential food waste, are included as recommendations contingent on cost-effective collection and processing techniques.

Development of the Recommended Practices

Three roundtables involving approximately 200 citizens were held at the start of the planning process. Citizens were asked their views about how the region should handle organic food waste, residential waste and business waste. Consistent with their comments, draft recommended practices were constructed over several months in a collaborative effort that involved the Solid Waste Advisory Committee and its Planning Subcommittee, Metro staff, independent consultants and other interested parties.

Preliminary recommendations were developed through a process that:

- Assessed current waste reduction and disposal trends
- Examined new or alternative waste management practices
- Modeled the impact of waste management practices on disposal tonnage
- Screened out practices high in cost or low in tonnage impacts

These preliminary recommendations were then subjected to a number of discussions involving SWAC, the SWAC Planning Subcommittee and Metro staff. An important focus of the discussions was to determine the appropriate roles and responsibilities of local government, haulers, Metro and others in the private sector to implement the practices. The discussions also resulted in amendments to the list of practices to ensure the region would make a concerted effort to reach the targeted waste reduction goals.

This development process helped clarify the distinction between the RSWMP's "recommended practices" and "alternative" practices to allow for local flexibility in meeting RSWMP goals and objectives. The consensus was that the recommended practices will serve as performance standards that alternative practices will be required to equal.

The performance standard will be based on criteria that will include, as appropriate, the following: participation levels; amounts of waste prevented, recycled, recovered or disposed; consistency with the waste reduction hierarchy and the source-separation priority; economic and technical feasibility; and impact on other waste reduction activities.

The draft recommendations were then folded into a completed draft of the entire RSWMP and presented for review and comment in a public involvement process that included the general public, local governments, DEQ, individuals from the solid waste industry and others in the private sector, public interest groups and the Metro Council.

Purpose of the Recommended Practices

The "recommended practices" in the RSWMP are intended to provide a path to achieve the region's adopted goals and objectives (Chapter 5). The purpose of adopting recommended practices is to:

- **Identify areas of regional interest.** The RSWMP identifies several areas - particularly in promotion and education - where regional coordination and cooperation are required for successful program efforts.
- **Set expectations regarding what can be accomplished.** For those practices that involve waste reduction, the recommended practices are designed to achieve specific levels of expected performance.
- **Provide a strategy or approach that can also serve as the basis of an alternative practice.** The recommended waste reduction practices were specified in enough detail to allow estimation of expected performance. Each of these practices, however, embodied a more fundamental waste reduction strategy capable of being implemented in more than one way.

While the recommendations are intended to apply regionally, the RSWMP acknowledges that local conditions may require development of alternative practices. As discussed above, alternative waste reduction practices must demonstrate the same level of expected performance as the recommended practices. It is Metro's intent that each local government will implement either a recommended practice or an approved alternative.

Descriptions and Implementation of Recommended Practices

This section provides information on recommended practices in the following areas:

Residential Waste Reduction
Business Waste Reduction
Building Industries Waste Reduction
Solid Waste Facilities and Services - Regulation and Siting
Solid Waste Facilities and Services - Transfer and Disposal

Brief descriptions of the practices are described in the text that follows and in the descriptive tables and timelines included at the end of this chapter. The text and tables together provide the following:

- **Key Concept and Approach for Each Recommended Practice.** What is the basic strategy behind the practice? What problem or opportunity does the practice address?
- **Key Elements of the Recommended Practices.** What specific programs or activities make up the practice?
- **Roles and Responsibilities.** Who will take primary responsibility for seeing that the practice is implemented? Who will assist?
- **Implementation Mechanisms.** What groups will be involved in putting the practice into place?
- **Key Dates and Issues.** When will the practice be adopted?

Description of Implementation Tables. The tables at the end of this chapter list the recommended practices and their key elements and identify who will take primary responsibility for a task and who will assist. While those parties who provide assistance are critical to implementing many of the practices, identifying a responsible party is particularly important where implementation of a practice will require a commitment of resources (either funds or staffing). A "Primary Implementation Mechanism" is also identified to describe what decision-making processes will be necessary.

The tables set out a basic implementation plan for each of the recommended practices. Depending on the practice, implementation elements may include: pilot programs, program planning and revision phases, target dates for implementing the practice and scheduled evaluations and assessments. The lower right hand portion of the tables' timeline shows how major elements of the monitoring and assessment plan (e.g., waste characterization studies) line up with the implementation schedules for the recommended practices.

The tables are also designed to communicate several other ideas:

- The first three quarters of FY 1994-5 are heavily shaded to indicate they have passed and the last quarter of FY 1994-95 and FY 1995-96 are lightly shaded to denote that many government resource commitments for this time period have already been made.
- Dark bars are used to represent new or expanded program efforts. Note that expanded efforts are identified as already under way for many practices.
- Implementation of several of the recommended practices (especially organics management) are contingent upon other practices having been successfully implemented. The table uses filled circles [e.g., ●] to indicate an ordinary target date and unfilled circles [e.g., ○] for target dates of practices that involve such contingencies.

Residential Waste Reduction Practices

See Tables 1.A and 1.B, pages 7-34 and 7-35

The recommendations identify five practices of regional concern:

1. Education and Information for Waste Prevention
2. Expansion of Home Composting
3. Expand and Increase Participation in Existing Residential Curbside Programs
4. Development of New Collection Technologies
5. Curbside Collection and Processing of Residential Food Wastes

1. Education and Information for Waste Prevention

- **Key Concept and Approach of the Recommended Practice:**
Because of the natural resources saved, waste prevention programs provide the greatest environmental benefits of all waste management alternatives. Waste prevention education, especially for school-age children, provides a strong base upon which to build a resource conservation and recycling ethic.

Waste prevention strategies in the residential sector are in a relatively early stage of development. Coordination on the development of educational and promotional programs is an important objective. A common regional approach will also increase the effectiveness of regional media campaigns. Waste prevention education and promotional activities will also be used to advance the efforts of private and nonprofit firms (e.g., "thrifths").

- **Key Elements of the Recommended Practice:**
Three types of programs will be implemented
 - a) Regional media campaigns that emphasize waste prevention practices
 - b) Expansion of local education programs and a shift to a greater emphasis on waste prevention
 - c) "Earth-Wise" purchasing and waste prevention programs targeted to households

The waste prevention practices will build upon current education and promotion efforts that emphasize recycling activities. The strategy will be to refocus the messages communicated on waste prevention. Since these programs will be new, they will be evaluated early on and modified as necessary to improve their effectiveness. Private and nonprofit activities in reuse industries will be recognized as important contributors to regional waste prevention efforts.

- **Roles and Responsibilities:**
Metro and local governments will cooperatively develop and conduct regional education and promotion campaigns. Metro will

be responsible for the annual regional media campaigns. A funding plan for the campaigns will be developed by Metro, local governments and the private sector. The media efforts will be patterned on current recycling campaigns and will use radio, television and print media.

Metro will also support waste prevention efforts through the Recycling Information public outreach program, the "Earth-Wise" *purchasing program and integrating waste prevention programs* into household hazardous waste education.

Metro and local governments will work cooperatively to develop and distribute educational materials for both schools and households. Metro will research and provide technical assistance on the most effective methods to teach and educate households about waste prevention techniques. Local governments, haulers and Metro will coordinate the implementation of these model education programs.

Both Metro and local governments will continue to provide waste prevention components in school waste reduction education programs. Local governments will provide technical assistance with setting up school recycling programs and coordinating the development and distribution of educational materials to meet local needs.

Education efforts will stress decreasing overpackaging. Metro will also support existing or expanded state packaging legislation. *These efforts are intended to inform the consumer of the full cost of a product and promote the development of sustainable resource management.*

Metro will continue to support the thrift industries through means such as discounts on their disposal of non-recyclable items. Efforts will also be made to increase the flow and reuseability of materials to these businesses. In FY 1994-95 thrifts accounted for 15,000 tons of reused and recyclable materials. Metro will continue to assess this impact.

2. **Expand Home Composting**

(See also Tables 9.2a and 9.2b, 1. Home Composting)

- **Key Concept and Approach of the Recommended Practice:**
The existing home composting program has been well received by the public and will be expanded, with an emphasis on targeting households that are not now participating in home composting. Metro will support at least five demonstration sites. Monitoring and evaluating the effectiveness of the program is a priority. Evaluations will help determine the most effective ways to reach the targeted households and the amounts of yard debris being diverted from disposal.

- Key Elements of the Recommended Practice:
 - a) Composting workshops will be held twice a year (spring and fall)
 - b) Metro home compost demonstration sites will be developed to serve all parts of the region
 - c) Five-year (1995-2000) bin distribution program will be based on results of current pilot programs
 - d) Promotion and education will be provided on how composting complements but does not replace curbside yard debris programs
- Key Elements of Alternative Practices:
 - a) Establish bans on yard debris at curbside or disposal sites (where service alternatives are available)
 - b) Extend the home compost program of workshops, demonstration sites and bin distributions for an additional five years

Alternative practices may be adopted that achieve the same performance as the recommended practice.

- Roles and Responsibilities:

Metro will fund and manage the bin distribution program, provide the workshop training and maintain the home compost demonstration sites. Metro will support at least five demonstration sites. Local governments will assist in identifying community areas to target for distribution, as well as coordinating and providing volunteer services. Metro and local governments will share the responsibility for monitoring and evaluating the performance of the program.

3. Expand and Increase Participation in Existing Residential Curbside Programs

(See also Tables 9.2a and 9.2b, 3. Expand Residential Curbside)

- Key Concept and Approach of the Recommended Practice:

The recommended practices are based on two basic approaches to increase residential recycling. One is to improve the performance of existing recycling services. The other is to add new materials to those presently being collected.
- Key Elements of the Recommended Practice:
 - a) Weekly curbside collection (or equivalent) of yard debris and scrap paper for single-family households
 - b) Provide recycling containers for at least four of the principal recyclable materials at all multifamily complexes (scrap paper included where space allows)
 - c) Regional education and promotion campaigns to support single-family and multifamily curbside recycling
 - d) Target low-participant neighborhoods with special education and promotion efforts

- e) Programs that target the reduction of yard debris in drop box rentals (e.g., promote use of drop boxes with compartments that allow segregation of yard debris)
 - f) Programs that target reduction of yard debris in self-haul loads at disposal facilities (e.g., provide educational materials on alternatives to disposal to customers)
- Key Elements of Alternative Practices:
 - a) Local flexibility to add new materials (e.g., aerosols, plastics). Each local government will decide when public demand and markets warrant adding materials other than those listed in the recommended practices to a curbside program.
 - b) Disposal bans on recyclables (where alternatives to disposal are available)
 - c) Promote use of commercial refuse and recycling collection services (e.g., through landlord tenant laws) for households not currently subscribing to these services

Alternative practices may be adopted that achieve the same performance as the recommended practice.

- Roles and Responsibilities:
Haulers, local governments and Metro will continue their active partnership to develop and provide recycling services. The partners will develop and conduct education and promotion campaigns that increase participation in single and multifamily recycling services.

Metro will be responsible for annual regional media campaigns that promote recycling. The media efforts will be similar to current regional recycling campaigns (for scrap paper, milk jugs and aerosol cans) that use radio, television and print media. Metro will also continue to support local governments' residential recycling education and promotion efforts through programs such as Metro Challenge.

Metro and local governments will develop and conduct special education efforts and promotion campaigns targeted to neighborhoods or types of households having low performance or participation rates. Metro will conduct the research necessary to identify these targets and the reasons contributing to the low performance. These programs could use print media, personal outreach or other means. Metro will also support curbside recycling efforts through the Recycling Information outreach program.

Metro will continue to coordinate with local governments to ensure that yard debris waste reduction services achieve results that are equivalent to weekly curbside collection by the end of FY 1995-96. Equivalency shall be defined by Metro. If a local government does not achieve equivalent results, corrective

action will be taken as described in Chapter 6 of this Plan. Corrective action shall include conversion to a weekly yard debris collection program or to a program that has been shown to achieve results that are equivalent or better than weekly curbside collection of yard debris (e.g., every other week collection of 60-gallon yard debris containers).

As a result of FY 1993-94 equivalency testing, the cities of Portland and West Linn did not achieve yard debris diversion equivalent to weekly curbside collection standards. In FY 1994-95, West Linn commenced weekly curbside collection of yard debris. Because Portland elected not to commence weekly curbside collection, remedial actions were negotiated and implemented to ensure equivalency. Portland undertook public outreach programs in several pilot program areas and FY 1994-95 testing demonstrated that the pilot program areas had achieved equivalency. The pilot programs had different components, including special yard debris brochures, garbage can stickers, radio promotions and distribution of composting bins. Under this Plan, Portland will extend the pilot project city-wide. Implementation must incorporate education and promotion elements equal or superior to those used in the test programs.

Metro will also research the strength of markets and market capacity for materials that might be added to curbside programs. Local governments may choose to add such additional materials to curbside programs as markets develop. An important issue to consider in looking at the next 10 years is that if stable plastic markets develop, recent state legislation requires their curbside collection.

4. Develop New Collection Technologies

- **Key Concept and Approach of the Recommended Practice:**

The amount of materials collected in curbside programs is beginning to exceed the available compartments on collection vehicles. Commingling of recyclables has been avoided in the metro area because of concerns it will reduce material quality. However, metro area households and collectors may now have enough experience in providing clean materials that selective commingling may be possible (and necessary) if additional materials are to be added to curbside programs.

One emerging technology is the co-collection of refuse and recyclables on the same truck. Separate collection vehicles appear prohibitively expensive for some programs such as collection of food waste. Collecting bagged food waste together with yard debris may be a more cost-effective approach, particularly if combined with "one-stop dumping." Because of the uncertainties of this technology at this time, the

recommended approach is to continue investigation and examination of new opportunities rather than recommendation of any particular practice for adoption.

- Key Elements:
 - a) Continue cooperative development of promising new technologies. For example: co-collection of waste materials (e.g., yard debris and refuse)
 - b) Alternative collection pickups for different materials (e.g., recyclables one week and refuse the next)
 - c) Selective commingling of compatible materials (e.g., mixed plastics)
 - d) Weight-based collection rates (e.g., household refuse cans weighed at curbside and charges made "by the pound")
- Roles and Responsibilities:

Metro, in cooperation with the private sector and local governments, will examine the potential modification of transfer or processing facilities as needed to accommodate new collection technologies. If opportunities looks promising, demonstration projects with local governments and haulers will be conducted (e.g., using transfer stations as dual tipping sites for refuse and yard debris or other recyclables).

Haulers and local governments will be responsible for developing and implementing any transition to new truck types (e.g., co-collection vehicles) within their franchise systems.

5. Curbside Collection and Processing of Residential Food Wastes

(See also Tables 9.2a and 9.2b, 10. Residential Organics Recovery)

- Key Concept and Approach of the Recommended Practice:

With the success of curbside recycling programs, food wastes now represent a very large fraction of the remaining residential waste stream (95,000 tons). This recommended practice will provide a method of collecting and composting source-separated food waste from single-family dwellings.
- Key Elements of the Recommended Practice:
 - a) Site and develop regional processing capacity for business food waste prior to development of residential programs
 - b) Residential programs phased-in and dependent on results of pilot programs to be conducted during 1995-2000. Implementation would occur during 2000-2005.
 - c) It is the regional policy to encourage home composting and processing of organics (excluding meat), rather than use of garbage disposals and sewer system for disposal of food.

- Roles and Responsibilities:
A residential food waste program will be implemented following development of organics processing capacity for businesses.

Metro, local governments, haulers and processors will investigate and conduct pilot projects to determine feasible collection processing practices and markets for end products.

Metro and DEQ will be responsible for setting processing facility standards to ensure the environmental acceptability of the facilities.

Local governments will assist in the development of programs by working to solve siting issues associated with processing facilities. Haulers and local governments will be responsible for working out necessary changes in collection equipment, franchise arrangements or collection routing.

Business Waste Reduction Practices

See Tables 2.A and 2.B, pages 7-36 and 7-37

The recommendations identify five practices of regional concern for the business sector:

1. Waste prevention and recycling education, information and market development
2. Expanded source-separated (pre-collection) recycling
3. Collection and off-site recovery of source-separated food and non-recyclable paper
4. Regional processing facilities for mixed dry waste
5. Fiber-based fuel

1. Waste Prevention and Recycling Education, Information and Market Development

(See also Tables 9.2a and 9.2b, 2. Business Waste Evaluations)

- Key Concept and Approach of the Recommended Practice: Implement an aggressive waste prevention effort coordinated with recycling education and market development programs for businesses throughout the region. The practice is intended to achieve measurable reduction in the amounts of paper and packaging used by businesses by providing evaluations or "audits" of a business' waste.
- Key Elements of the Recommended Practice:
 - a) Waste prevention, diversion and procurement evaluations will be conducted with a goal of reaching 80 percent of all businesses by the year 2000. Evaluations will be targeted to specific types of businesses and their suppliers. Enough services will be available to ensure reaching the goal.
 - b) Model waste prevention programs for different types of businesses
 - c) Coordinated regional and local media campaigns emphasizing waste prevention
 - d) "Earth-Wise" programs including promotion campaigns, model procurement policies for targeted generators and recycled product guides that assist the development of markets for recycled materials.
 - e) Analysis of how businesses can substitute recycled feedstock in manufacturing processes.
- Key Elements of Alternative Practices:
 - a) Disposal bans on recyclables (where alternatives to disposal are available)

Alternative practices may be adopted that achieve the same performance as the recommended practice.

- **Roles and Responsibilities:**
Responsibility for conducting the waste evaluations ("audits") will be determined by a regional work group composed of local governments, Metro, haulers and other private sector and volunteer groups. The plan that is developed may use a variety of techniques and methods. Examples could include development of a centralized pool of evaluators available on contract to Metro, haulers or local governments. Depending on local conditions and the type of size and businesses, alternatives to on-site evaluations could be employed. Examples could include self-audits conducted by businesses and submitted to haulers or local governments as part of a waste management plan.

Metro and local governments will coordinate all media waste prevention campaigns. Metro will be responsible for the annual regional media campaigns. The media efforts will be similar to current regional recycling campaigns (for scrap paper, milk jugs and aerosol cans) that use radio, television and print media.

Metro will develop model waste prevention programs for different types of businesses and "events" such as conventions and festivals. As they are developed, they will be integrated into the ongoing waste evaluation program. Metro will continue development of the Recycling Information outreach program as a regional source of information about recycling and waste prevention.

Metro will also integrate its "Buy Recycled," model procurement policies and recycled products guide programs into the waste evaluation effort. Waste evaluations will provide an opportunity to identify new materials for recycling. If new materials can be identified, Metro will support the markets for these materials through technical or financial assistance to the processors and end users of the recovered materials. Metro will also perform analysis where firms might be able to substitute recycled feedstock in manufacturing processes. Metro will work with businesses to promote the use of recycled feedstock and integrate technical information on this subject into programs such as the waste evaluations.

Education efforts will stress decreasing overpackaging. Metro will also support existing or expanded state packaging legislation. These efforts are intended to inform the consumer of the full cost of a product and promote the development of sustainable resource management.

2. Expand Source-Separated (Pre-Collection) Recycling (See also Tables 9.2a and 9.2b, 6. Business Paper and Containers)

- **Key Concept and Approach of the Recommended Practice:**
Recyclable paper remains a very significant part of the waste still being disposed by businesses. The recommended practice is to collect paper still being disposed by businesses. Very strong

markets exist for all grades of recoverable paper. Developing methods of increasing the supply of materials to these markets is critical. Containers (glass, tin, aluminum, PET and HDPE) are included in the recommended practice because additional costs and tonnage impacts are favorable.

The recommended practice need not be adopted exactly as modeled and specified in the technical appendices (see the appendix to Chapter 9). The practice is, however, to serve as a standard against which alternative approaches will be assessed in terms of waste diverted from disposal.

- Key Elements of the Recommended Practice:
 - a) Collection of paper and containers (glass, tin, aluminum, PET and HDPE) from businesses
 - b) Appropriate recycling containers (e.g., roller carts, bins, OCC cages) provided to all small businesses
 - c) Education and promotion of recycling services including waste evaluations of targeted businesses
 - d) Business recycling recognition programs
- Key Elements of Alternative Practices:

The following alternatives to the recommend practices are similar to approaches that have been considered by local governments in this and other metropolitan areas. Local governments will evaluate the degree to which they advance recycling.

 - a) Provide businesses economic incentives to recycle through the design of collection rates
 - b) Require businesses to participate in a collection program for paper and containers
 - c) Require collectors to provide recycling services for paper and containers
 - d) Include small businesses in residential curbside programs
 - e) Disposal bans (where alternatives to disposal are available)
 - f) Require businesses to have waste reduction and recycling plans
 - g) Collect yard debris from selected businesses through residential curbside programs
 - h) Modify zoning requirements to include space for recycling areas in new construction

Alternative practices may be adopted that achieve the same performance as the recommended practice.

- Roles and Responsibilities:

Local governments will develop business recycling services. They will also take responsibility for involving business waste haulers, private recyclers and businesses in the development of programs that achieve the expected levels of performance. During the development of the programs, issues such as who will provide recycling containers to businesses will be resolved.

Metro will take responsibility for coordinating a strategy that integrates waste evaluations, targeted generator strategies and business organic processing efforts in order to accomplish the highest level of waste reduction. This coordination is intended to ensure that businesses have the opportunity to source separate and recycle the types of materials they actually generate.

Metro will provide technical assistance to local governments on waste generation, waste characterization and recycling behavior of businesses in their areas. Metro will also continue to develop technical and educational materials for its targeted generator strategies that will be provided to local governments, haulers and businesses to assist in developing recycling services.

Metro will provide technical assistance to local governments on incorporating recycling space requirements into building and zoning codes.

3. Collection and off-site recovery of source-separated food and non-recyclable paper

(See also Tables 9.2a and 9.2b, 9. Business Organics/LoTech Process)

- Key Concept and Approach of the Recommended Practice: Collection and off-site recovery of source-separated food and non-recyclable paper from businesses if costs do not substantially exceed the current cost to collect and landfill organics and there is no reliance on exclusive facility franchises or flow control.
- Key Elements of the Recommended Practice:
 - a) Site and develop processing capacity for regional organic waste
 - b) Collect from larger food generators (e.g., major grocery stores) within three to five years
 - c) Small generators (e.g., fast food establishments) will be provided service after the processing facilities are well established
- Key Elements of Alternative Practices:
 - a) Waste prevention practices (e.g., grocery store programs that provide food that can no longer be sold to charities)
 - b) On-site composting where appropriate (e.g., schools or other large institutions with available space and other resources)

Alternative practices may be adopted that achieve the same performance as the recommended practice.

- Roles and Responsibilities: Metro will develop technical assistance materials about organics generators (e.g., grocery stores and restaurants) and processing technologies. Metro, haulers, local governments and the private sector will conduct demonstration or pilot projects as necessary

to resolve questions about the feasibility and practicality of a business organics processing system. These pilot projects will also determine whether there are end markets for the processed material. Issues to be addressed will include the use of transfer stations as reload operations and the development of product quality standards that ensure marketability of compost products.

Beyond pilot studies, the private sector will be responsible for the siting and development of processing facilities. Metro and DEQ will be responsible for setting performance standards to ensure the environmental acceptability of the facilities. Local governments will assist in the development of programs by working to solve siting issues associated with processing facilities, including the adoption of clear and objective zoning standards that do not effectively prohibit the siting of facilities. Haulers and local governments, with technical assistance from Metro as requested, will be responsible working out necessary long-term changes in collection equipment, franchise arrangements or collection routing.

4. Regional processing facilities for mixed dry waste

(See also Tables 9.2a and 9.2b, 11. Post-Collection Recovery)

- Key Concept and Approach of the Recommended Practice: Because of high disposal costs and the market value of recovered materials, there are strong economic incentives to develop dry waste processing facilities. The majority of construction materials are recyclable. The percentage that can be recycled from any project is dependent on the job. More than 85 percent of the waste from residential construction is currently recyclable in the metro region. The recommended practice is to rely on the private sector to develop additional dry waste processing capacity.
- Key Elements of the Recommended Practice:
 - a) Develop sufficient capacity to serve entire region
 - b) Provide reasonable access for all haulers
 - c) Maintain current Metro fee waivers on recovered material; processing facilities pay fees to Metro only on disposed residuals
 - d) Support and develop markets for recovered materials through technical assistance to processors and end users of recovered materials
 - e) Consider policies that could allow vertical integration and processing facilities to accept materials from more than their own company
- Roles and Responsibilities: Private initiative will be relied upon to provide mixed dry waste processing facilities. There are currently three major, private dry

waste processing facilities in operation with two facilities planned. At the present time it is not known whether these facilities will be sufficient to provide the capacity and access demanded by haulers. Metro will be responsible for monitoring progress in this area.

Metro will process and review applications for processing facility franchises. In reviewing the applications, Metro will consider consistency with the RSWMP and ability to reach recovery levels required under the franchise rules.

Metro will monitor the solid waste system to determine if the private sector is providing sufficient, accessible dry waste processing capacity throughout the region. If lack of private activity is primarily due to market factors (e.g., disposal costs are lower cost than processing) but overall system benefits would be greater with more processing, Metro will consider what public actions might be taken to pursue RSWMP goals.

5. Fiber-based fuel

- **Key Concept and Approach of the Recommended Practice:**
Post-collection recovery and processing of paper, plastics and other material into a "fiber-based fuel" is an acceptable "last resort" for materials that would otherwise be disposed.
- **Key Element of the Recommended Practice:**
Continue to support development of fiber-based fuel facilities when economically feasible as an alternative to landfilling
- **Roles and Responsibilities:**
Metro will examine the need for, as well as technical and economic feasibility of fiber-based fuel facilities.

Building Industries (Construction and Demolition) Waste Reduction Practices

See Table 3, page 7-38

The recommendations identify four practices of regional concern for the building industries:

- 1) Develop targeted technical and educational programs
- 2) Ensure availability of on-site source separation at construction sites where practical and cost-effective
- 3) Develop markets to support recycling rather than energy recovery
- 4) Develop regional dry waste processing facilities for construction and demolition waste from sites where separation and collection of recyclables is not practical or cost-effective

1. Develop targeted technical and educational programs

- **Key Concept and Approach of the Recommended Practice:**
Efforts to remove barriers to recycling activities in the building industries sector through research and educational programs have proven successful. Wide distribution of this information to the construction industry and the public is one method to increase waste prevention. The recommendations are also intended to support and promote the salvage of usable materials during building renovation and demolition and to help overcome barriers to acceptance of their reuse.
- **Key Elements of the Recommended Practice:**
 - a) "Earth-Wise" building program to train builders about salvage, waste reduction, recycling and buying recycled, along with other environmental building practices
 - b) On-site audits at construction and demolition sites to promote waste prevention practices
 - c) Technical assistance and educational information for builders and others on waste prevention practices for building trade waste
- **Roles and Responsibilities:**
Metro will continue to provide technical assistance on building industry practices that promote waste prevention and recycling. Metro, in cooperation with local governments, haulers and builders will continue promotion and education campaigns targeted to both the construction industry and households purchasing their services (e.g., the "Earth-Wise" labeling campaign promoting environmentally sound building products and construction practices).

Local governments, haulers, builders and Metro will work together to develop on-site audits designed for increasing waste

prevention and recycling. These audits will be coordinated with local government efforts to ensure availability of on-site recycling services.

Education efforts will stress decreasing overpackaging. Metro will also support existing or expanded state packaging legislation. These efforts are intended to inform the consumer of the full cost of a product and promote the development of sustainable resource management.

2. On-site source-separation of recyclables at construction and demolition sites

(See also Tables 9.2a and 9.2b, 7. Building Industry: Onsite Separation)

- Key Concept and Approach of the Recommended Practice: On-site source separation of recyclable materials at construction and demolition sites is a very effective method of diverting significant amounts of wood, metal, drywall and cardboard from disposal. The majority of construction materials are recyclable. The percentage that can be recycled from any project is dependent on the job. More than 85 percent of the waste from residential construction is currently recyclable in the metro area. The recommended practice will ensure that on-site source-separation services are available to generators who want to use them.
- Key Elements of the Recommended Practice:
 - a) Local governments ensure availability of on-site services for two or more materials
 - b) Promotion of and education about on-site recycling collection services
 - c) Develop educational materials that target new recoverable materials for source separation when markets are available in the building industries waste stream: roofing and tarpaper, carpet and film plastic
- Key Element of Alternative Practices: Waste prevention practices (e.g., reduce use of unnecessary packing materials by building industry suppliers)

Alternative practices may be adopted that achieve the same performance as the recommended practice.

- Roles and Responsibilities: Local governments, haulers, Metro and the building industry will work together to develop and implement strategies that will ensure that the opportunity for on-site recycling is available on construction and demolition sites.

3. **Develop markets to support recycling rather than energy recovery**

- Key Concept and Approach of the Recommended Practice: Reuse and recycling are higher on the solid waste management hierarchy because these practices retain more of the value of previous manufacturing efforts and conserve the most natural resources. Wood is one of the largest components in the building industry's waste stream and the majority of it is currently being used for fuel. Markets for wood as a fuel are driven by other fuel supplies such as natural gas. If prices of those fuels fall, the stability of recycling in the building industry could be undermined.

Education efforts will be ingetrated with efforts to encourage strong markets for recyclables.

- Key Elements of the Recommended Practice:
 - a) Support salvage practices and markets for reused building materials
 - b) Support development of industries using recycled construction and demolition materials

- Key Element of Alternative Practices: Enhance incentives to recycle materials relative to diverting materials to recovery.

Alternative practices may be adopted that achieve the same performance as the recommended practice.

- Roles and Responsibilities: As part of its waste characterization program, Metro will estimate the quantity and grades of salvageable wood available in the Metro area from construction, demolition and salvage projects.

Metro, in cooperation with private businesses and the Clean Washington Center, will identify an inventory of products that can be manufactured using recycled wood. Metro will provide this information to wood processors and appropriate manufacturers in the Pacific Northwest to stimulate new industry and product development.

Metro, local governments and building industries will establish a program to promote salvaging and recycling wood before recovering for energy.

4. **Develop regional dry waste processing facilities for waste from sites where separation and collection of recyclables is not possible**

- Key Concept and Approach of the Recommended Practice: Because of space limitations and other factors, not all construction sites are suitable for on-site salvage (i.e., collect for reuse) and

recycling. Recovery facilities that accept mixed construction waste provide an additional opportunity for recycling construction waste.

- Key Elements of the Recommended Practice:
 - a) Develop sufficient capacity to serve entire region
 - b) Provide reasonable access for all haulers
 - c) Maintain current Metro fee waivers on recovered material; processing facilities pay fees to Metro only on disposed residuals
 - d) Support and develop markets for recovered materials through technical and to processors and end users of *recovered materials*
 - e) Consider policies that could allow vertical integration and processing facilities to accept materials from more than their own companies

At its June 21, 1995, meeting, SWAC recommended that the Metro Council consider its policy on vertical integration. When that policy is adopted, it will be included in the RSWMP. Metro's current policy, per Section 5.01.120(l) of the Metro Code is: "A franchisee shall not, either in whole or in part, own, operate, maintain, have a proprietary interest in, be financially associated with or subcontract the operation of the site to any individual, partnership or corporation involved in the business of collecting residential, commercial, industrial or demolition refuse within the District. A transfer station or processing center franchisee who only receives waste collected by the franchisee shall be exempt from this subsection."

- Roles and Responsibilities:

Private initiative will be relied upon to provide mixed dry waste processing facilities. There are currently three major private dry waste processing facilities in operation with two facilities planned. At the present time it is not known whether these facilities will be sufficient to provide the capacity and access demanded by haulers. Metro will be responsible for monitoring progress in this area.

Metro will process and review applications for processing facility franchises. In reviewing the applications, Metro will consider consistency with the RSWMP and ability to reach recovery levels required under the franchise rules.

Metro will monitor the solid waste system to determine if the private sector provides sufficient and accessible dry waste processing capacity throughout the region. If lack of private activity is due primarily to market factors (e.g., disposal costs are lower cost than processing) but overall system benefits would be greater with more processing, Metro will consider what public actions might be taken to preserve RSWMP goals.

Solid Waste Facilities and Services Regulation and Siting

See Table 4, page 7-39

The recommendations identify two practices of regional concern for the regulation and siting of solid waste facilities and services:

1. Yard debris processing system
2. Establish organic waste regulatory system

1. Yard debris processing system

- Key Concept and Approach of the Recommended Practice:
Increase the stability and environmental acceptability of yard debris processing facilities in order to lower barriers to siting and operation.
- Key Elements of the Recommended Practice:
 - a) Establish facility performance standards for franchising or otherwise authorizing yard debris processors
 - b) Metro licensing program for yard debris processors
 - c) Local governments require use of Metro-licensed facilities by their franchised curbside yard debris collectors
 - d) Local governments adopt clear and objective siting standards that do not effectively prohibit the siting of facilities

Alternative practices may be adopted that achieve the same performance as the recommended practice.

- Roles and Responsibilities:
Processors, local governments, Metro and DEQ will work to establish the siting, environmental and performance standards that will be the basis for a stable and environmentally acceptable yard debris processing system.

Metro will establish and maintain a licensing program for facilities. Local governments will support this effort by having their yard debris collectors use these facilities. Local governments will also be responsible for ensuring that their zoning codes include clear and objective siting standards that do not effectively prohibit the siting of facilities.

2. Organic waste regulatory system

- Key Concept and Approach of the Recommended Practice:
Regulation to ensure environmentally sound and publicly acceptable processing facilities for business and residential food wastes.

- Key Elements of the Recommended Practice:
 - a) Develop a Metro regulation system for processors of food and other organic waste. This system could include a Metro franchise with performance standards similar to the standards proposed for yard debris processing facilities.
 - b) Local governments adopt clear and objective siting standards that do not effectively prohibit the siting of facilities

- Roles and Responsibilities:

Processors, local governments, Metro and DEQ will build upon the work done regarding yard debris processing facilities to establish the siting, environmental and performance standards that will be the basis for a stable and environmentally acceptable organic waste regulatory system.

Metro will establish and maintain a franchise program for these facilities. Local governments will assist in finding locations where processing facilities can be sited.

Solid Waste Facilities and Services Transfer and Disposal System

See Table 5, page 7-40

The recommendations identify four practices of regional concern for the transfer and disposal system. These practices are contingent upon growth forecasts and adoption and successful implementation of the recommended waste reduction practices.

1. Maintain existing system of three transfer stations. Build no new transfer stations. No redirection of haulers from Metro South to Metro Central.
2. Maintain the existing system of private general and limited-purpose landfills.
3. Maintain options for haulers to choose among disposal alternatives.
4. Allow reload facilities sited, owned and operated by haulers for consolidation of loads for hauling to Metro transfer stations to serve areas distant from transfer stations.

1. Maintain existing system of three transfer stations. Build no new transfer stations. No redirection of haulers from Metro South to Metro Central.

- Key Concept and Approach of the Recommended Practice:
Most of the region's waste is delivered to the three transfer stations (Metro South, Metro Central and Forest Grove) rather than being directly hauled to landfills. These three stations have sufficient capacity to handle the future demand for transfer services under the projected economic growth and waste reduction impacts of the recommended practices.
- Key Elements of the Recommended Practice:
 - a) Successful implementation of waste reduction practices to reduce demand for transfer services
 - b) Modifications to existing facilities as required to maintain service levels
 - c) When necessary implement waste handling practices sufficient to reduce demand on transfer facilities
 - d) Modify the existing stations as needed to coordinate with any changes in collection technologies (e.g., co-collection of waste and recyclables)
 - e) Examine service options to include reuse, recycling and disposal for households and businesses that self-haul their waste
- Key Elements of Alternative Practices:
 - a) In the event waste reduction efforts do not perform as expected or growth is greater than expected, options to be

evaluated on a case-by-case basis, depending on tonnages and cost, will include:

- operational changes to existing facilities
- redirection of haulers from any transfer station that is exceeding capacity
- remodeling of existing facilities
- adding reload capacity
- building a new transfer station

Alternative practices may be adopted that achieve the same performance as the recommended practice.

- **Roles and Responsibilities:**
Metro will review service levels on a regular basis to determine if any of the alternative elements listed above need to be implemented. Metro's Capital Improvement Plan will include plans for any modification to the existing transfer stations needed to maintain service levels.

2. Maintain the existing system of private general- and limited-purpose landfills

- **Key Concept and Approach of the Recommended Practice:**
Assuming there are no closures of existing landfills or restrictions on their use, there is sufficient regional landfill capacity for at least the next 10 years.
- **Roles and Responsibilities:**
The private sector will continue to supply the general- and limited-purpose landfill space required by the region.

Metro will continue to competitively procure disposal services for the region's solid waste that must be delivered to a general-purpose landfill.

3. Maintain options for haulers to choose among disposal alternatives

- **Key Concept and Approach of the Recommended Practice:**
Industries, manufacturers and other generators of waste not classified as "municipal solid waste" (e.g., special wastes, or residual from dry waste processing) have a need for disposal services other than that supplied through Metro transfer stations. The approach is to continue to designate facilities (through regulatory agreements) for receipt of such waste and to grant "non-system licenses" to haulers with special disposal needs.
- **Key Elements of the Recommended Practice:**
 - a) Designated out-of-region landfills for accepting limited types of wastes (e.g., special wastes)

- b) Franchised in-region system of private landfills and processing facilities
- c) Non-system user licenses for individual haulers delivering limited types of waste (e.g., special wastes) to other facilities

- **Roles and Responsibilities:**

Metro will continue its system of designated facilities and non-system licenses to provide services for those with special disposal needs.

4. **Reload facilities**

- **Key Concept and Approach of the Recommended Practice:**

The recommended practice is to allow the siting of reload facilities for consolidation of loads hauled to appropriate disposal facilities. Reload facilities could assist in maintaining existing service levels (i.e., time spent waiting in line or time required to drive to a facility). They can also provide some additional material recovery or opportunity to divert materials to dry waste recovery facilities.

- **Key Elements of the Recommended Practice:**

- a) Addition of reload capacity to existing private processing facilities to serve areas distant from existing transfer stations or to address capacity problems at existing facilities
- b) Reload options to be evaluated on a case-by-case basis depending on future tonnage and costs
- c) New reload facility ownership and operation determined on a case-by-case basis
- d) Low-level recovery activities (manual "dump and sort" activities and other low technology methods) at reload facilities

- **Roles and Responsibilities:**

Metro will review service levels on a regular basis to determine if any of the elements listed above need to be implemented.

Solid Waste Facilities and Services Household Hazardous Waste (HHW) Management

The recommendations identify five practices of regional concern:

1. Continue to provide hazardous waste collection, recycling and disposal services to the region's households and conditionally exempt commercial generators at Metro South and Metro Central transfer stations.
2. Promote household hazardous waste prevention and reduction through adult and school education programs
3. Promote existing facilities to increase the number of customers served in total and by geographic areas
4. Provide service to outlying areas not conveniently served by permanent household hazardous waste collection facilities
5. Secure alternative funding sources for household hazardous waste collection services

During the next year, additional work will be conducted on the household hazardous waste recommendations. This work will include examination of alternative funding mechanisms, the most efficient and effective ways of providing collection events and managing the existing permanent facilities. This analysis will be added to the table of the recommended practices to be implemented during the next 10 years.

1. **Continue to provide hazardous waste collection, disposal and recycling services to the region's households and conditionally exempt commercial generators at Metro South and Metro Central transfer stations.**
2. **Promote household hazardous waste prevention and reduction through adult and school education programs.**
 - Key Concept and Approach of the Recommended Practice: People will change their behavior through effective education and buy fewer toxic products. Children, as the next generation of consumers, should be educated about alternatives and can often motivate adults to "do the right thing."
 - Key Elements of the Recommended Practice:
 - a) Develop effective regional promotion and education programs and media campaigns to motivate the public to reduce the quantity and toxicity of waste generated as well as promote responsible use and disposal of these products.
 1. Conduct education programs such as school presentations and workshops for adults.
 2. Use collection events as an opportunity to educate household hazardous waste generators about toxic waste prevention.

3. Use city and county newsletters, hauler flyers and other means to communicate the message of household hazardous waste prevention to the public.
 4. Continue Metro's Alternatives to Pesticides adult education program. Coordinate this activity with the home composting education efforts described earlier in Chapter 7. Continue to use the Recycling Information telephone program to distribute household hazardous waste prevention information.
- b) Perform periodic evaluations (e.g., waste characterization study) to determine whether fewer household hazardous waste products are being generated and disposed.
 - c) Adopt policies to encourage the reduced use of toxic products by Metro facilities services and local government offices and services.
- **Roles and Responsibilities:**
Metro and local governments will cooperatively develop regional programs and media campaigns that will use print media and personal outreach as described under "key elements" above. Metro will continue the Alternatives to Pesticides program, conducting workshops and distributing printed information to adult home gardeners. Metro will distribute toxic waste prevention literature at satellite household hazardous waste collection events and through the Recycling Information public outreach program. Metro will also perform periodic evaluations to determine the effectiveness of education and promotion efforts.

Local governments will promote household hazardous waste prevention through city and county newsletters, hauler flyers and other means. Both Metro and local governments will work within their government agencies to adopt policies that encourage the reduced use of toxic products.

3. Promote existing facilities to increase the number of customers served in total and by geographic areas.

- **Key Concept and Approach of the Recommended Practice:**
The two existing facilities are the regional base of operations for household hazardous waste collection services. They house the staff, equipment and processing capabilities that are used for satellite household hazardous waste collection events and services. Because the two existing facilities can accommodate more customers, Metro will seek new ways to maximize their use.
- **Key Elements of the Recommended Practice:**
 - a) No new, fixed full-service facilities of the type at Metro South and Metro Central.

- b) Promote the use of the two permanent facilities by distributing discount coupons to residents, newspaper ads, feature articles and other effective means.
- c) Continue to analyze facility use and the effectiveness of promotional efforts.

- **Roles and Responsibilities:**

Metro will promote the use of its two permanent facilities as described above. Metro will also continue to analyze the effectiveness of these efforts and develop new ways to reach the public.

4. Provide service to outlying areas not conveniently served by permanent household hazardous waste collection facilities

- **Key Concept and Approach of the Recommended Practice:**

Residents who live the farthest from the two permanent facilities are the least likely to use them. Well-located and promoted full-service satellite collection events are an effective way to provide equitable service to outlying areas. Flexible service community events are another means of providing requested collection services efficiently. As experience and efficiencies improve, more effective ways of delivering collection services to targeted areas will emerge.

- **Key Elements of the Recommended Practice:**

- a) Provide service to outlying areas not conveniently served by permanent household hazardous waste collection facilities through regularly scheduled, full-service satellite collection events.
- b) Provide new services to identified outlying areas with regularly scheduled, flexible service options (e.g., paint only, neighborhood events, targeted groups, special events) that are sponsored by local governments and neighborhood associations.
- c) Monitor the cost and efficiency of all types of collection events and services.
- d) Develop a database of characteristics of customers who use the facilities and satellite services.
- e) Maintain a cooperative agreement with local governments in the entire metro region to evaluate the program and to identify future service needs.

- **Roles and Responsibilities:**

Metro will provide collection services, develop new types of services as appropriate and monitor the cost and efficiency of program efforts. Metro will also develop a database of customer characteristics.

Local governments and Metro will meet at least twice a year to plan the types and locations of collection events and to evaluate programs and identify future service needs.

5. Secure alternative funding sources for household hazardous waste collection services.

- **Key Concept and Approach of the Recommended Practice:**
Household hazardous waste collection services are expensive to provide. The minimum handling fee currently charged covers a small portion of the operating costs. Costs have been paid primarily by all garbage generators through disposal fees. A more appropriate source of funds would be from those who purchase the hazardous products. Including disposal costs in the cost of purchase of a product helps achieve the plan's objective of making the consumer face the true cost of their choices and promotes the goal of developing sustainable resource management.
- **Key Elements of the Recommended Practice:**
 - a) Continue to collect a minimum handling fee at the two Metro permanent household hazardous waste collection facilities to help off-set expenses, but review annually whether Metro should continue to collect the fee.
 - b) Meet on a scheduled basis (twice yearly or more often) to plan funding of appropriate services. Planning should accommodate budgeting schedules, regional and local promotional campaigns and event logistics.
 - c) Funding priorities should include (in priority order):
 - 1) The two permanent collection facilities
 - 2) Full-service satellite collection events, other services to outlying areas and pilot projects
 - 3) Other community events and services for residents located closer to the permanent facilities
 - d) Approach the Oregon Legislature to secure a statewide advance disposal fee on designated household hazardous waste products in order to stabilize funding and staffing for full-service satellite collection events. If a statewide advance disposal fee is not adopted, return to the Metro Council with a proposal to adopt a regionwide advanced disposal fee.
 - e) Seek additional levels of grant funding for full-service satellite collection events from the DEQ.
- **Alternative Key Elements:**
 - a) Examine alternative funding arrangements including:
 - 1) Retailer licensing fee
 - 2) Private sponsorship and grants
 - 3) Public sector (i.e., sewage treatment, water and fire districts) sponsorship and/or in-kind support
 - b) Examine the following long-term options to improve service convenience:
 - 1) Curbside collection of selected household hazardous waste, materials such as paint and batteries.

2) Product "take-back" requirements for retailers of household hazardous waste products.

Alternative practices may be adopted that achieve the same performance as the recommended practice.

- Roles and Responsibilities:

Metro will continue to collect fees from users of the two permanent household hazardous waste collection facilities and annually review whether they should continue to be collected. Metro will also, through its annual budget process, fund appropriate collection services. Metro will work to secure an advance disposal fee and seek additional grants from the DEQ for full-service satellite collection events.

Local governments will meet at least twice a year with Metro to plan funding for appropriate services.

Metro's Role in the Implementation of the Regional Solid Waste Management Plan

Technical Assistance	Develop and compile information on solid waste practices; distribute to other public and private agencies
Coordination	Coordinate the development of policies, plans and/or services among public and private agencies in the region that are of regional importance
Regulatory	Regulate services and facilities through contracts, licenses or franchises
Funding	Finance programs or services through Metro revenues
Programs & Services	Provide programs or services through contracts or Metro personnel

Technical Assistance	Coordination	Regulatory	Funding	Programs and Services
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Residential Waste Reduction

1. Waste prevention	✓	✓		✓	✓
2. Home composting	✓	✓		✓	✓
3. Residential curbside programs	✓	✓		✓	✓
4. New collection technologies	✓	✓			
5. Residential food wastes	✓	✓			

Business Waste Reduction

1. Waste prevention	✓	✓		✓	✓
2. Source-separated recycling	✓	✓			✓
3. Business food waste	✓	✓	✓		✓
4. Dry waste processing	✓	✓	✓		✓
5. Fiber-based fuel	✓	✓	✓	✓	✓

Building Industries Waste Reduction

1. Technical and educational programs	✓	✓		✓	✓
2. On-site source separation	✓	✓		✓	✓
3. Markets to support reuse and recycling	✓	✓		✓	✓
4. Dry waste processing	✓	✓	✓		

Solid Waste Facilities and Services

Regulation and Siting

1. Yard debris facilities licensing	✓	✓	✓		
2. Organics facilities franchising	✓	✓	✓		

Solid Waste Facilities and Services Transfer and Disposal System

1. Maintain existing system of three transfer stations			✓	✓	✓
2. Maintain the existing system of private landfills			✓		
3. Haulers choose among disposal alternatives			✓		
4. Reload facilities		✓	✓	✓	✓
5. Household hazardous waste management	✓	✓	✓	✓	✓

Recommended Practices & Key Elements	Responsible	Assist	Primary Implementation Mechanism	Key Dates & Issues	FY 1994-95	FY 1995-96	FY 1996-97	FY 1997-98	FY 1998-99	FY 1999-2000	FYs 2000-2005
WASTE PREVENTION											
1. Education and Information (pg. 7-6)											
a) Regional media campaigns that emphasize waste prevention practices	M, LG	H, PS	Regional work group, Metro work plan	<ul style="list-style-type: none"> 1 5 yr. Funding Plan by 10/96 (See 3a.) 2 Campaigns after curbside efforts & testing of WR message in (1.c) 7/97 							continue activities
b) Expand local education programs and a shift to a greater emphasis on waste prevention	LG, M	H, PS	Annual Work Plans, Metro work plan	<ul style="list-style-type: none"> 1 Evaluate effectiveness by 7/98 2 Two-year revision cycle 							continue activities
c) "Earth-Wise" purchasing and waste prevention programs targeted to households	M, LG	H	Metro work plan, Annual Work Plans	<ul style="list-style-type: none"> 1 Evaluate effectiveness by 7/98 2 Two-year revision cycle 							continue activities
2. Home Composting (pg. 7-7)											
a) Composting workshops will be held semi-annually (spring & fall)	M	LG	Metro work plan	Continue semi-annual schedule							continue activities
b) Metro home compost demonstration sites will be developed to serve all parts of the region	M	LG	Metro work plan	<ul style="list-style-type: none"> 1 New sites (as needed) by 7/97 							continue activities
c) Five year (1995-2000) bin distribution program will be based on results of current pilot programs;	M, LG, PS	H	Annual Work Plans, Metro work plan	<ul style="list-style-type: none"> 1 Evaluate effectiveness (Potential twice yearly distribution) 2 Possible 5 yr. extension 							5 yr. extension option
d) Promotion & education will be provided on how home composting complements but does not replace curbside yard debris program											
RECYCLING											
3. Expand existing residential curbside programs (pg. 7-8)											
a) Weekly curbside collection (or equivalent) of yard debris & scrap paper for single-family households	LG, H	M	Annual Work Plans	<ul style="list-style-type: none"> 1 Scrap paper regionwide by 7/95 2 Assess scrap paper efforts by 1/97 3 Weekly Yd Debris (or equiv.); 4 Portland by 12/95 5 Washington Co. by 12/96 							maintain programs
b) Provide recycling containers for at least 4 materials at all multifamily complexes (scrap paper included where space allows)	LG, H, M	PS	Annual Work Plans	<ul style="list-style-type: none"> 1 Current efforts to 85% by 12/96 2 Maximum feasible by 7/97 then maintain system 							maintain programs
c) Regional education & promotion campaigns to support single-family & multifamily curbside recycling	M, LG, H		Annual Work Plans, Metro work plan	<ul style="list-style-type: none"> 1 5 yr. funding plan by 10/96 2 Media campaigns shift to waste prevention focus beginning 7/97 							
d) Target low-participant neighborhoods with special education & promotion efforts	M, LG, H	Neigh. Assoc.	Annual Work Plans, Metro work plan	Program implemented every other year							
e) Programs that target reduction of yard debris in drop boxes rentals and in self-haul loads at disposal facilities	M, LG, H		Regional work group, Metro work plan	<ul style="list-style-type: none"> 1 Develop programs by 6/96 2 Implement programs FYs 96-97, 97-98 							
KEY	Current program (or maintenance levels)		H= Commercial Haulers	1 Planned milestone (target date)							Recycling Level Survey
	Pilot program		M= Metro; PS= Private Sector	2 Contingent milestone (dependent on other events)							Waste Characterization
	Development and planning		LG = Local Governments								Single-Family Generator Study
	New or expanded program		DEQ= Dept. of Environ. Quality								Multifamily Generator Study
											Tracking Surveys

TABLE 1A
Residential Waste Reduction
Short Term 1995-2000





Recommended Practices & Key Elements		Responsible	Assist	Primary Implementation Mechanism	Key Dates & Issues	FY 1995-2000	FY 2001-5	
RECYCLING								
4. New collection, transfer and disposal technologies (pg. 7-10)								
<u>No recommended practices</u>								
<u>Alternative Practices</u>								
a) Continue cooperative development of promising new technologies. For example: Co collection of waste materials (e.g., yard debris & refuse)	H, LG, & M		Regional work group, Local Govts., Metro work plans	① Planning 1995-2000 ② Implementation 2000-2005	①	②		
b) Alternative collection pickups for different materials	H, LG	M	Regional work group, Local Govts.	① Planning 1995-2000 ② Implementation 2000-2005	①	②		
c) Selective commingling of compatible materials	H, LG	M	Regional work group, Local Govts.;	① Planning 1995-2000 ② Implementation 2000-2005	①	②		
d) Weight-based collection rates	H, LG	M	Regional work group, Local Govts.	① Planning 1995-2000 ② Implementation 2000-2005	①	②		
5. Curbside collection and processing of residential food wastes (pg. 7-11)								
a) Site and develop regional processing capacity for business food waste prior to development of residential programs		Refer to Table 2B Recommended Business Practices #3						
b) Residential programs phased in and dependent on results of pilot programs to be conducted during 1995-2000. Implementation would occur during 2000-05	H, LG, & M		Regional work group, Local Govts., Metro work plans	① Planning 1995-2000 ② Implementation 2000-2005	①	②		
b) Collect residential food wastes together with yard debris	H, LG, & M		Regional work group, Local Govts., Metro work plans	① Planning 1995-2000 ② Implementation 2000-2005	①	②		
KEY	Current program (or maintenance levels) Pilot program Development and planning New or expanded program	   	H= Commercial Haulers M= Metro ; PS= Private Sector LG = Local Governments DEQ= Dept. of Environ. Quality	① Planned milestone (target date) ② Contingent milestone (dependent on other events)				

TABLE 1B

Residential Waste Reduction

Long Term 2000-2005

TABLE 2A

Business Waste Reduction

Recommended Practices & Key Elements		Responsible	Assist	Primary Implementation Mechanism	Key Dates & Issues	FY 1994-95	FY 1995-96	FY 1996-97	FY 1997-98	FY 1998-99	FY 1999-2000	FYs 2000-2005
WASTE PREVENTION & RECYCLING												
1. Education, Information & Market Development (pg. 7-13)												
a) Waste prevention, diversion & procurement evaluations with a goal of reaching 80% of all businesses by the year 2000		LG, H, M	PS	Regional work group, Annual Work plans	① Service provision plan by 10/96 ② 50% of goal by 7/98 ③ 100% of goal by 7/00 ④ Assess programs by 7/98		①			②		③
b) Model waste prevention programs for different types of businesses		M	LG, H, PS	Metro work plan	① 45% of targets by 7/00 ② 60% of targets by 7/05							①
c) Coordinated regional and local media campaigns emphasizing waste prevention		M, LG	H, PS	Regional work group, Metro work plan	① Funding plan by 10/96 Coordinate with regional residential campaigns			①				
d) "Earth-Wise" programs including promotion campaigns, model procurement policies for targeted generators and recycled product guides that assist the development of markets for recycled materials		M, LG	H	Metro work plan, Annual Work Plans	Two-year revision cycle							
e) Analysis of how businesses can substitute recycled feedstock in manufacturing processes		M	LG, H, PS	Metro work plan	Two-year revision cycle							
2. Expand Source-Separated (Pre-Collection) Recycling (pg. 7-14)												
a) Collection of paper and containers (glass, tin, aluminum, PET and HDPE) from businesses		LG, H, PS	M	Regional work group, Annual Work plans, LG franchises/permits	① 50% of businesses by 1/96 ② 100% of businesses by 1/99		①			②		
b) Appropriate recycling containers (e.g., roller carts, bins, OCC cages) provided to all small businesses		LG, H, PS	M	Regional work group, Annual Work plans	① 50% provided by 1/97 ② 100% provided by 1/00			①				②
c) Education & promotion of recycling services including waste evaluations of targeted businesses		Refer to Key Elements 1.a) & 1.b) above: Targeted Generators and Waste Evaluations for Waste Prevention										
d) Business recycling recognition programs		PS, M, LG			Expanded efforts starting 7/95							
KEY	Current program (or maintenance levels)	H= Commercial Haulers		①	Planned milestone (target date)							Recycling Level Survey
	Pilot program	M= Metro ; PS= Private Sector		②	Contingent milestone (dependent on other events)							Waste Characterization
	Development and planning	LG = Local Governments										Commercial Generator Study
	New or expanded program	DEQ= Dept. of Environ. Quality										Tracking Surveys

Recommended Practices & Key Elements		Responsible	Assist	Primary Implementation Mechanism	Key Dates & Issues	FY 1994-95	FY 1995-96	FY 1996-97	FY 1997-98	FY 1998-99	FY 1999-2000	FYs 2000-2005
ORGANICS												
3. Collection and off-site recovery of source-separated food and nonrecyclable paper from businesses (pg. 7-16)												
a) Site & develop processing capacity for regional organic waste		PS	M, LG, DEQ	Regional work group, Metro work plan, (market forces)	<ul style="list-style-type: none"> ① Pilot program 7/95-6/96 ② Site facility(ies) 7/96-6/97 ③ Build capacity 7/97-6/99 		●		②	③		continue service
b) Collection from larger food generators (e.g., major grocery stores) within three to five years		LG, H, PS	M	Regional work group, Annual Work Plans, Metro work plan	<ul style="list-style-type: none"> ① Develop routes 7/96-6/97 ② Begin collection 7/97 			①	②			continue service
c) Small generators (e.g., fast food establishments) will be provided service after the processing facilities are well established.		LG, H, PS	M	Regional work group, Annual Work Plans, Metro work plan	<ul style="list-style-type: none"> ① Develop routes 7/99-6/00 ② Begin collection 7/00 						①	begin service
POST-COLLECTION RECOVERY												
4. Regional processing facilities for mixed dry waste (pg. 7-17)												
a) Develop sufficient capacity to serve entire region		PS	M, LG	Regional work group, Land use siting, Metro work plan	<ul style="list-style-type: none"> ● Metro annual assessment ① Explore public options if capacity insufficient ② 				①		②	continue
b) Provide reasonable access for all haulers		PS	M, LG	Regional work group, Land use siting, Metro work plan	<ul style="list-style-type: none"> ● Metro annual assessment 							continue
c) Maintain current Metro fee waivers on recovered material; processing facilities pay fees to Metro only on disposed residuals		M		SWAC, Rate Review Committee, Metro Council	<ul style="list-style-type: none"> ① Coordinate with Metro rate revision process; New rate structure by 7/96 							
d) Support & develop markets for recovered materials through technical assistance to processors and end users of recovered materials		PS	M, LG	Metro work plan	<ul style="list-style-type: none"> ● Metro annual assessment 							continue
e) Consider policies that could allow vertical integration. For example, allow processing facilities to accept materials from more than their own company		M		SWAC, Rate Review Committee, Metro Council	<ul style="list-style-type: none"> ① Coordinate with Metro rate revision process; New rate structure by 7/96 							
5. Fiber-based fuel (pg. 7-18)												
a) Continue to support development of fiber-based fuel facilities when economically feasible as an alternative to landfilling		PS, M		Private investment	<ul style="list-style-type: none"> ● Metro examine need & feasibility on an annual basis 							continue
KEY	<ul style="list-style-type: none"> Current program (or maintenance levels) Pilot program Development and planning New or expanded program 	<ul style="list-style-type: none"> □ H= Commercial Haulers ■ M= Metro ; PS= Private Sector ▨ LG = Local Governments ▩ DEQ= Dept. of Environ. Quality 		<ul style="list-style-type: none"> ● Planned milestone (target date) ① Contingent milestone (dependent on other events) 								<ul style="list-style-type: none"> Recycling Level Survey Waste Characterization Commercial Generator Study Tracking Surveys

TABLE 2B
Business Waste Reduction

TABLE 3
Building Industries Waste Reduction

Recommended Practices & Key Elements	Responsible	Assist	Primary Implementation Mechanism	Key Dates & Issues	FY 1994-95	FY 1995-96	FY 1996-97	FY 1997-98	FY 1998-99	FY 1999-2000	FYs 2000-2005
WASTE PREVENTION											
1. Develop targeted technical and educational programs (pg. 7-19)	M	LG, H, PS	Regional work group, Annual Work Plans, Metro work plans	<ul style="list-style-type: none"> 1 Expanded efforts starting 7/95; 2 Maintain system after 6/98 		1			2		<ul style="list-style-type: none"> continue activities activities integrated into "Earth-Wise" building program activities integrated into "Earth-Wise" building program
a) "Earth-Wise" building program to train builders about salvage, waste reduction, recycling, and buying recycled, along with other environmental building practices	M	LG, H, PS	Regional work group, Annual Work Plans, Metro work plans	Coordinate with development of on site services							
b) On-site audits at construction & demolition sites to promote waste prevention practices	M, LG, H, PS		Regional work group, Annual Work Plans, Metro work plans	Coordinate with development of on site services							
c) Technical assistance and educational information for builders and others on waste prevention practices for building trades waste	M	LG, H, PS	Regional work group, Annual Work Plans, Metro work plans	Coordinate with development of on site services							
RECYCLING											
2. On-site source separation at construction and demolition sites (pg. 7-20)	LG, H, PS	M	Regional work group, Annual Work plans, LG franchises/permits	<ul style="list-style-type: none"> 1 Develop strategies by 7/96 2 Implement by 7/97 		1	2				<ul style="list-style-type: none"> maintain services maintain services
a) Local governments ensure availability of on-site services for two or more materials	M, LG, H, PS		Regional work group, Annual Work Plans, Metro work plans	Coordinate with development of on site services							
b) Promotion of and education about on-site recycling collection services	M	LG, H, PS	Regional work group, Annual Work plans, LG franchises/permits	<ul style="list-style-type: none"> 1 Develop materials by 7/98 2 Program implemented FY 98-99 				1	2		
c) Develop educational materials that target new recoverable materials for source separation when markets are available											
3. Develop markets to support recycling rather than energy recovery (pg. 7-20)	M, PS		Regional work group, Metro work plans	<ul style="list-style-type: none"> Reduction in wood recovery for energy 1 25% reduction by 1/97 2 50% reduction by 7/00 				1		2	<ul style="list-style-type: none"> continue
a) Support salvage practices and markets for reused building materials											
b) Support development of industries using recycled C&D materials											
POST COLLECTION RECOVERY											
4. Develop regional dry waste processing facilities for waste from sites where separation and collection of recyclables is not possible (pg. 7-21)				Refer to Table 2B Recommended Business Practices #4							
KEY	<ul style="list-style-type: none"> Current program (or maintenance levels) Pilot Program Development and planning New or expanded program 	<ul style="list-style-type: none"> H= Commercial Haulers M= Metro ; PS= Private Sector LG = Local Governments DEQ= Dept of Environ. Quality 	<ul style="list-style-type: none"> 1 Planned milestone (target date) 2 Contingent milestone (dependent on other events) 								<ul style="list-style-type: none"> Recycling Level Survey Waste Characterization Industrial C&D Generator Study Tracking Surveys

Recommended Practices & Key Elements		Responsible	Assist	Primary Implementation Mechanism	Key Dates & Issues	FY 1994-95	FY 1995-96	FY 1996-97	FY 1997-98	FY 1998-99	FY 1999-2000	FYs 2000-2005
1. Yard debris processing system (pg. 7-23) a) Establish facility performance standards for franchising or otherwise authorizing yard debris processors b) Metro program for franchising or otherwise authorizing yard debris processors; c) Local governments require use of Metro authorized facilities by their franchised curbside yard debris collectors. d) Local governments adopt clear and objective siting standards that do not effectively prohibit the siting of facilities		M	PS, LG, DEQ	Regional work group, SWAC, Metro Council	① Standards by 1/96		①					
		M	PS, LG	Regional work group, SWAC, Metro Council	① New facilities by 2/96 ② Existing facilities by 1/97		①	②				
		LG	M, DEQ	Regional work group, LG Councils	① Adoptions by 1/97			①				
2. Organic waste regulatory system (pg. 7-23) a) Develop a Metro regulation system for processors of food and other organic waste. This system could include a Metro franchise with performance standards similar to the standards proposed for yard debris processing facilities. b) Local governments adopt clear and objective siting standards that do not effectively prohibit the siting of facilities		M	PS, LG	Regional work group, SWAC, Metro Council	① By 7/97			●				
		LG	M, DEQ	Regional work group, LG Councils	① Adoptions by 1/97			①				
KEY	Current program (or maintenance levels) Pilot program Development and planning New or expanded program	H= Commercial Haulers M= Metro ; PS= Private Sector LG = Local Governments DEQ= Dept. of Environ. Quality		① Planned milestone (target date) ② Contingent milestone (dependent on other events)								Recycling Level Survey Waste Characterization Tracking Surveys

TABLE 4
Solid Waste Facilities
Regulation and Siting

Recommended Practices & Key Elements	Responsible	Assist	Primary Implementation Mechanism	Key Dates & Issues	FY 1994-95	FY 1995-96	FY 1996-97	FY 1997-98	FY 1998-99	FY 1999-2000	FYs 2000-2005	
1. Maintain existing system of three transfer stations Build no new transfer stations No redirection of haulers (pg. 7-25)												
a) Successful implementation of waste reduction practices	M	H, PS	Metro work plan	<ul style="list-style-type: none"> Metro biannual assessment Capital improvement plan by 7/96 New Metro South & Central operations contracts by 10/96 			●				●	continue
b) Modifications to existing facilities as required to maintain service levels							●					
c) When necessary implement waste handling practices sufficient to reduce demand on transfer facilities	LG, PS, H, & M		RSWMP									
d) Modify the existing stations as needed to coordinate with any changes in collection technologies (e.g., co-collection of waste and recyclables)	M	LG, H, PS	Regional work groups, Metro work plan	<ul style="list-style-type: none"> Metro biannual assessment 							●	continue
e) Examine service options to include reuse, recycling, and disposal for households and businesses that self-haul their waste	M	LG, H, PS	Regional work groups, Metro work plan	<ul style="list-style-type: none"> Metro biannual assessment 							●	continue
2. Maintain the existing system of private general and limited purpose landfills (pg. 7-26)	PS	M		Maintain current system								
3. Maintain options for haulers to choose among disposal alternatives												
a) Designated out-of-region landfills for accepting limited types of wastes (e.g., special wastes)	M			Maintain current system								
b) Franchised in-region system of private landfills and processing facilities	LG, M			Maintain current system								
c) Non-system user licenses for individual haulers delivering limited types of wastes (e.g., special wastes) to other facilities	M			Maintain current system								
4. Reload facilities (pg. 7-27)												
a) Addition of reload capacity to existing private processing facilities to serve areas distant from existing transfer stations or to address capacity problems at existing facilities	M, LG, H, PS			<ul style="list-style-type: none"> Metro biannual assessment 							●	continue
b) Reload options to be evaluated on a case-by-case basis depending on future tonnages and costs	M											
c) New reload facilities. Ownership and operation determined on a case-by-case basis.	M											
d) Low level recovery activities at reload facilities	M, LG, H, PS			<ul style="list-style-type: none"> Metro biannual assessment 							●	continue
KEY	Current program (or maintenance levels) Pilot program Development and planning New or expanded program											Recycling Level Survey Waste Characterization Tracking Surveys

TABLE 5
Solid Waste Facilities
Transfer and Disposal System

Introduction

Metro's solid waste activities are currently financed almost entirely by per-ton tip fees and surcharges on disposal. This approach to system financing should be re-examined if the system is to achieve equity, maintain fiscal stability and achieve policy goals such as waste reduction. This chapter provides planning for a solution to these issues. The first three sections deal with specification of criteria for the Metro solid waste revenue system; the second contains elements of potential alternatives.

System Financing Findings

The fiscal performance findings described below form the basis for recommendations in this chapter:

- **Equity.** Changes in Metro's revenue base have shifted the burden of payment to a narrowing group of users of the disposal system. Users who cannot significantly alter their disposal patterns are burdened with a disproportionate share of system costs.
- **Reasonable.** Fees should not place an undue economic burden on the generator who pays the fees.
- **Incentives.** A high tip fee provides price incentives for source reduction, recycling and recovery because high disposal costs will cause households and businesses to seek alternatives to disposal.
- **Policy Objectives.** The solid waste financing system can be used to achieve policy objectives. For example, surcharges on certain products posing special waste management problems can discourage use of these products by sending economic "signals" regarding the true environmental cost of disposal.
- **Stability.** Financing all requirements of integrated system management from tip fees on disposal induces a conflict between stable funding of the system and management objectives to conserve landfill space, energy and material resources. This conflict may erode the revenue base that supports the management objectives.
- **Revenue Adequacy.** As management objectives to conserve landfill space, energy and material resources continue to move into prominence and as system management becomes more comprehensive, tip fee revenues will become less adequate to support the entire system.

Design and Implementation Principles

The following principles guide the design and implementation of specific financing alternatives:

- **Effect on System Financing Criteria.** The impact of any new financing mechanism on revenue adequacy, stability, equity and incentives should be considered prior to implementation.

Chapter 8

Metro Solid Waste System Financing

- **Linkage Principle.** Funding mechanisms should be linked to services provided and/or clearly related to objectives of the solid waste management system.
- **Revenue Neutrality.** Any fiscal changes sought by Metro should be revenue neutral at the time of the change. Exceptions can be made if, upon appropriate findings and authorization, new levels of funding are required to implement programs, recommendations or objectives of this plan.
- **Cost of Service.** Metro's fees and charges for services and programs should be based on the cost of providing the service to recipients or on a fair value of the benefit when the cost of service cannot reasonably be calculated.
- **Departures from Cost-of-Service.** Departures from a cost-of-service basis for pricing may proceed only after a determination, based on appropriate findings, that system financing criteria or policy objectives are significantly compromised by a cost-of-service approach.
- **Public Education.** It is important to establish understanding and acceptance of the reasons for change and its effects. A period for public review and comment should be set aside prior to final Metro action on any new and substantive change in system financing method.
- **Use of Funds.** To the greatest possible extent, revenues derived from the solid waste system should be used only for funding solid waste activities.
- **Waste and Metro Charges.** The following categories determine whether materials delivered for disposal at solid waste facilities within the Metro boundary may be subject to Metro charges: (1) waste that is generated within the Metro boundary; and (2) waste, regardless of location of origin, that is disposed within the Metro boundary.

General Financing Alternatives

The following alternatives for financing the Metro solid waste system are adopted as part of this RSWMP as being appropriate for future implementation:

- **Usage Charges.** Services that directly benefit the customer using the services should be financed by usage charges based on the amount of service consumed. Usage charges should be set according to the cost of providing service to the customer.
- **Surcharges.** Surcharges on disposal are an appropriate means of recovering non-variable costs of integrated system management after all appropriate cost-saving measures have been taken and when other financing mechanisms fail the revenue adequacy criterion.
- **System Benefit Charges.** Enterprises that benefit directly from activities of Metro that divert materials from disposal should contribute to the funding of these activities.

- **Generator Charges.** There are certain solid waste programs and services that benefit all residents (persons and businesses) in the region. All residents of the region should share in the cost of these programs and services.
- **Product Charges.** Metro should employ charges on specific products that make identifiable extraordinary burdens on the disposal system or that may be more valuable if reused or recycled. These may be used to send economic "signals" regarding the true environmental cost of disposal, or as policy tools to encourage waste reduction goals such as prevention and recycling.

Building Blocks of a Solution

The complexity of balancing revenue adequacy with equity, stability, waste reduction incentives and the other criteria for an acceptable solution means that the solid waste system at Metro may require several financing "legs" in the future.

The Metro solid waste revenue system currently stands on only one "leg": disposal charges on mixed waste (tip fees). Tip fees will continue to provide the bulk of funding for solid waste disposal, but the extent to which they subsidize non-disposal elements must be reduced if equity, stability and other policy goals are to be realized.

This section identifies several funding options - or "building blocks" of a solution - that should be examined for implementation. The section includes options that are recommended and not currently recommended.

1. Usage Charges on Mixed Waste (Current System)

- **Financing Principle:**
Services that provide direct benefits to the customer using the services should be financed by usage charges based on the amount of service consumed. Usage charges should be set according to the cost of service.
- **Definition:**
A usage charge is a fee based on the amount of services consumed. Nearly all of Metro's solid waste system is currently financed through a usage charge at Metro facilities (tip fee) and a usage surcharge (regional user fee) at certain non-Metro facilities. Usage charges can be levied through variable or non-variable (flat) rate schedules. The choice of appropriate schedule depends on the cost of service and other pricing objectives.
- **Performance of Usage Charges Under Key Evaluation Criteria:**
 - a) *Revenue adequacy.* Usage charges (tip fees) at transfer stations are adequate means of financing Metro's

operational costs to transfer, transport and dispose of municipal solid waste. Metro's surcharge on usage (regional user fee) has been adequate to finance Metro's non-variable costs of integrated system management in the past, but its effects on the stability of the rate base make its adequacy in the future unlikely.

- b) *Stability.* High disposal costs cause generators to seek alternatives to disposal and the consequent erosion of the revenue base tends to de-stabilize the revenue system. Usage charges must be in proper alignment with the price of alternatives if the revenue stream is to remain stable. While policy objectives (e.g., to reduce disposal) may capitalize on the effect of high usage charges, the existence of the system itself in the long-run should be weighed against price effects.
 - c) *Equity.* Usage charges (tip fees) are equitable in that they affect only voluntary transactions.
 - d) *Incentives.* A high tip fee provides price incentives for waste reduction and diversion because high disposal costs will cause households and businesses to seek alternatives to disposal if those alternatives cost less than the cost of disposal.
- **Recommendations:**
A usage charge is an appropriate means of recovering variable costs and certain fixed costs of service provision. It is recommended that Metro continue to make use of user charges to fund municipal solid waste transfer, transport and disposal operations unless there are significant changes in the underlying cost of providing these services.

2. System Benefit Charges to Solid Waste Enterprises

- **Financing Principle:**
Enterprises that benefit directly from activities of Metro that divert materials from disposal should contribute to the funding of these activities.
 - **Definition:**
This option encompasses charges levied on materials (or enterprises that handle materials) that have been diverted from disposal by reason of Metro's solid waste management activities. Two closely related suboptions fall in this category: *surcharges* and *license or franchise fees*. Their primary difference is the degree of formality in the arrangement between the enterprise and Metro.
- a) *Surcharge.* Metro may regulate facilities that receive solid waste for disposal, treatment or processing. Insofar as Metro has implemented policies and programs that have caused

waste to shift to facilities that are not currently regulated and insofar as the unregulated facilities do not share fully in the cost of Metro's programs, a charge on enterprise activities at these facilities would be an equitable means of recovering costs of programs.

- b) *License or Franchise.* A license or franchise formalizes the relationship between a private enterprise and the regulatory agency, compared with the arrangement described immediately above. Licensing or franchising can account for specific conditions between the enterprise and the agency. A license or franchise fee is a charge for the ability to do business under the relationship. This type of fee can broaden the rate base by obtaining revenues from non-disposal operations. As above, the justification for this type of fee is that processors and other operators benefit from Metro's policies that divert valuable materials from the waste stream.
- **Performance of System Benefit Charges Under Key Evaluation Criteria:**
 - a) *Revenue adequacy.* System benefit charges are not designed for comprehensive program funding. Revenue adequacy means that the funding mechanism should provide sufficient revenues for program application above administration and collection costs.
 - b) *Stability.* System benefit charges are stability enhancing in that they would diversify the revenue base, but are not alone sufficient to guarantee revenue stability. Because many solid waste enterprises employ new technology, there is inherent uncertainty in the revenue stream that would emerge from this system of charges.
 - c) *Equity.* System benefit charges are equitable when designed to affect only those enterprises (or portion of enterprise activity) that have benefited from Metro's solid waste management activities that have diverted waste from disposal. System benefit charges help cover the costs of these activities from beneficiaries of the activities rather than from ratepayers that remain in the disposal system.
 - d) *Incentives.* System benefit charges can reduce the incentive to engage in enterprises that provide an alternative to disposal by reducing profits. See the discussion under Recommendations, below, for rate design considerations.
- **Recommendations:**

License or franchise fees can be implemented in several forms: a charge for operation (similar to a business license fee), a surcharge on activity levels or a mix of the two. Charges on activity levels can be levied on a gross or net basis. Charges on

a gross basis (e.g., on tons of cubic yards delivered or a percentage of the transaction price) has the advantage of simplicity but the disadvantage that a firm working with a marginal or new technology cannot avoid the charge unless exempted. Charges on a net basis (e.g., net business income, residual material) do not necessarily disadvantage new firms (which typically have low or negative profits, especially if working with a new technology or infant markets), but increases the administrative reporting burden and may be a disincentive for efficient operation. The appropriate form of implementation should be determined after an evaluation of the economic effect on the enterprises and the impact on Metro's solid waste management policies.

3. *Special Disposal Fees*

- **Financing Principle:**
Employ surcharges on specific products that make identifiable *benefit charges* extraordinary burdens on the disposal system or that may be more valuable if reused or recycled. These surcharges may be used to send economic "signals" regarding the true environmental cost of disposal, or as policy tools to encourage waste reduction goals such as prevention and recycling.
- **Definition:**
Special disposal fees (SDFs) are a family of fees levied on specific products or classes of products. The basic idea is to build the cost of certain solid waste management programs into the product price, rather than attempting to recover these costs at the time of disposal. The fees are price-guided incentives that can support several management objectives:
 - a) Encourage source reduction
 - b) Encourage recycling (supply of materials)
 - c) Encourage use of recycled materials (demand for materials)
 - d) Internalize the full waste-management cost of production and consumption
 - e) Provide funds for disposal of "problem" wastes or products with excessive residuals
 - f) Provide funds for remediation of environmental damage

An SDF is usually a charge added to the purchase price of an item at some point in the chain from manufacture to distribution. The intent is to build the full life-cycle costs to the economy and environment into the price of the product. The market price of batteries or pesticides (for example) does not account for the full cost of handling and disposal of the hazardous residual when the product is discarded. SDFs may be designed to reflect these costs in the price at the time of purchase.

Three broad types of SDF may be identified, based on the product class for which it is most appropriate and the management objectives of the program it is designed to fund. These are:

- a) Advance disposal fees (ADFs): an SDF on products with inherently harmful or excessive residuals.
 - b) Deposits: an SDF on products with a potentially reusable, recyclable or recoverable residual.
 - c) Litter fees: an SDF on products that, due to their nature, are often improperly disposed.
- Performance of SDFs Under Key Evaluation Criteria:
 - a) *Revenue adequacy.* SDFs are not designed for comprehensive program funding. Revenue adequacy means that the funding mechanism should provide sufficient revenues for program application above administration and collection costs.
 - b) *Stability.* SDFs are stability enhancing in that they would diversify the revenue base, but are not alone sufficient to guarantee revenue stability.
 - c) *Equity.* Properly designed, SDFs are equitable in that they affect only voluntary transactions. Special consideration should be given to products that are generally considered necessities, but would otherwise be candidates for imposition of an SDF (e.g., exemptions on medical containers from advance disposal fee on plastic containers).
 - d) *Incentives.* Price-guided incentives are a primary objective of an SDF system. Properly designed, SDF can reduce use of products having special disposal problems and/or unpriced environmental impacts in production or consumption.
 - Recommendations:

It is recommended that Metro pursue study leading to implementation of charges on specific products that: (1) make identifiable, extraordinary burdens on the disposal system or (2) that may be more valuable if reused or recycled.

4. Generator Orientation: Generator Fees

- Financing Principle:

There are certain solid waste programs and services that benefit all residents (persons and businesses) in the region. All residents of the region should share in the cost of these programs and services.
- Definition:

Certain costs are not necessarily tied to direct consumption of services, but are required to manage an integrated solid waste

system. Examples include the costs of infrastructure, planning, mandated actions and public health that are induced by residence or business activity in the region, but not by use of the disposal and/or recycling system. A concept termed "generator fee" is a type of general charge to generators of solid waste designed to recover non-variable costs that must be incurred regardless of the level of use by the generator. In this manner, generator fees act in the same way as customer (or connection) charges as used by most utilities.

- Performance of Generator Fees Under Key Criteria:
 - a) *Revenue adequacy.* Most or all non-variable costs could feasibly be recovered through a generator fee system. Under a revenue neutral design, there would be no net change in regional remittances to Metro at the time of conversion to a generator fee system.
 - b) *Stability.* The principal advantage of generator fees is their stability under changing conditions, as compared with financing non-variable costs through the tip fee.
 - c) *Equity.* Equity must be designed into a generator fee system. There are three basic equity issues with generator fees: (1) how to define and identify generator types or classes (e.g., households, businesses) so that fees may be linked to benefits received; (2) the basis for allocating costs to generator types or classes to ensure that the generator is assessed fairly and appropriately; (3) the rate structure that assesses costs among members of each class in an equitable manner.
 - d) *Incentives.* Generator fees may work against incentives to reduce, reuse and recycle because they are fixed charges that do not vary with use of the disposal system. Thus, the design and use of generator fees must take into account the tradeoffs between revenue stability and waste reduction policies.
- Recommendation:

Generator fees are recommended where implementation can achieve significant coverage in a cost-effective manner. A key issue in implementation is the mechanism by which generators are reached for assessment, billing, collection and enforcement. If third parties are involved in this process, the billing can be "through" - in which the third party is simply a collection vehicle; or "to" - in which the third party incurs an aggregate generator fee on behalf of its clients. In the latter case, the fees should be designed to enable the third party to pass charges on to generators in its client base.

"Through" options are recommended; "to" options are not. The following billing vehicles are recommended: bill through the

property tax bill, bill through utility billings, bill through jurisdictions, bill through haulers. A Metro-dedicated billing system is not recommended unless cost-effective implementation is possible.

5. "Public Good" Orientation: Taxation

- **Definition:**
Under a tax-based system, some or all costs of programs are supported by general fund revenues that are raised by taxation. Taxation is justified by the "public good" aspect of service provision. The scope of the tax base may be broad or narrow:
 - a) *Broad-Based Taxes.* These are taxes that have wide incidence. Examples include property, income, payroll and sales taxes. These options are not recommended for the following reasons: the weak or non-existent link between revenue sources and uses for solid waste management; extremely difficult to satisfy key evaluation criteria such as waste reduction incentives; inconsistent with financing solid waste disposal as an enterprise fund; the Metro charter requires a vote of the people to implement broad-based taxes and this option is currently under study by the agency as a long-term solution to financing general government.
 - b) *Niche Taxes.* These are taxes that have narrow incidence. No specific recommendations are made with regard to niche taxes.
- **Recommendation:**
This concept should be held in reserve for further study if other approaches prove infeasible.

Introduction

This chapter deals with the performance of RSWMP over time. Qualitative and quantitative aspects of the regional solid waste system will be tracked and reported on a regular basis: phasing and implementation; the plan's effects on individual generators, waste streams, facilities and programs; and on the overall solid waste system.

The information and measurements described in this chapter support the implementation, monitoring, assessment and corrective action elements described in Chapter 6.

Management of RSWMP resources will be based in part on how well individual RSWMP elements (recommended practices, regulations, education and promotion) perform with respect to their individual objectives. This discussion is the subject of Part II of this chapter.

Performance of the Plan itself will be based in part on how well a set of quantifiable benchmarks measure up against numeric planning targets. These benchmarks and targets are the subject of Part III of this chapter.

Appendix 9.A outlines methods and schedules for measuring the required components of the regional benchmarks. Appendix 9.B describes the regional benchmarks in more detail, qualitatively and quantitatively. A separate technical appendix¹ describes the basic assumptions, technical detail and expected performance of the recommended practices under a variety of growth and performance scenarios. The expected performance of the Plan on the regional benchmarks is based on the estimates in the technical appendix.

Part I. Program Monitoring

Program monitoring is a qualitative element of plan assessment and monitoring. It tracks the level of implementation by jurisdiction, material and service level (i.e., see Table 2.3 in Appendix A). Metro's present program monitoring efforts will be expanded to include all elements of the recommended practices described in Chapter 7.

Part II. Program Evaluation

Program evaluation deals with measuring the effectiveness of recommended practices, policies, projects and facilities. Individual programs are the unit of analysis. Program evaluation calls for determination of effectiveness and adherence to objectives. This serves managerial functions by determining whether a program is on course and whether resources are best allocated to their most cost-

¹Metro, *Solid Waste Management Alternatives: Technical Specifications and Expected Performance* (bound separately as Appendix E to this Plan).

Chapter 9

Monitoring and Assessing Plan Performance

effective applications. Program evaluation will provide program-specific feedback. It does not focus on precise indicators of aggregate (system-level) effects.

By contrast, the regional benchmarks (next section) are designed to give precise and reliable indicators of system trends. The benchmarks account for the net effects of all factors that influence the system, including recommended RSWMP practices.

It is not necessary that every RSWMP program be subject to a complete program evaluation; rather, some programs shall be identified for evaluation in the annual work plans. Programs will be evaluated using the most appropriate assessment methods. All waste prevention programs must be considered for evaluation, as direct study is the most appropriate means of measuring this component of the waste management hierarchy. A general requirement is that programs identified for evaluation be accompanied by a *evaluation plan that uses most appropriate assessment methods.*

The appropriate methods and levels of detail for evaluation are specific to the particular programs under evaluation and will be based on characteristics of each program. The annual work plans will specify the measurement methods and performance criteria that will determine whether each program is meeting objectives. Assessment systems shall be in place within one year after a program is identified for evaluation.

Part III. Regional Benchmarks

Regional benchmarks are designed to give precise and reliable indicators of system trends that reflect the net effects of all factors that influence the system, including recommended RSWMP practices.

Three groups of regional benchmarks - system, facility and disposal benchmarks - each containing several quantifiable measures, will track performance of the solid waste system under RSWMP. These benchmarks are listed in Table 9.3.

To each benchmark there corresponds a numeric target that serves as an indicator of system performance. These indicators are intended to help determine whether the solid waste system is generally on track with respect to the management elements of the Plan: goals, processing and disposal capacity, environmental regulations and so forth. The set of indicators is intended to provide a significant amount of the objective feedback for Plan management and steering.

Regional Goals. An important subset of the regional benchmarks is adopted by RSWMP as regional goals. While the benchmarks

provide basic indicators and management information on the solid waste system, the regional goals (Table 9.1) embody the expected performance for the Plan.

Table 9.1 - Regional Solid Waste Goals

	Expected Performance			Units
	Baseline 1993-94	Year 2000	Year 2005	
Recycling Rate	39%	48%	53%	percent
Recovery Rate	42%	52%	56%	percent
Per Capita Disposal*	0.76	0.65	0.60	tons/capita/yr
Disposal Rates*				
Single-Family HHs	29.7	27.9	22.1	lbs/HH/week
Multi-Family HHs	23.7	19.2	19.2	lbs/HH/week
Businesses	20.4	15.6	15.5	lbs/emp/week

* The per-capita disposal rate is calculated by dividing total population into disposal. It is an easily calculated and low-cost measure, but is sensitive to effects of the business cycle and other phenomena that affect generation and disposal. This may make it difficult to detect short-run trends when other effects may dominate. The disposal rates (per household and per employee) are determined from sampling and direct measurement of these generators.

The balance of this chapter summarizes the regional benchmarks. Detailed discussions may be found in Appendix 9.B. The benchmarks have been developed from system-wide estimates of waste prevention, recycling, recovery and disposal - if the recommended practices (Chapter 7) are implemented and perform as expected.

The expected performance of the recommended practices by the year 2000 is shown in Table 9.2a and by the year 2005 in Table 9.2b. Each column in the center section of the tables represents a recommended practice, with tonnage impacts on each generator and material type indicated. The tonnages are the amounts of waste that would have been disposed in the absence of the recommended practices. Accordingly, they are shown as reductions in disposal or landfilled quantities from base case¹ disposal.

As an example, consider the first row in Table 9.2b under single family generators, "Food Waste." Under the base case (the first two columns), 118,400 tons of food waste would be disposed from all single-family generators in 2005 at an average rate of 9.1 pounds per

¹The base case is intended to draw out the tonnage implications of "no change" to the solid waste system. It serves as a "reference scenario" for solid waste programs that affect rates of generation, recycling and disposal. The base case is derived by applying current recycling and disposal rates (specific to the type of generator, material and location in the region) to population and employment projections over the entire planning horizon. Under the base case, changes in recycling and disposal tonnages are due solely to changes in the trend and structure of regional growth. Regional growth projections are from Metro's Region 2040 plan.

household per week. Two recommended practices (home composting and residential organics recovery) affect the food waste stream from single-family households. The technical work that supports this plan¹ indicates that the home composting program would divert 9,500 tons of food waste from disposal and the residential organics recovery would divert 55,200 tons. These numbers are shown in the appropriate columns. In consequence, the net expected diversion from these recommended practices is 64,700 (9,500+55,200) tons per year, an average reduction of 5.0 pounds per household per week. These numbers are shown in the column, "Net Effect of Recommended Practices." The final calculations in this row show the expected disposal with the recommended practices in place: 53,700 tons (118,400 potential disposal less 64,700 expected diversion).

The regional benchmarks described in this chapter have been calculated from the net effects of recommended practices, as summarized in Tables 9.2a and 9.2b. Regional benchmarks are outlined below. Details may be found in Appendix 9.B. Table 9.3 compiles the corresponding benchmarks for the years 2000 and 2005.

Regional Benchmarks

System benchmarks indicate the aggregate effect of solid waste programs on meeting RSWMP goals. Historically, the principal example of a system benchmark is the regional recycling level. System benchmarks tend to be easily calculated and easily understood general measures of change.

Three sets of system benchmarks will be tracked:

1. Recycling and recovery levels
2. Tonnage and per capita measures
3. Solid waste management hierarchy by component

Facility benchmarks will track facility-specific delivery tonnages, travel times to facilities and landfilled tonnage by material type. Facility benchmarks provide information on utilization, accessibility and the need for regional disposal capacity.

Three sets of facility benchmarks will be tracked:

1. Direct-haul delivery tonnage by facility
2. Average haul time (access) to transfer stations
3. Landfilled solid waste by material type

¹Metro, *Solid Waste Management Alternatives: Technical Specifications and Expected Performance* (bound separately as Appendix E to this Plan).

Disposal Benchmarks track change in generator behavior by waste stream, in order to help identify where programs seem to be succeeding and where additional effort may be required.

Disposal benchmarks are material-specific disposal rates by generator type. Examples include the average amount of yard debris disposed per single-family household and the average amount of food waste disposed per employee. The 17 disposal benchmarks are listed generically on page 9-20.

Table 9.2b
Effect of Recommended Practices on RSWMP Disposal Benchmarks, Year 2005

	Base Case* Disposal, Year 2005		Waste Reduction by Practice										Net Effect of Recommended Practices (Reductions in Delivery)		Disposal with Recommended Practices, Year 2005		11. Post-Collection Recovery from Mixed Waste (MRFs, T. Stations, Reloads)	Landfilled Tonnage with Recommended Practices, Year 2005	
	Tons**	Rate**	Waste Prevention		Source Separation								Tons**	Rate**	Tons**	Rate**			
			1. Home Composting	2. Business Waste Evaluations	3. Expand Residential Curbside	4. Commingled Residential Plastics	5. Business Paper Recycling	6. Business Paper and Containers	7. Building Industry: Onsite Separation	8. Business Organics/Hi Tech Process	9. Business Organics/Lo Tech Process	10. Residential Organics Recovery****							
Recommended?	-	-	yes	yes	yes	no	no	yes	yes	no	yes	yes	-	-	-	-	yes	-	
Program Cost/Ton***	na		\$45	\$52	\$40	\$393	\$134	\$113	\$143	\$379	\$333	\$337	-	-	-	-	\$147	-	
System Cost/Ton***	\$150		\$148	\$150	\$149	\$151	\$150	\$149	\$150	\$152	\$152	\$160	-	-	-	-	\$150	-	
See description of practice on page, paragraph#:			7-7 #2	7-13 #1	7-8 #3	-	-	7-14 #2	7-20 #2	-	7-16 #3	7-11 #5	-	-	-	-	7-17 #4	-	
Refuse by Generator & Material																			
Single Family																			
Food Waste	118,400	9.1	-9,500										-55,200	-64,700	-5.0	53,700	4.1	-	-
Recyclables	127,300	9.7			-11,500									-11,500	-0.9	115,800	8.8	-	-
Yard Debris	37,800	2.9	-2,900		-6,400									-22,400	-1.7	15,400	1.2	-	-
Other Waste	104,600	8.0														104,600	8.0	-	-
Total SF Refuse	388,100	29.7	-12,400		-17,900								-55,200	-98,600	-7.6	289,500	22.1	-	-
Multifamily																			
Food Waste	22,300	7.4														22,300	7.4	-	-
Recyclables	26,900	9.0			-11,200									-11,200	-3.7	15,700	5.3	-	-
Yard Debris	5,800	1.9			-2,500									-2,500	-0.8	3,300	1.1	-	-
Other Waste	16,100	5.4														16,100	5.4	-	-
Total MF Refuse	71,100	23.7			-13,700								-48,600	-13,700	-4.5	57,400	19.2	-	-
Business																			
Food Waste	124,100	4.6														75,500	2.8	-	-
Recyclables	222,000	8.2		-10,100					-72,800					-82,900	-3.1	139,100	5.1	-	-
Yard Debris	20,100	0.7														20,100	0.7	-	-
Other Waste	185,400	6.9														185,400	6.9	-	-
Total Business Refuse	551,600	20.4		-10,100					-72,800				-48,600	-131,500	-4.9	420,100	15.5	-	-
Construction & Demolition																			
Total C&D Refuse	295,000	na							-41,200					-41,200	na	253,800	na	-	-
Total Delivery of Refuse by Material Type																			
Food Waste	265,900	na	-9,500										-48,600	-113,300	na	152,600	na	0	152,600
Recyclables	492,100	na		-10,100	-22,700				-72,800	-24,100				-129,700	na	362,400	na	-65,400	297,000
Yard Debris	74,600	na	-2,900		-8,900					-100				-25,000	na	49,600	na	-5,700	43,900
Other Waste	473,200	na								-17,000				-17,000	na	456,200	na	-32,700	423,500
Total Disposal	1,305,800	na	-12,400	-10,100	-31,600				-72,800	-41,200			-48,600	-285,000	na	1,020,800	na	103,800	917,000

* The Base Case shows the tonnage implications of "no change" to the solid waste system, simulated by freezing recycling and disposal rates. See the Technical Appendix for more information.

** The disposal rate is in pounds per household per week for residential, and in pounds per employee per week for businesses. These figures include self-hauled waste.

*** Program and System Costs include costs of administration (public and private), collection, hauling, transfer, processing, and disposal for waste and recyclables.

The system cost for each program indicates the effect of that program alone on the system—that is, the effect in isolation of other programs.

**** Source-separated residential organics are shown phased in after successful implementation of commercial organics programs, successful siting of processing capacity, and cost-effective collection

not applicable

Table 9.3 - RSWMP Solid Waste Regional Benchmarks

	Year 1995 Baseline	Year 2000 Indicator	Year 2005 Indicator	Units
System Benchmarks				
Recycling Level	39%	48%	53%	percent
Recovery Level	42%	52%	56%	percent
Per Capita:				
Generation*	1.34	1.36	1.38	tons/capita/year
Recycling*	0.58	0.71	0.78	tons/capita/year
Disposal*	0.76	0.65	0.60	tons/capita/year
Solid Waste Hierarchy				
Prevention	n/a	1%	1%	percent
Recycling	28%	35%	37%	percent
Composting	6%	9%	12%	percent
Energy/Fuel	8%	7%	7%	percent
Disposal	58%	48%	43%	percent
Facility Benchmarks				
Direct-Haul Tonnage	1,088,700	990,700	1,020,800	tons/year
Transfer Stations	820,900	679,800	700,600	tons/year
MRFs	113,500	157,300	222,100	tons/year
Ltd. Purpose Landfill	154,300	153,600	98,100	tons/year
Access to Transfer Stations	20	20	20	minutes
Multnomah County	18.6	19.0	19.1	minutes
Clackamas County	18.1	18.0	18.1	minutes
Washington County	23.2	23.3	23.3	minutes
Landfilled Solid Waste	1,023,100	926,400	917,000	tons/year
Food	222,600	191,300	152,600	tons/year
Recyclables	366,100	291,700	304,000	tons/year
Yard Debris	60,000	59,300	43,900	tons/year
Other	374,400	384,100	416,500	tons/year
Disposal Benchmarks				
Single Family*	30	28	22	lbs/HH/week
Food*	9.1	8.4	4.1	lbs/HH/week
Recyclables*	9.7	8.8	8.8	lbs/HH/week
Yard Debris*	2.9	2.7	1.2	lbs/HH/week
Other*	8.0	8.0	8.0	lbs/HH/week
Multifamily*	24	19	19	lbs/HH/week
Food*	7.4	7.4	7.4	lbs/HH/week
Recyclables*	9.0	5.3	5.3	lbs/HH/week
Yard Debris*	1.9	1.1	1.1	lbs/HH/week
Other*	5.4	5.4	5.4	lbs/HH/week
Business*	20	16	16	lbs/emp/week
Food*	4.6	2.9	2.8	lbs/emp/week
Recyclables*	8.2	5.1	5.1	lbs/emp/week
Yard Debris*	0.7	0.7	0.7	lbs/emp/week
Other*	6.9	6.9	6.9	lbs/emp/week
Construction & Demo*	234,000	235,800	253,800	tons/year
C&D per capita*	0.18	0.17	0.17	tons/capita/year

*Baseline to be verified or established within one year of plan adoption.

This appendix to Chapter 9 describes data sources and the schedule of activities for measuring the various components of the regional benchmarks.

System Benchmarks. Data required for the system benchmarks will be obtained from two primary data collection activities at Metro: the annual recycling and recovery level surveys and the solid waste transaction data base. In addition, some auxiliary information on regional population, employment and construction will be required.

The Recycling and Recovery Level Survey is an established, ongoing activity at Metro that has produced the Recycling and Recovery Level annual reports since the late 1980s. No functional change is proposed for this activity by the RSWMP revision, although changes in method designed to improve the process and/or product are always under consideration.

The solid waste transaction data base is another established, ongoing activity at Metro. This data base generates the half-yearly Solid Waste Information System report and provides support for numerous solid waste management and planning activities. It contains information on tonnage, materials, time and date, vehicles, haulers, etc., for each solid waste transaction at regional facilities and designated facilities. It provides a basis for estimating delivery tonnage, post-collection recovery and the amount of landfilled waste.

The auxiliary information that is outside the solid waste system - population, employment and construction - is available from other reporting agencies in a reliable and timely manner.

Facility Benchmarks. Tonnage measures for the facility benchmarks are calculated from Metro's transaction data base and will be available directly from Metro Solid Waste Information System (SWIS) reports. Access measures will be developed in conjunction with Metro's Transportation Department.

Disposal Benchmarks. Data required for the disposal benchmarks will be obtained from three primary data collection activities:

1. Waste characterization studies
2. Generator surveys
3. Tracking surveys

The first two activities are intensive research efforts that entail significant planning and resources. Accordingly, they are scheduled for completion on a four-year cycle as shown in Table 9.A.1. These studies and their schedule are established, ongoing activities at Metro. To satisfy annual reporting requirements of RSWMP, the tracking surveys will allow interim updates of the first two studies.

Appendix 9.A

Regional Measurement Plan

**Table 9.A.1 - Regional Measurement Plan
Schedule of Primary Research and Data Collection Activities**

First Cycle	Second Cycle	Third Cycle	Activities
FY 1992-93	FY 1996-97	FY 2000-01	Single-Family Generator Study
FY 1993-94	FY 1997-98	FY 2001-02	Multi-Family Generator Study Waste Characterization Project
FY 1994-95	FY 1998-99	FY 2002-03	Commercial Generator Study
FY 1995-96	FY 1999-00	FY 2003-04	Industrial/C&D Generator Study

The following paragraphs describe the data collection activities in Table 9.A.1. These activities will be done in cooperation with the state, local governments, waste haulers and generators.

The Waste Characterization Study describes the composition of waste in terms of materials (e.g., paper, glass, metal) and commodities (in particular, containers and packaging). The research design also allows identification of the origin of the waste in terms of broad generator types and geographic location and its destination.

Generator studies are a series of sample surveys that measure waste, recyclables and characteristics of individual generators at the point of generation. This research provides case-level data, selected to be representative of each generator type in the region as a whole.

Tracking surveys are intended to allow annual updates of the generator studies. The method will employ a set of geographic "indicator areas" in which the amount of waste and number and type of generators can be tracked using existing resources (e.g., an area under exclusive solid waste franchise). The set of indicator areas will be chosen to be representative of the region as a whole. Observed change within waste and generator categories from the indicator areas will be used to update the baseline information from the generator studies and waste characterization study.

This appendix to Chapter 9 is in three sections, describing regional benchmarks in detail. Each section contains:

- **Description** of the benchmark.
- **Expected performance** of each benchmark under the recommended practices, linked to future planning targets for the benchmark. During the planning process, the expected performance of each set of recommended practices was estimated using a simulation model of disposal and recycling. These expected performances form the basis for the benchmarks.
- **Method** describes the method of measurement, calculation and reporting frequency of each benchmark.

The reader is also referred to Appendix 9.A for a discussion of the Regional Measurement Plan that will support data collection efforts and to the technical appendix to the Regional Solid Waste Management Plan¹ for analysis of the recommended alternatives that underlie the benchmarks.

Section 1: System Benchmarks

System benchmarks indicate the aggregate effect of solid waste programs on meeting RSWMP goals. Historically, the principal example of a system benchmark is the regional recycling level. System benchmarks tend to be easily calculated and easily understood general measures of change.

Three sets of system benchmarks will be tracked:

1. Recycling and recovery levels
2. Tonnage and per capita measures
3. Solid waste management hierarchy by component

1.1 System Benchmarks: Recycling and Recovery Levels

The recycling and recovery levels are the percentages of generation that are recycled and recovered, respectively. They differ only in the definition of "generation": recovery for fuel and energy is excluded from the recycling calculations, but included for recovery. (Some industrial process and special wastes are excluded from generation in both definitions.) The regional recycling level is consistent with past definitions of the recycling level and will be reported in the future for continuity.

¹Metro, *Solid Waste Management Alternatives: Technical Specifications and Expected Performance (bound separately as Appendix E to this Plan)*.

Appendix 9.B

Expected Performance of Regional Benchmarks

To fix ideas and illustrate methodology, Table 9.B.1 shows the recycling and recovery rate calculations with data from Metro, 1993 Recycling and Recovery Level Survey, July 1994. See also Table 9.B.2 in Section 1.3 below for details on future tonnage.

Table 9.B.1 - Regional Recycling and Recovery Levels (1993)

	Recycling Level		Recovery Level	
	Tonnage	Percent of Generation	Tonnage	Percent of Generation
Recovery				
Recycled	470,965	30.8%	470,965	28.3%
Composted	106,483	7.0%	106,483	6.4%
Recovered for Fuel	-	-	125,325	7.5%
Waste-to-Energy	-	-	7,442	0.4%
Recovery Subtotal	577,448	37.7%	710,215	42.6%
Disposal				
Landfilled Ash	-	-	3,190	0.2%
Landfilled Waste	952,226	62.3%	952,226	57.2%
Disposal Subtotal	952,226	62.3%	955,416	57.4%
Generation	1,529,674	100.0%	1,665,631	100.0%

Source: Metro, 1993 Recycling & Recovery Level Survey, July 1994

Expected Performance

The following table shows the expected levels of the recycling and recovery benchmarks under the base case and with recommended practices. The decline of the recycling level under the base case is a consequence of faster growth in sectors with relatively lower recycling rates (e.g., businesses).

If the recommended practices are in place and perform as expected, the recycling and recovery benchmarks account for increases of seven and eight percentage points in the recycling and recovery levels, respectively, by 2000. By 2005, the recycling and recovery levels are 12 and 13 points above current levels. These increases probably understate the true magnitude of change because: (1) the estimates include only the effect of the recommended practices and assume that there is no change from baseline in the per-capita tonnage of materials collected by private sector recyclers; (2) the recommended practices include significant waste prevention effects,

System Benchmarks - Recycling and Recovery Levels

	Base Case		Recommended Practices	
	Year 1995	Year 2005	Year 2000	Year 2005
Recycling Level	39%	37%	48%	53%
Recovery Level	42%	42%	52%	56%

which - due to the manner by which the levels are calculated - reduce the apparent effects of recycling and recovery. On this latter point, see the discussion on tonnage and per-capita measures in the next section.

Method

Computation of recycling and recovery rates shall be consistent with past practice, as reported in previous recycling and recovery level reports. Data collection methodologies will undergo continual evaluation and improvement. The recycling and recovery benchmarks will be calculated from this data base and will be reported annually in the first quarter of the fiscal year.

1.2 System Benchmarks: Tonnage and Per-Capita Rates

There are two commonly cited limitations of recycling and recovery rates as summary system measures: they are penalized by waste prevention activities, and they do not indicate absolute levels (e.g., tonnages) that are relevant to questions of landfill capacity and markets. Tonnage measures do not suffer these limitations and hence are supplements to the recycling and recovery level information. Tonnage measures show trends in waste generation, recycling and landfilling over time. Change in these quantities due to regional growth (rather than solid waste programs and policies) is partially controlled by calculating per-capita rates. Per-capita rates have some limitations (e.g., because population is more stable than waste generation, the pattern of per-capita rates may reveal more of a business cycle effect than solid waste trend in the short run). Nonetheless these measures provide important information over the longer run if limitations are kept in mind.

Expected Performance

The following table shows the expected tonnage and per capita benchmarks under the base case and with recommended practices. These figures provide a somewhat different perspective than the recycling and recovery benchmarks - especially in the delineation of waste prevention effects. If the recommended practices are in place and perform as expected by 2005, waste prevention slows the growth in overall generation from 23.6 percent in the base case to 22.2 percent. The per-capita rate (which removes most of the effect due to regional growth) is reduced from 1.39 tons per year to 1.38. The impact on disposal is even more striking. While the net effect of the recommended practices is to reduce landfilled tonnage by 2 percent, on a per-capita basis the amount of waste landfilled annually declines by more than 21 percent from the base year.

System Benchmarks - Total Tonnage and Tonnage Per Capita (tons/year)

	Base Case		Recommended Practices	
	Year 1995	Year 2005	Year 2000	Year 2005
Generation*	1,725,100	2,131,400	1,932,600	2,108,900
Generation per Capita	1.34	1.39	1.36	1.38
Recycling*	743,600	897,900	1,003,000	1,188,700
Recycling per Capita	0.58	0.59	0.71	0.78
Landfilled Waste*	981,500	1,233,500	929,600	920,200
Landfilled Waste per Capita	0.76	0.80	0.65	0.60

*Annual waste

Method

The tonnage and per-capita tonnage benchmarks will be computed using data from the recycling and recovery level surveys and the transactions data base. Tonnages will be consistent with those used to calculate recycling rates. Per-capita rates will be calculated by dividing tonnages by mid-year certified state population estimates (or a comparable substitute if this series is discontinued) for the Portland tri-county area. The tonnage and per-capita benchmarks will be calculated from these data bases and will be reported annually in the first quarter of the fiscal year.

1.3 System Benchmarks: Solid Waste Management Hierarchy by Component

Neither of the two previous system measures parse the waste stream into its components of prevention, recycling, composting, waste-to-energy and landfilling. The hierarchy by component benchmarks are designed to do this in order to judge whether solid waste programs and policies are generally working to emphasize, de-emphasize or are neutral with respect to the solid waste management hierarchy. This set of measures is simply the percentage disposition (by weight) of each level of the hierarchy. If one measure of success of RSWMP policies is to emphasize the hierarchy, then waste prevention and recycling proportions should rise over time relative to burning and landfilling.

To fix ideas and illustrate methodology, Table 9.B.2 shows calculations for the hierarchy by component, using data from the expected performance of recommended practices. For reference, this table also duplicates the calculations from Table 9.B.1 for the year 2005 recycling and recovery rates.

Table 9.B.2 - Regional Recycling and Recovery Levels, and Hierarchy by Component Under Recommended Practices Year 2005

	Tonnage	Recycling Level	Recovery Level	Hierarchy by Component
Waste Prevention	22,500	-	-	1.1%
Recovery				
Recycled	780,900	40.0%	37.0%	36.6%
Composted	255,100	13.1%	12.1%	12.0%
Recovered for Fuel	145,300	-	6.9%	6.8%
Waste-to-Energy	7,400	-	0.4%	0.3%
Recovery Subtotal	1,188,700	53.0%	56.4%	55.8%
Disposal				
Landfilled Ash	3,200	-	0.2%	0.2%
Landfilled Waste	917,000	47.0%	43.5%	43.0%
Disposal Subtotal	920,200	47.0%	43.6%	43.2%
Generation - fuel and energy	1,953,000	100.0%	-	-
Generation	2,108,900	-	100.0%	-
Generation + Prevention	2,131,400	-	-	100.0%

Expected Performance

The next table shows the expected percentages under the base case and with recommended practices. The figures illustrate the shift in share from disposal to waste prevention, recycling and composting. The percentages differ from the recycling and recovery level benchmarks in that the hierarchy by component benchmarks explicitly account for waste prevention. The "zero sum" nature of the calculations allows the identification of the source of shifts. The set of recommended practices results in a shift out of disposal, one-sixth of which goes to prevention, one-sixth to composting and two-thirds to recycling.

System Benchmarks: Solid Waste Management Hierarchy by Component (percent of generation, by weight)

Component of the Hierarchy	Base Case		Recommended Practices	
	Year 1995	Year 2005	Year 2000	Year 2005
Waste Prevention*	NA	0%	1%	1%
Recycled	28.3%	28%	35%	37%
Composted	6.4%	6%	9%	12%
Recovered Energy/Fuel	7.9%	8%	7%	7%
Landfilled	57.4%	58%	48%	43%
Total (Generation)	100.0%	100%	100%	100%

* Waste prevention is measured relative to the base year. See the appendix.

NA=not applicable

Method

Waste prevention is among the most difficult elements of the solid waste management hierarchy to measure. It requires, in essence, quantification of events (*i.e.*, waste generation) that do not happen. As indicated on page 9-2, estimates of waste prevention will be developed as part of program evaluations of waste reduction practices.

Recycling, composting and recovery for energy will be available directly from the recycling and recovery level surveys.

Landfilled tonnage is calculated from the transactions data base and will be available directly from SWIS reports.

The hierarchy by component benchmarks will be calculated from these data bases and will be reported annually in the first quarter of the fiscal year.

Section 2. Facility Benchmarks

Facility benchmarks will track facility-specific delivery tonnages, travel times to facilities and landfilled tonnage by material type. Facility benchmarks provide information on use, accessibility and the need for regional disposal capacity.

Three sets of facility benchmarks will be tracked:

1. Direct-haul delivery tonnage by facility
2. Average haul time (access) to transfer stations
3. Landfilled solid waste by material type

2.1 Facility Benchmarks: Direct-Haul Delivery Tonnage by Facility

Direct-haul delivery tonnage is the amount of waste, in tons, that is accepted "through the front door" at each facility. Tracking delivery tonnage serves two primary functions:

1. **Monitoring capacity and use.** Regular tracking of deliveries gives early warning signals if tonnage is approaching thresholds.
2. **Monitoring shifts in share between transfer station tonnage and "dry" waste.** Under the assumption that post-collection recovery is more feasible - and therefore more desirable - from deliveries to material recovery facilities.

Expected Performance

The tonnage estimates developed for RSWMP planning are functions of the spatial pattern of generation, recycling and disposal. Facility shares of tonnage are based on least-cost gravity flow of deliveries.

As modeled, recommended practices affect the pattern of generation and recycling, thereby altering the waste to be disposed from a given area. Recommended practices do not alter the assumption that least-cost considerations determine most facility choices, although the pattern of deliveries can be affected by construction of new, more convenient facilities.

The table below shows the expected tonnage under the base case and with recommended practices. The relatively high growth in transfer station tonnage at Metro South and Forest Grove under the base case is a consequence of their locations in rapidly growing areas of the region. "Dry" waste to material recovery facilities and limited purpose landfills tracks regional growth in the base case.

If the recommended practices are in place and perform as expected, overall deliveries to regional facilities in 2005 will be only 3 percent lower than in 1995, rather than 25 percent higher as in the base case. Transfer stations experience a significant reversal of trend, from 25 percent growth in the base case, to an 8 percent decline. This change is most evident for deliveries to Metro Central as a consequence of source-separated recycling programs in the business and construction sectors, which affect Central disproportionately due to its proximity to downtown. Deliveries to material recovery facilities and limited purpose landfills are relatively less affected than transfer stations. This is a function of two countervailing factors: increased emphasis on post-collection recovery tends to increase the share of waste delivered to these types of facilities, but expansion of source-separated programs tends to reduce their overall feedstock.

Facility Benchmarks: Direct-Haul Delivery Tonnage to Facilities (tons/year)

Facility	Base Case		Recommended Practices	
	Year 1995	Year 2005	Year 2000	Year 2005
Metro Central	355,400	423,300	281,100	289,800
Metro South	368,500	470,200	328,900	338,900
Forest Grove	69,300	98,500	69,800	71,900
New Transfer Station	0	0	0	0
Total Transfer Station Tonnage	793,200	992,000	679,800	700,600
Material Recovery Facilities	108,400	135,900	157,300	222,100
Limited Purpose Landfills	142,400	177,900	153,600	98,100
Total "Dry" Waste	250,800	313,800	310,900	320,200
Total Delivery Tonnage	1,044,000	1,305,800	990,700	1,020,800

Method

Metro currently collects delivery tonnage data for all regional facilities under a standard reporting format. Data are maintained in the transactions data base of Metro's solid waste information System. The facility benchmarks will be calculated from this data base and will be reported annually in the third quarter of the fiscal year.

Future Requirements

- All new disposal facilities be required to report delivery, recovery and residue tonnages under the SWIS standards.
- Metro will develop a data collection standard for other solid waste facilities, including processors and material recovery facilities that specialize in source-separated material.

2.2 Facility Benchmarks: Access to Transfer Stations

A primary purpose for monitoring the trend in access to transfer stations is to track equity in the provision of service to regional disposal facilities. The summary measure, average haul time, is the average of the distance (times highway speed) traveled by all users of each facility, weighted by the payload of the vehicle.

Expected Performance

The tonnage estimates developed for RSWMP planning are functions of the spatial pattern of generation, recycling and disposal. The choice of facility is based on a least-cost gravity flow of deliveries. The average haul time is calculated as a by-product of this spatial simulation.

The next table shows the expected travel times under the base case and with recommended practices. Changes under the base case are due entirely to a shift in the location of disposal due to differential spatial growth rates.

Facility Benchmarks: Average Haul Time to Transfer Stations (minutes)

From County	Base Case		Recommended Practices	
	Year 1995	Year 2005	Year 2000	Year 2005
Multnomah	18.6	18.9	19.0	19.0
Clackamas	18.1	18.0	18.0	18.0
Washington	23.2	23.3	23.3	23.3
Region	19.6	19.9	19.9	19.9

If the recommended practices are in place and perform as expected, the overall time to regional facilities will not change from the base case. This masks some subarea differences, however. The greater haul time from Multnomah County is due to the disproportionate effect of business recycling on deliveries from downtown Portland. As business waste is diverted to recycling, there are fewer short-haul trips from the downtown to Metro Central, which effectively increases the average haul time.

The haul time benchmarks are most radically affected by the presence of another transfer station in the system. As no new transfer stations are anticipated by the revised RSWMP, there is little change in these benchmarks due to recommended practices.

Method

Access measures will be developed in conjunction with Metro's Transportation Department. Direct measurement may substitute for simulations from the Transportation Department if year-to-year measurements are comparable. The access benchmarks will be reported annually in the third quarter of the fiscal year.

2.3 Facility Benchmarks: Landfilled Solid Waste by Material

Landfilled solid waste is the amount of waste that is generated in the planning area and disposed in a landfill, regardless of the location of the landfill. Tracking landfill tonnage by material serves two primary functions:

1. **Monitoring the net impact of diversion programs on disposal.**
2. **Monitoring capacity and use.** Regular tracking of deliveries gives early warning signals if disposal sites are approaching thresholds.

Expected Performance

The following table shows the expected tonnage under the base case and with recommended practices. Under the base case, disposal of all types of materials tracks regional growth; the small differences in growth rates by material are consequences of different growth rates by program and generator types.

If the recommended practices are in place and perform as expected, overall landfilled tonnage in 2005 will be 6 percent lower than in 1995, rather than 18.5 percent higher as in the base case. When compared with regional growth (as measured by population), this represents a 21 percent decrease in per capita tonnage, compared

Facility Benchmarks: Landfilled Solid Waste by Material (tons/year)

Material	Base Case		Recommended Practices	
	Year 1995	Year 2005	Year 2000	Year 2005
Food Waste	214,700	253,600	191,300	152,600
High Value Recyclables	350,400	416,500	291,700	304,000
Yard Debris	58,200	68,300	59,300	43,900
Other Waste	358,200	424,800	384,100	416,500
Total Landfilled	981,500	1,163,200	926,400	917,000
Landfilled per Capita	0.76	0.80	0.65	0.60

with a 5 percent *increase* in the base case. The significant differences in growth rates by material (from negative 13 percent for high-value recyclable materials to 16 percent for "other" waste) reflect the emphases of the recommended practices.

Method

Two data sources are required for calculation of landfilled tonnage by material. Metro currently collects delivery tonnage data for all regional facilities under a standard reporting format. Data are maintained in the transactions data base of Metro's solid waste information system. The landfill by material benchmarks will be calculated from this data base and will be reported annually in the third quarter of the fiscal year.

Section 3. Disposal Benchmarks

The third family of regional benchmarks are *disposal benchmarks*, which track change in generator behavior, by waste stream, in order to help identify where programs seem to be succeeding and where additional effort may be required.

Disposal benchmarks are material-specific disposal rates by generator type. Examples include the average amount of yard debris disposed per single-family households and the average amount of food waste disposed per employee. There are 17 disposal benchmarks, of which 15 are indicated in the following matrix.

Disposal Benchmarks by Generator Type and Material Groups (showing unit of measurement)

Material	Single Family	Multifamily	Business
Food Waste	lbs/household/week	lbs/household/week	lbs/employee/week
High Value Recyclables	lbs/household/week	lbs/household/week	lbs/employee/week
Yard Debris	lbs/household/week	lbs/household/week	lbs/employee/week
Other Waste	lbs/household/week	lbs/household/week	lbs/employee/week
All Refuse	lbs/household/week	lbs/household/week	lbs/employee/week

Two additional measures, the total and per-capita tonnage of construction and demolition debris, will be monitored.

3.1 Disposal Benchmarks: Single-Family

Expected Performance

The following table shows expected single-family disposal rates under the base case and with recommended practices. Under the base case, disposal rates for all types of materials are essentially

unchanged. Differences in rates under recommended practices reflect the effects of those practices.

If the recommended practices are in place and perform as expected, overall single family disposal rates in 2005 will be almost 26 percent lower than in 1995, rather than essentially flat as in the base case.

Disposal Benchmarks: Single-Family Generators
(pounds per household per week)

Material	Base Case		Recommended Practices	
	Year 1995	Year 2005	Year 2000	Year 2005
Food Waste	9.1	9.1	8.4	4.1
High Value Recyclables	9.7	9.7	8.8	8.8
Yard Debris	2.9	2.9	2.7	1.2
Other Waste	8.0	8.0	8.0	8.0
All Refuse	29.7	29.7	27.9	22.1

Technical Note. The effect of the recommended practices is modeled by applying material-specific diversion rates to all of the material that is disposed by single-family households. As a consequence, the rates in the table above include waste that is currently self-hauled as well as waste that is commercially hauled. As can be seen from Appendix 9.A, the single-family measurement plan will be efficient only for commercially hauled waste.

Accordingly, in order to set disposal targets, it is necessary to make assumptions about the amount of diversion that can be expected from both modes of disposal. In the following, it is assumed that the proportion of diversion by material is independent of mode. This means that the relative reductions in the table above can be applied both to commercially hauled and self-hauled waste. This assumption is to be checked during the course of plan monitoring.

Method

Data required for the single-family benchmarks will be obtained from three primary data collection activities: (1) waste characterization studies, (2) generator studies and (3) tracking surveys. The first two activities are intensive research efforts that entail significant planning and resources. Accordingly, they are scheduled for completion on a four-year cycle as shown in Appendix 9.A, Table 9.A.1. These studies and their schedule are established, ongoing activities at Metro. To satisfy annual reporting requirements of RSWMP, the tracking surveys will allow interim updates of the first two studies. The tracking surveys are not currently under way and will be initiated within a year of adoption of the revised RSWMP.

3.2 Disposal Benchmarks: Multifamily

Expected Performance

The following table shows expected multifamily disposal rates under the base case and with recommended practices. Under the base case, disposal rates for all types of materials are unchanged. Differences in rates under recommended practices reflect the effects of those practices. As can be seen, program effects are concentrated in recyclables and yard debris, consistent with the recommendation to expand on-site multifamily recycling. If the recommended practices are in place and perform as expected, overall single-family disposal rates in 2005 will be almost 20 percent lower than in 1995, rather than flat as in the base case.

Disposal Benchmarks: Multifamily Generators (pounds per household per week)

Material	Base Case		Recommended Practices	
	Year 1995	Year 2005	Year 2000	Year 2005
Food Waste	7.4	7.4	7.4	7.4
High Value Recyclables	9.0	9.0	5.3	5.3
Yard Debris	1.9	1.9	1.1	1.1
Other Waste	5.4	5.4	5.4	5.4
All Refuse	23.7	23.7	19.2	19.2

Technical Note. The same modeling assumptions as were listed under single-family disposal benchmarks, above, hold for multifamily disposal benchmarks.

Method

Data required for the multifamily benchmarks will be obtained from three primary data collection activities: (1) waste characterization studies, (2) generator studies and (3) tracking surveys. The first two activities are intensive research efforts that entail significant planning and resources. Accordingly, they are scheduled for completion on a four-year cycle as shown in Appendix 9.A, Table 9.A.1. These studies and their schedule are established, ongoing activities at Metro. To satisfy annual reporting requirements of RSWMP, the tracking surveys will allow interim updates of the first two studies. The tracking surveys are not currently under way and will be initiated within a year of adoption of the revised RSWMP.

3.3 Disposal Benchmarks: Businesses

Expected Performance

The next table shows expected business disposal rates under the base case and with recommended practices. Under the base case, disposal

rates for all types of materials are unchanged. Differences in rates under recommended practices reflect the effects of those practices. As can be seen, program effects are concentrated in recyclables, consistent with the recommendation to expand on-site multifamily recycling. The decline in food waste represents the effect of the organics program for large generators.

If the recommended practices are in place and perform as expected, overall business disposal rates in 2005 will be 24 percent lower than in 1995, rather than flat as in the base case.

**Disposal Benchmarks: Business Generators
(pounds per employee per week)**

Material	Base Case		Recommended Practices	
	Year 1995	Year 2005	Year 2000	Year 2005
Food Waste	4.6	4.6	2.9	2.8
High Value Recyclables	8.2	8.2	5.1	5.1
Yard Debris	0.7	0.7	0.7	0.7
Other Waste	6.9	6.9	6.9	6.9
All Refuse	20.4	20.4	15.6	15.5

Technical Note. The same modeling assumptions as were listed under single-family disposal benchmarks, above, hold for business disposal benchmarks.

Method

Data required for the business generator benchmarks will be obtained from three primary data collection activities: (1) waste characterization studies, (2) generator studies and (3) tracking surveys. The first two activities are intensive research efforts that entail significant planning and resources. Accordingly, they are scheduled for completion on a four-year cycle as shown in Appendix 9.A, Table 9.A.1. The tracking surveys and their schedule are established, ongoing activities at Metro. To satisfy annual reporting requirements of RSWMP, the tracking surveys will allow interim updates of the first two studies. The teaching surveys are not currently under way and will be initiated within a year of adoption of the revised RSWMP.

I HEREBY CERTIFY THAT THE FOREGOING IS A COMPLETE AND EXACT COPY OF THE ORIGINAL THEREOF.

Rebecca V. Skoemaku, Archivist
Clerk of the Metro Council

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF ADOPTING)	ORDINANCE NO. 95-624
THE REGIONAL SOLID WASTE)	
MANAGEMENT PLAN)	Introduced by Mike Burton,
)	Executive Officer
)	

95-624

WHEREAS, Metro Ordinance No. 88-266B adopted the Regional Solid Waste Management Plan as a functional plan under ORS 268.390; and

WHEREAS, There is a need for a new Regional Solid Waste Management Plan because 1) the Metro Council requested a revision of the waste reduction and facilities Chapters of the Plan, 2) the Plan as adopted and amended called for a major review every five years and 3) major changes have occurred in the regional solid waste system that need to be addressed; and

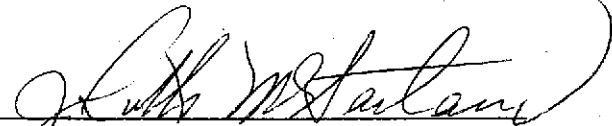
WHEREAS, The ordinance was submitted to the Executive Officer for consideration and was forwarded to the Council for approval; now therefore,

THE METRO COUNCIL ORDAINS AS FOLLOWS:

1. The Regional Solid Waste Management Plan as shown in Exhibit A to this ordinance is adopted as a functional plan under ORS 268.390 and containing the Waste Reduction Program required under ORS 459.055.

2. That Ordinance 88-266B adopting a Regional Solid Waste Management Plan and the following amendments 89-315 (Waste Reduction Chapter), 90-359 (Plan Development and Amendment Chapter), 90-3⁶⁸~~40~~ (Special Waste Chapter), 91-377 (Yard Debris Plan), 91-393A (Local Government Facility Siting Standards), 91-406A (Illegal Dumping Chapter), 91-416 (Metro West Transfer and Material Recovery System Chapter), 92-456 (Household Hazardous Waste Chapter) are hereby rescinded.

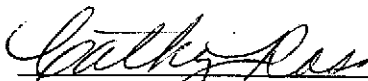
ADOPTED by the Metro Council this 30 day of Nov., 1995.



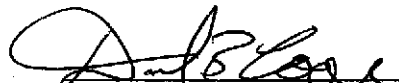
J. Ruth McFarland, Presiding Officer

ATTEST:

Approved as to Form:



Recording Secretary



Daniel B. Cooper, General Counsel

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STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 95-624 FOR THE PURPOSE OF ADOPTING THE REGIONAL SOLID WASTE MANAGEMENT PLAN

DATE: October 30, 1995

Presented by: Mike Burton
Bern Shanks

Introduction

The Executive Officer recommends adoption of the 1995-2005 Regional Solid Waste Management Plan (RSWMP) through adoption of Ordinance No. 95-624. Adoption of the 1995-2005 RSWMP represents a revision of the RSWMP adopted by Council in 1988 and is intended to replace that Plan. In 1994, the Council directed staff to update the RSWMP and to address waste reduction and disposal needs for the next ten years. This Plan accomplishes that task.

The Plan's recommendations were initially developed by Metro's Solid Waste Advisory Committee (SWAC). SWAC and Metro staff conducted an extensive public review process, after which SWAC made adjustments to its recommendations. See Attachment 1, "Public Information Program, Meetings and Comments Summary," for a report of the public process. The draft RSWMP was then forwarded to the Executive Officer. The Executive Officer accepted SWAC's recommendations. He did, however, amend Goal 7 (page 5-7, Chapter 5) to increase the level of recycling and recovery the region would accomplish. This final draft reflects the Executive Officer's recommendations.

The Oregon Department of Environmental Quality (DEQ) has responsibility to review and approve Metro's adopted RSWMP. DEQ representatives have reviewed the draft RSWMP and have determined the Plan will meet or exceed DEQ's requirements for approval.

Organization of the Plan

- Background Information
Section 1, Chapters 1-4

The first section includes four chapters that provide background information on the regional solid waste system and the issues addressed in the new RSWMP. Chapter 4, Key Solid Waste Planning Issues, provides a background to recommendations in the key areas of waste reduction, transfer stations/recovery facilities, and the need for revenue stability and equity in the solid waste financing system. The intent is to update this information on a regular basis to ensure the Plan remains relevant to policy discussions.

- **Management Plan**
Section 2, Chapters 5-9

The second section of the Plan contains five chapters and covers the RSWMP's goals, objectives, recommendations and implementation. Staff would like to stress the importance of the process by which the Plan was developed, and the process by which it will be implemented and monitored. The involvement of local governments, the private sector and the general public was critical in formulating the Plan. Chapter 6 describes this process in detail. Chapter 7, pages 7-2 and 7-3, summarize how the recommended practices were developed. The implementation, monitoring and revision program contained in the Plan is intended to ensure that the Plan's goals and objectives are achieved.

- **Appendices and Glossaries**
Section 3

Because the Plan utilizes many unfamiliar terms and relies on technical studies, this third section is provided to assist the reader.

Summary of Plan Recommendations

- **Recommended Goals and Objectives**

While the goals and objectives are generally consistent in intent, tone, and language with existing RSWMP policies, they are designed to reflect more accurately the needs of the next ten years. The goals emphasize Metro's commitment to the waste management hierarchy (reduce, reuse, recycle and recover before landfilling), the importance of public education in promoting waste reduction, and the need to consider costs and benefits in developing solid waste management practices.

Most of the goals and objectives presented in Chapter 5 were developed in cooperative discussions with the Solid Waste Advisory Committee. Some objectives were added to SWAC's recommendations as a result of Metro legal counsel and DEQ review. Goal 7 (page 5-7), a statement of the region's waste reduction goals, was amended by the Executive Officer to state that a 50% regional recycling goal will be met or exceeded by the year 2005, and that a year 2000 interim recovery goal of 52% will be met.

- **Recommended Solid Waste Management Practices**

The Plan includes recommended practices for waste reduction and disposal services for each sector of the solid waste stream: residential, business, and building industries (construction and demolition). The recommendations also address regulatory issues. In recognition of its importance, a separate chapter is devoted to financing recommendations for Metro's solid waste management system. The recommended practices were developed in cooperative discussions with SWAC.

Major recommendations in the Plan are:

- Build no new transfer stations.

Recommended waste reduction practices (including processing facilities) are designed to compensate for future growth.

- Emphasize the waste reduction hierarchy.

A major new regional effort in waste prevention and resource conservation is needed. The previous plan focused on residential recycling and significant amounts of post-collection recovery.

- Target the business sector for major new recycling efforts.

Both local governments and Metro will place significantly more focus on improving recycling services to businesses.

- Expand and improve existing programs in the residential sector.

These include the home composting program, waste prevention efforts, and both the single-family and multi-family curbside recycling systems.

- Restructure Metro's rates.

The Plan reiterates previous recommendations made to Metro Council that new methods of financing be explored. These new methods include System Benefit Charges, Generator Charges, and Special Disposal Fees on specific products or groups of products (for example, an Advance Disposal Fee on hazardous household products). The Plan recommends financial objectives: rate equity, incentives aligned with waste management policies, and revenue stability, adequacy and neutrality.

- Implement Advance Disposal Fees.

Specifically recommended for further study is a Special Disposal Fee in the form of an Advance Disposal Fee to assist in funding household hazardous waste management services.

Impacts of the new Plan

The Plan is designed to build upon the strengths of existing waste reduction efforts. Implementation of the Plan is expected to have several important impacts:

- Requirements that Metro play a strong role to provide technical assistance and coordinate the development of solid waste plans, policies and services in the region.
- Significant advances in business recycling and organics processing. Regional cooperation will be critical to achieving these advances.
- Strong emphasis on education and regional media promotion to meet waste reduction and recycling goals. While staff is confident these can be very effective, the Plan specifically calls for development of long-term funding for such efforts and to evaluate their effectiveness.
- Reliance on local governments to continue to improve and expand both their residential and commercial programs. The FY 1996-97 Metro and local government work plans are being developed to be consistent with the Plan.
- No significant public investment in capital intensive facilities. However, the Plan does envision private investment in dry waste processing and organics processing facilities in order to reach the year 2005 recycling goals.
- Staffing and funding programs at or above current levels by both Metro and local governments to achieve the Plan's goals. The implementation process outlined in the Plan is designed to promote the development of the most efficient and effective programs.

Other Issues

- **Organics Recovery**

In order to reach or exceed the region's ambitious recycling goal by the year 2005, the Plan recommends a phased approach to recover organics, first from businesses and then from residences. The Plan also recommends development of organics processing capacity. A request for proposals for an organic waste recovery demonstration project consistent with the Plan's long-term recommendations is currently before the Council Regional Environmental Management Committee.

- Plan Implementation and Revision

The Plan is intended to be a "living" plan and subject to changes and revisions as the solid waste system changes. For example, the Plan recognizes that decisions on franchising or licensing facilities (*e.g.*, a reload facility) can depend on the successful implementation of waste reduction efforts or the accuracy of growth forecasts.

- Metro revenue and regulatory system revisions

The Plan makes reference at several points to expected major changes to Metro's long-term financing and regulatory system. These include a revision to the rate structure and regulatory systems for yard debris and organics facilities. Future revisions to Metro Code that are brought before Council will be developed in coordination with the Plan.

- "Vertical Integration"

Historically there have been two main "vertical integration" issues Metro policy makers have considered:

1. Ownership by a business of two or more major disposal system components -- *e.g.*, hauling routes, transfer stations, and landfills.

The existing RSWMP makes a general reference to the effect that this issue should be a factor in solid waste decision making. The Executive Officer recommends that these issues should continue to be considered on a case by case basis in making major decisions about the solid waste system. Objective 4.6 (page 5-5) has been added as an amendment to Goal 4 to accomplish this.

2. Permitting Metro franchised facilities (*e.g.*, dry waste processing facilities) to accept waste from other than their own trucks.

Currently Metro Code only allows this to occur through an exemption. The draft Plan states that the Council should consider whether the code needs to be revised to allow this outright. Staff will soon propose an ordinance and staff report for Executive Officer and Council consideration.

- Reload Facilities

The Plan calls for no new transfer stations. The Plan allows reload facilities on a case-by-case basis to improve service in outlying areas or if existing transfer stations had capacity problems.

Final Development of Plan

There are several solid waste management areas in which long-term recommendations have not yet been fully developed and integrated into the Plan. These are:

- Household hazardous waste (completion of recommended practices)
- Disaster debris management
- Illegal dumping
- Local government land use facility siting policies

Staff's work to incorporate these elements into the final RSWMP is expected to be completed during fiscal year 1995-96.

Planning Requirements Fulfilled by the Plan

The Plan is intended to satisfy both functional planning requirements and state laws and regulation that require Metro to submit a waste reduction plan.

Objective 6.4 (page 5-6) as recommended by SWAC has been amended upon the advice of Metro counsel to ensure that the Plan enables Metro to exercise its functional planning authority.

DEQ representatives have participated in the development of the Plan both in SWAC meetings (as a non-voting member) and on SWAC's Planning Subcommittee. DEQ has reviewed the draft RSWMP and has determined the Plan will meet or exceed its requirements for approval. DEQ reserves formal, final approval for after review of the adopted RSWMP.

Financial Impact

Adoption of the Plan will have no direct financial impact on the Department's FY 1995-96 budget. The current budget was developed at the same time as the Plan was being drafted. During that process, an effort was made to insure that the budget, including long-term fiscal plans, would reflect probable Plan directives. The Plan, for example, directs Metro to continue to perform waste generator studies and monitor the performance of the Plan. The current year's budget includes funds for such efforts.

Executive Officer

The Executive Officer recommends adoption of the new Regional Solid Waste Management Plan through adoption of Metro Ordinance No. 95-624.

Attachments and Exhibits: *

- Exhibit A** **Executive Officer's Recommended Regional Solid Waste Management Plan,
Final Draft, October 1995**
- Attachment 1** **Public Information Program, Meetings and Comments Summary,
Final Report, October 20, 1995**

* These two documents were delivered to all Metro Councilors under separate cover the week of October 30, 1995.

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I HEREBY CERTIFY THAT THE FOREGOING IS A COMPLETE AND EXACT COPY OF THE ORIGINAL THEREOF

[Signature]
Clerk of the Metro Council

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AMENDING)
THE REGIONAL SOLID WASTE)
MANAGEMENT PLAN)

ORDINANCE NO. 97-700
Introduced by Mike Burton,
Executive Officer

WHEREAS, The Regional Solid Waste Management Plan (Plan), adopted by the Council as a functional plan via Ordinance No. 95-624, describes a process for the Plan's annual review and periodic revision; and

WHEREAS, In keeping with the review and revision process, staff, local government representatives, and other interested parties have proposed amendments to the Plan; and

WHEREAS, The Regional Solid Waste Advisory Committee (SWAC) appointed a task force to review the proposed amendments, to involve the public in that process, and to make recommendations to SWAC, the Executive Officer, and the Council; and

WHEREAS, SWAC has recommended Council adoption of the amendments described in Exhibit A to this ordinance; and

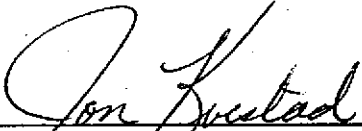
WHEREAS, the Executive Officer has recommended Council adoption of the amendments described in Exhibit A to this ordinance; and

WHEREAS, The amendments are consistent with the overall goal of the Regional Solid Waste Management Plan: To continue to develop and implement a Solid Waste Management Plan that achieves a solid waste system that is regionally balanced, environmentally sound, cost-effective, technologically feasible and acceptable to the public.

THE METRO COUNCIL ORDAINS AS FOLLOWS:

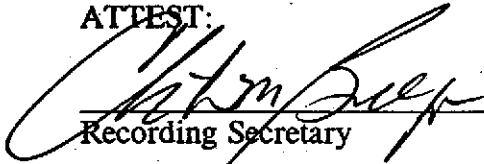
1. The amendments described in Exhibit A to this ordinance be adopted into the Regional Solid Waste Management Plan.

ADOPTED by the Metro Council this 7th day of August, 1997.




Jon Kvistad, Presiding Officer

ATTEST:



Recording Secretary

Approved as to Form



Daniel B. Cooper, General Counsel

Exhibit A to Ordinance No. 97-700
Amendments to the
Regional Solid Waste Management Plan

Note: New language is shown as underlined. Deleted language is shown as crossed out.

Amendment 1.A - Review and Approval of Alternative Practices. Chapter 6, "Phase II, Implementation," pages 6-3 and 6-4, are amended as follows:

"Phase II. Implementation Program

The purpose of the implementation program is to make recommended practices happen. The implementation process, however, will allow the development of alternative practices where required by local conditions. As explained in Chapter 7 of the RSWMP, any local government proposing an alternative practice is required to demonstrate that the alternative will perform at the same level as the recommended practice. The director of Metro's Regional Environmental Management Department will review and approve alternatives to recommended practices. This review will occur as part of the Metro/local government annual work plan cycle described below and in Appendix F of this RSWMP. Metro will consider various ways to provide financial support, when necessary to achieve RSWMP goals.

Implementation will require the following types of coordination efforts:

- Metro/Local Government Annual Work Plans - Annual Work Plans are the means by which Metro and local governments plan for the programs, projects and activities to implement the waste reduction elements of the Regional Solid Waste Management Plan for each fiscal year (July 1 - June 30). Metro will continue to coordinate annual planning cycles. Annual Work Plans ensure that planning is conducted with a regional, as well as local, perspective, provide for shared resources and eliminate duplication. Local governments and Metro will cooperatively develop their work plans to determine which recommended solid waste practices or alternative practices will be implemented and/or continued during the next year. Metro's Annual Work Plan will provide technical assistance and support to aid local governments in implementation of recommended solid waste practices or alternative practices. Metro has provided grant funds to local governments to help carry out work plans since 1990. When determining future funding, consideration should be given to local government efforts to maintain existing programs and implement new recommended practices.

Annual Work Plans will be developed in two phases: 1) the Annual Work Plan phase when Metro and local governments, using the RSWMP as a guide, determine the general practices and activities that will be implemented in the upcoming fiscal year; and 2) the implementation phase when Metro and local governments develop the specific programs, projects and activities that will be implemented in the upcoming fiscal year. The planning process and schedule is illustrated in Appendix F of this Plan.

Both the Annual Work Plan and implementation documents will be reviewed by Metro's director of Regional Environmental Management. If a work plan includes alternative practices, the director will confirm that the local government proposing an alternative has demonstrated that the alternative will perform at the same level as the recommended practice. Proposed Annual Work Plans will be reviewed by the SWAC for the purpose of recommending whether they work plan should be approved by the Metro Executive Officer and Council. Annual Wwork P-lans will then be presented to the Metro Executive Officer and Council for final approval. Plan implementation proposals will be approved by the REM Director. (Ssee Appendix C, Year ~~Eight Six~~ Metro and Local Government Waste Reduction Plans, for an example of an approved Annual Work Plan.)

Alternative practices that are developed at the option of local governments must be submitted to the Metro REM Director by local governments at the beginning of the phase when implementation plans are being developed, as described in Appendix F. However, local governments considering a major departure from one or more recommended practices are encouraged to discuss proposals with the REM Director early in the Annual Work Plan development phase. The REM Director may seek the advice of the regional Solid Waste Advisory Committee regarding proposed alternatives. Approved alternative practices will be incorporated into the plan implementation document.

- Regional Work Groups - Work groups involving Metro, local governments, DEQ and the private sector will continue to study regional problems and recommended program implementation strategies. These work groups will play an important role to implement the new RSWMP. They may also assist to evaluate programs and, if necessary, recommend revisions to the Plan. Table 6.2 shows examples of work groups that met during 1995 to address regional solid waste issues. There are other ad hoc groups not included in this table. New groups form and existing groups disband as issues arise and are resolved. Metro will review the general activities of work groups annually to determine which should disband or whether new groups should be formed.
- Local Government Implementation Efforts - Once annual work plans are developed, local government staff will work with elected officials, citizen advisory groups and waste haulers to manage collection franchises and set service rates to achieve annual work plan goals and objectives.
- Metro Implementation Efforts - Metro will conduct demonstration projects, special studies and other research designed to remove barriers to implementing specific recommended or alternative practices.
- Private Sector Efforts - The private sector will continue to develop and expand recycling and recovery services including drop-off and buy-back centers, material recovery facilities and collection services. Metro efforts will also include continued development of markets for recovered materials and support of firms and industries that use recovered materials in their manufactured products.

Metro is responsible for coordinating implementation efforts and ensuring that all such efforts:

- Maintain consistency with RSWMP goals, objectives, recommended practices and the State of Oregon Integrated Resource and Solid Waste Management Plan.”

Amendment 1.B - Relationship of Alternative Practices to Annual Waste Reduction Work Plans.
 Amendment 1.B is added to and made a part of the RSWMP as Appendix F, as follows:

Appendix F, Pg. 1
Annual Work Plan - Development and Approval Process
Alternative Practices - Application, Review and Approval Process

Timeline	Annual Work Plan Process	Alternative Practice Process
ANNUAL WORK PLAN PHASE		
The Annual Work Plan phase is the time when Metro and local governments, using the Regional Solid Waste Management Plan as a guide, determine the general types of activities that will be implemented in the upcoming fiscal year (July 1 through June 30).		
Oct. 1	Draft developed by Metro and local govt. staff for the upcoming fiscal year period	Local governments are encouraged to share plans about alternative practices with Metro as early in the planning process as possible, especially if the proposed alternative is a major departure from one or more recommended practices.
Oct. 15 to Dec. 15	Regional public involvement Public Comment and Metro SWAC reviews (3 sessions) RECom Work session RECom public hearing	
Dec. 15 to Jan. 1	Council approval process Metro Council consideration and adoption	
ANNUAL IMPLEMENTATION PLAN PHASE		
The implementation planning phase is the time when Metro and each local government develop specific programs, projects and activities for the upcoming fiscal year (July 1 through June 30). This process is timed to coincide with government budget schedules.		
Jan. 1 to May 1	Details developed by Metro and local government staff that are consistent with the general Annual Work Plan framework.	Alternative practices developed by local governments
Jan. 1 to May 1	Local and Regional Public Involvement Local SWAC and other public involvement Metro budget hearings Local government budget hearings, Other	Local governments work with local solid waste advisory committees to develop implementation details, including alternative practices.
May 1		Deadline - Alternate Practice Concept Submitted by local government to the REM Director.
May 1 - 31		Alternative Practice Concept Considered and Approved by REM Director. The Director may seek the advice of the regional Solid Waste Advisory Committee regarding the alternative practice during this time. Alternative Practices made available for public comment. **
June 1	Implementation Plans Due to Metro from local governments Public Comment on Implementation Plans *	Alternative Practice Details Due to Metro from local governments as part of the detailed annual work plan.
PLAN IMPLEMENTATION		
July 1	Start of Fiscal Year - Implementation begins	Implementation begins
Nov. 30	Intergovernmental agreements for grant funding approved and funds distributed to local governments	
PROGRESS REPORTING		
Aug. 1	Local govt. progress reports due to Metro for previous fiscal year period	Reports will include information about how alternative practices are performing
Nov. 30	Metro publishes annual "State of the Regional Solid Waste Management Plan" status report for the previous fiscal year period	Metro's report will include information about how alternative practices are performing

RECom - Metro Council Subcommittee, the Regional Environmental Management Committee
 SWAC - Solid Waste Advisory Committee

Interested persons will be notified that implementation plans are available for comment before final approval. See the next page for a description of that process.
 Interested persons will be notified that Alternative Practices are available for comment before final approval.

Amendment 1.B - The following words are added to the RSWMP:

RSWMP Appendix F, Pg. 2
Annual Work Plan - Development and Approval Process
Public Input Process for Metro and Local Government Implementation Plans

The following steps will determine the development and approval of Local Government Waste Reduction Implementation Plans.

1. Annual Waste Reduction Implementation plans are received by Metro from local governments on July 15, 1997 (due date will change to June 1 in subsequent years).
2. Metro staff review of plans submitted and notice to interested parties that plans may be reviewed and comments submitted (2 week time-frame).
3. Metro staff will compile both Metro comments and any public comments received.
4. Metro and local government staff will meet to review all comments submitted.
5. Metro and local governments will decide if any comments received warrant changes to the plans.
6. Metro will approve local government plans, as modified through steps 1) through 5) above, within two weeks of meeting with the local governments.

Analysis and consideration of public comments on local government implementation plans received by Metro is an administrative process. Local implementation plans will not be subject to Metro Council, local Council or Commission approval. Public comments are advisory only and may not result in changes to the local government annual implementation plans.

RSWMP Appendix F, Pg. 3

Alternative Practices Application, Review & Approval Process

Background

An "alternative practice" is a solid waste management program or service that is proposed by a local government as an alternative to one or more of the recommended practices stated in the Regional Solid Waste Management Plan (RSWMP). The purpose of this appendix is to provide clarification about the intent of alternative practices and to describe a process by which they will be reviewed and approved.

Intent of Alternative Practices

- They should focus on the strategy underlying the recommended practices
- Perform at same level or better than the recommended practice it is intended to replace
- Allow for local flexibility in programs and services
- Remove barriers to better, innovative approaches
- Be approved using a simple, administrative process

At what point does an approach become an "alternative"?

- If the local practice is a departure from the concept described in the RSWMP
- If the local practice represents a change in the solid waste management hierarchy (e.g., a move from source-separation and recycling to recovery)
- If the local practice diverts substantially from the annual work plan "line item" framework elements

Process for application and review of an Alternative Practice

- Local governments requesting an alternative practice will submit, for the REM Director's approval, a proposal that demonstrates how the alternative will perform at the same level as the recommended practice.
- If the proposed alternative is a major departure from the recommended practice, the local government is encouraged to submit its proposal to the REM Director as early in the annual plan development cycle as possible.
- To demonstrate the same level of performance, the proposal for an alternative practice should address, as appropriate, the following criteria:
 - . Estimated participation levels
 - . Estimated amount of waste that will be prevented, recycled, recovered, or disposed
 - . Consistency with the waste reduction hierarchy and source separation priority
 - . Economic and technical feasibility
 - . Estimated impact on other waste reduction activities
- The REM Director will consider and may approve the proposal based on the criteria listed above.

Amendment 2 - Targets for Business Waste Prevention Programs

Amendment 2 is added to and made a part of the RSWMP as Appendix G, as follows:

RSWMP Appendix G, Pg. 1

Types of Businesses Targeted for Waste Prevention Programs

Note: The purpose of Appendix G is to clarify the types of businesses and materials targeted for regional waste prevention programs that are described in the Regional Solid Waste Management Plan.

Office Related Businesses	Banking and financial institutions, insurance, real estate, title companies, legal service, engineering, architects, accounting, advertising, public relations, personnel services, personnel services, management.
Education	Elementary and secondary schools, colleges, universities, professional schools, junior colleges, libraries, vocational schools, and other educational services.
Dry Goods Retail	All types of retail except food stores. Examples include stores that sell lumber and building supplies, lawn and garden supplies, appliances, furniture, household goods, and clothing.
Wholesale and Warehousing	Businesses that wholesale and/or warehouse various goods including furniture and home furnishings, lumber and construction materials, professional and commercial equipment, durable goods, paper products, clothing, and groceries and related products. This category also includes public warehousing and storage.
Medical and Dental	Hospitals, medical and dental clinics, medical and dental schools and universities.
Hotels, Institutional and Other Services	Hotels, motels, auto leasing and rental, museums and galleries, professional organizations, social services, and health services.

These businesses have been targeted because they currently produce large quantities of preventable or recoverable wastes of the types listed below:

Paper Materials and Packaging:

High grade office paper
Mixed grades of office paper
Newspaper
Corrugated cardboard, kraft paper
Other paper packaging

Plastic Packaging:

Shrink and stretch wrap
Plastic bags
Bubble pack

Wood Packaging:

Pallets
Crates
Dimensional lumber

Pilot projects have demonstrated that these businesses can achieve higher levels of waste prevention (and significant reductions in waste disposed) by changing purchasing and other management practices. Periodic assessments will be conducted to track and measure progress. The types of businesses targeted for waste prevention programs could change over time. See the following pages for a complete list of all the types of businesses, by SIC code, within each general category.

The regional goal is to reach 80% of targeted businesses by the year 2000. Each local government will implement a strategy to achieve waste prevention from the targeted types of businesses located within its jurisdiction. Upon request, Metro will assist local governments to identify the types, numbers and sizes of businesses within local jurisdictions.

RSWMP Appendix G, Pg. 2

Types of Businesses Targeted for Waste Prevention Programs - Listed by SIC Codes

OFFICE (OR RELATED)	
Code	Description
601	Central Reserve Depository Institutions
602	Commercial Banks
603	Savings Institutions
606	Credit Unions
609	Functions related to depository banking (trust companies)
611	Federal and Federally Sponsored Credit Agencies
614	Personal Credit Institutions
615	Business Credit Institutions
616	Mortgage Bankers and Brokers
621	Security Brokers, Dealers and Flotation Companies
622	Commodity Contracts Brokers and Dealers
623	Security and Commodity Exchanges
628	Services allied with the Exchange of Securities or Commodities
631	Life Insurance
632	Accident and Health Insurance and Medical Service Plans
633	Fire, Marine, and Casualty Insurance
635	Surety Insurance
636	Title Insurance
637	Pension, Health, and Welfare Funds
639	Insurance Carriers (general)
641	Insurance Agents, Brokers, and Service
651	Real Estate Operators and Lessors (no Developers)
653	Real Estate Agents and Managers
654	Title Abstract Offices
655	Land Subdividers and Developers
671	Holding Offices
672	Investment Offices
673	Trusts
679	Miscellaneous Investing
731	Advertising
732	Consumer Credit Reporting, Mercantile Reporting, Adjustment and Collection Agencies
733	Mailing, Reproduction, Commercial Art, Photography and Stenographic Services
736	Personnel Supply Services
737	Computer Programming, Data Processing, and other Computer Related Services
801	Offices and Clinics of Doctors of Medicine
802	Offices and Clinics of Dentists
803	Offices and Doctors of Osteopathy
804	Offices and Clinics of Other Health Practitioners
807	Medical and Dental Laboratories
811	Legal Services
871	Engineering, Architectural, and Surveying Services
872	Accounting, Auditing, and Bookkeeping Services
874	Management and Public Relations Services

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Types of Businesses Targeted for Waste Prevention Programs - Listed by SIC Codes

II. EDUCATION	
Code	Description
821	Elementary and Secondary Schools
822	Colleges, Universities, Professional Schools and Junior Colleges
823	Libraries
824	Vocational Schools
829	Other Schools and Educational Services

III. DRY GOODS RETAIL	
Code	Description
521	Lumber and Other Building Materials
525	Hardware Stores
526	Retail Nurseries, Lawn and Garden Supply Stores
531	Department Stores
533	Variety Stores
539	Miscellaneous General Merchandise Stores
561	Men's and Boy's Clothing and Accessory Stores
562	Women's Clothing Stores
563	Women's Accessory and Specialty Stores
564	Children's and Infants' Wear Stores
565	Family Clothing Stores
566	Shoe Stores
569	Miscellaneous Apparel and Accessory Stores
571	Home Furniture and Furnishing Stores
572	Household Appliance Stores
573	Radio, Television, Consumer Electronics, and Music Stores
591	Drug Stores and Proprietary Stores
593	Used Merchandise Stores
594	Miscellaneous Shopping Goods Stores
599	Retail Stores (not otherwise classified)

IV. WHOLESALE/WAREHOUSING	
Code	Description
422	Public Warehousing and Storage
502	Furniture and Home Furnishings Wholesale
503	Lumber and Other Construction Materials Wholesale
504	Professional and Commercial Equipment and Supplies Wholesale
509	Miscellaneous Durable Goods Wholesale
511	Paper and Paper Products Wholesale
513	Apparel, Piece Goods, and Notions Wholesale
514	Groceries and Related Products Wholesale
519	Miscellaneous Nondurable Goods Wholesale

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Types of Businesses Targeted for Waste Prevention Programs - Listed by SIC Codes

HOUSING, INSTITUTIONAL AND OTHER SERVICES	
Code	Description
701	Hotels and Motels
702	Rooming and Boarding Houses
704	Organization Hotels and Lodging Houses on Membership Basis
751	Automotive Rental and Leasing
753	Automotive Repair Shops
805	Nursing and Personal Care Facilities
806	Hospitals
809	Miscellaneous Health and Allied Services
832	Individual and Family Social Services
833	Job Training and Vocational Rehabilitation Services
836	Residential Care
841	Museums and Galleries
861	Business Associations
862	Professional Membership Organizations
863	Labor Unions and Similar Labor Organizations
864	Civic, Social, and Fraternal Organizations
865	Political Organizations
866	Religious Organizations

Amendment 3.A - Expansion of Source-Separated Recycling for Businesses

Chapter 7, page 7-15, "Key Elements of the Recommended Practice," item a), is amended as follows: "a) Collection of paper (newspaper, corrugated cardboard, high grade office paper, and scrap paper) and containers (glass, tin, aluminum, PET and HDPE) from businesses. For businesses that do not dispose of significant quantities of paper and containers, the most prevalently disposed recyclable materials (e.g., scrap metals, wood, yard debris or plastic film) will be collected."

Amendment 3.B - Expansion of Source-Separated Recycling for Businesses

Table 2A, page 7-36, Recommended Practice #2, key element a), is amended as follows: "a) Collection of paper (newspaper, corrugated cardboard, high grade office paper, and scrap paper) and containers (glass, tin, aluminum, PET and HDPE) from businesses. For businesses that do not dispose of significant quantities of paper and containers, the most prevalently disposed recyclable materials (e.g., scrap metals, wood, yard debris or plastic film) will be collected."

Amendment 4.A - Recycling Services for Building Industries

Chapter 7, page 7-20, "Key Elements of the Recommended Practice," item a), is amended as follows: "Local governments assure the availability of on-site services for two or more materials and ensure that generators requesting hauling services for construction and demolition sites are offered these services."

Amendment 4.B - Recycling Services for Building Industries

Table 3, page 7-38, Recommended Practice 2, key element a), is amended as follows:
“Local governments assure the availability of on-site services for two or more materials and ensure that generators requesting hauling services for construction and demolition sites are offered these services.”

Amendment 5.A - Metro In-House Recycling for Construction-Related Projects

Chapter 7, page 7-20, “Key Elements of the Recommended Practice,” item d), is added to and made part of the RSWMP as follows: “Consistent with the provisions of Metro Executive Order No. 47 relating to in-house waste reduction practices, require the recycling of construction and demolition debris for Metro in-house construction, demolition and remodel projects.”

Amendment 5.B - Metro In-House Recycling for Construction-Related Projects

Table 3, page 7-38, Recommended Practice #2, key element d) is added to and made a part of the RSWMP as follows: “Consistent with the provisions of Metro Executive Order No. 47 relating to in-house waste reduction practices, require the recycling of construction and demolition debris for Metro in-house construction, demolition and remodel projects.”

Amendment 6 - Assessment of Residential Scrap Paper Programs

Table 1A, page 7-34, Recommended Practice #3, key element a), key dates and issue 2, is amended as follows: “Assess scrap paper efforts by 12/98.”

Amendment 7 - Residential Curbside Recycling Promotion

Table 1A, page 7-34, Recommended Practice #3, key element d), “Responsible,” is amended as follows: “LG, M, H.”

Amendment 8 - Removed from consideration

Amendment 9 - Business Recycling Recognition Program

Table 2A, page 7-36, Recommended Practice #2, key element d), “Responsible,” is amended as follows: “LG, PS, M.”

Amendment 10 - Removed from consideration

Amendment 11 - Removed from consideration

Amendment 12 - Post-collection Recovery Fee Waivers

Table 2B, page 7-37, Recommended Practice #4, key element c), key date and issue 1, is deleted from the RSWMP as follows: “~~Coordinate with Metro rate revision process; New rate structure by 7/96.~~”

Amendment 13 - Post-collection Recovery and Vertical Integration

Table 2B, page 7-37, Recommended Practice #4, key element e), key date and issue 1 is deleted from the RSWMP as follows: “~~Coordinate with Metro rate revision process; New rate structure by 7/96.~~”

Amendment 14.A - Salvaged Building Materials

Chapter 7, pages 7-19 and 7-21; and Table 3, page 7-38, Recommended Practice #3, is amended as follows: "Develop markets to support reuse and recycling rather than energy recovery."

Amendment 14.B - Salvaged Building Materials

Table 3, page 7-38, Recommended Practice #3, key elements a) and b), key dates and issues are amended as follows: "~~Reduction in wood recovery for energy; 1) 25% reduction by 1/97; 2) 50% reduction by 7/00;~~ Monitor progress of the increase in salvaged building materials."

Amendment 15.A - Yard Debris Facilities and Regulation

Chapter 7, page 7-23, Recommended Practice #1, key element c), is amended as follows: "Local Governments require use of Metro and Oregon DEQ licensed-authorized facilities by their franchised curbside yard debris collectors."

Amendment 15.B - Yard Debris Facilities and Regulation

Table 4, page 7-39, Recommended Practice #1, key element c), is amended as follows: "Local Governments require use of Metro and Oregon DEQ authorized-facilities by their franchised curbside yard debris collectors."

Amendment 15.C - Yard Debris Facilities and Regulation

Table 4, page 7-39, Recommended Practice #1, key element c), key date and issue 2, is amended as follows: "Existing facilities by 1/98."

Amendment 16 - Removed from consideration

Amendment 17 - Organic Waste Regulatory System

Table 4, page 39, Recommended Practice #2, key element a), key date and issue 1, is amended as follows: "By 12/97."

Amendment 18 - Removed from consideration

Amendment 19 - Metro Facility Capital Improvement Planning

Table 5, page 7-40, Recommended Practice #1, key element a), key date and issue 2, is amended as follows: "New Metro South and Central operations contracts by 10/97."

Amendment 20 - Metro Transfer Station Assessment

Table 5, page 7-40, Recommended Practice #1, key element c), "Responsible," is amended as follows: "M, LG, PS, H."

Amendment 21 - Maintain Disposal Options and Alternatives

Table 5, page 7-40, Recommended Practice #3, key element b), "Responsible," is amended as follows: "M, LG."

Amendment 22.A - Cross reference to technical appendix and performance information
Chapter 7, page 7-7, Recommended Practice #2, title, shall be amended as follows: "2. Expand Home Composting (Projected tonnage reductions are shown in Tables 9.2a and 9.2b. Additional technical specifications and performance information is available in Appendix E.)"

Amendment 22.B - Cross reference to technical appendix and performance information
Chapter 7, page 7-8, Recommended Practice #3, title, shall be amended as follows: "3. Expand and Increase Participation in Existing Residential Curbside Programs (Projected tonnage reductions are shown in Tables 9.2a and 9.2b. Additional technical specifications and performance information is available in Appendix E.)"

Amendment 22.C - Cross reference to technical appendix and performance information
Chapter 7, page 7-11, Recommended Practice #5, title, shall be amended as follows:
"5. Curbside Collection and Processing of Residential Food Wastes (Projected tonnage reductions are shown in Tables 9.2a and 9.2b. Additional technical specifications and performance information is available in Appendix E.)"

Amendment 22.D - Cross reference to technical appendix and performance information
Chapter 7, page 7-13, Recommended Practice #1, title, shall be amended as follows: "1. Waste Prevention and Recycling Education, Information and Market Development (Projected tonnage reductions are shown in Tables 9.2a and 9.2b. Additional technical specifications and performance information is available in Appendix E.)"

Amendment 22.E - Cross reference to technical appendix and performance information
Chapter 7, page 7-14, Recommended Practice #2, title, shall be amended as follows: "2. Expand Source-Separated (Pre-Collection) Recycling (Projected tonnage reductions are shown in Tables 9.2a and 9.2b. Additional technical specifications and performance information is available in Appendix E.)"

Amendment 22.F - Cross reference to technical appendix and performance information
Chapter 7, page 7-16, Recommended Practice #3, title, shall be amended as follows:
"3. Collection and Off-Site Recovery of Source-Separated Food and Non-Recyclable Paper (Projected tonnage reductions are shown in Tables 9.2a and 9.2b. Additional technical specifications and performance information is available in Appendix E.)"

Amendment 22.G - Cross reference to technical appendix and performance information
Chapter 7, page 7-17, Recommended Practice #4, title, shall be amended as follows: "4. Regional Processing Facilities for Mixed Dry Waste (Projected tonnage reductions are shown in Tables 9.2a and 9.2b. Additional technical specifications and performance information is available in Appendix E.)"

Amendment 22.H - Cross reference to technical appendix and performance information
Chapter 7, page 7-20, Recommended Practice #2, title, shall be amended as follows: "2. On-Site Source-Separation of Recyclables at Construction and Demolition Sites (Projected tonnage reductions are shown in Tables 9.2a and 9.2b. Additional technical specifications and performance information is available in Appendix E.)"

STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 97-700, FOR THE PURPOSE OF AMENDING THE REGIONAL SOLID WASTE MANAGEMENT PLAN (RSWMP)

DATE: July 1, 1997

Presented by: Bruce Warner

Action Requested

Purpose of the Ordinance

The Council is requested to adopt Ordinance No. 97-700 which would approve amendments to the Regional Solid Waste Management Plan (RSWMP) developed during the annual review of the RSWMP. The amendments make the changes necessary to ensure the RSWMP remains a current and relevant policy document. The amendments are summarized later in this staff report.

Background

RSWMP requirements for Plan amendments. The amendments proposed under Ordinance No. 97-700 have been brought forward, reviewed and considered according to the public process prescribed in Chapter 6 of the RSWMP. The amendments are consistent with the overall goal of the RSWMP which is to continue to develop and implement a Solid Waste Management Plan that achieves a solid waste system that is regionally balanced, environmentally sound, cost-effective, technologically feasible and acceptable to the public.

Regional Task Force and SWAC consideration of proposed amendments. In January 1997 the Regional Solid Waste Advisory Committee (SWAC) appointed a task force to review proposed amendments. The task force included representatives from the solid waste hauling, processing and recycling industries, recycling advocates, a business representative, and local regional and state government interests. On May 21, SWAC voted to accept the Task Force's recommendations regarding the amendments which are now included in Ordinance No. 97-700.

SWAC approved additional RSWMP amendments on April 16, 1997, relating to solid waste facilities. Those amendments are not included in Ordinance No. 97-700. Implementation of those amendments is still under consideration by SWAC. Those amendments will be forwarded for Council consideration once SWAC completes its discussion.

Public Involvement. In addition to SWAC and Task Force involvement, a mailing went out to over 200 interested parties -- waste hauling associations, solid waste facility operators, elected officials, city and county administrators and planning managers, environmental groups, neighborhood associations, and others -- advising them of the proposed amendments, and inviting them to comment. A number of comments were received as a result of that effort. See Attachment 3 to this staff report for a summary of the public involvement process, the

comments received, and an explanation of how comments resulted in language changes.

As a result of the public involvement phase, SWAC voted on May 21 to remove Amendments 8, 10, 11, 16, and 18 from further consideration. Amendment 8 had proposed a change in the lead role for planning residential food waste collection -- from local governments to Metro. Amendments 10, 11, 16, and 18 had proposed date extensions for the implementation of commercial and residential collection of food waste. The Task Force recommended that reasonable implementation dates be established by April 1998 as a part of the long-range organic waste management system planning efforts currently underway.

DEQ Approval. The public involvement process also includes Oregon Department of Environmental Quality (DEQ) review and approval of RSWMP amendments once they are approved by the Metro Council. See Attachment 4 for a letter from the DEQ advising Metro of the specific criteria by which DEQ will review and approve RSWMP amendments. DEQ staff have given a preliminary indication that the amendments as proposed meet those criteria.

Policy Impacts

No policy impacts are expected from the proposed amendments.

Financial Impacts

As noted in this staff report (see "Summary of the Proposed Amendments" section below), Amendment 5, requiring recycling for Metro in-house construction projects, is consistent with City of Portland ordinance (passed January 1996) that mandates recycling for construction and demolition projects in the City of Portland and with Metro Executive Order No. 47.

Construction costs for projects outside the City of Portland may be affected by adoption of the amendment. No financial impacts are expected from the other proposed amendments.

Summary of the Proposed Amendments

- ◆ **Amendments 1.A and 1.B - Provide clarification for the process by which Alternative Practices are reviewed and approved, and the relationship of Alternative Practices to the Annual Waste Reduction Work Plan Process.** Amendment 1.A would change language in RSWMP Chapter 6. Amendment 1.B would add a new Appendix F to the RSWMP. The amendments were requested by Metro and local government staff.

Chapter 6 as currently written has caused some readers to erroneously conclude that the approval of an Alternative Practice is a legislative, rather than administrative, process. Also, the RSWMP's description of the process (pages 6-3 and 6-4) by which Metro/Local Government Annual Waste Reduction Work Plans are developed, reviewed and approved, no does not reflect that the planning process has two distinct phases. The proposed amendments: 1) affirm that the Regional Environmental Management (REM) Director is responsible for review and approval of alternative practices; 2) affirm that the REM Director may seek the advice of the Regional Solid Waste Advisory Committee regarding the

consideration and approval of alternatives; 3) clarify the relationship of the alternative practices approval process to the Annual Waste Reduction Work Planning process; 4) provide an accurate description of the two-phased annual work planning process; and 5) affirm that the Metro Council approves annual work plans during the initial, general planning phase.

- ◆ **Amendment 2 - Provides clarification of targets for business waste prevention programs** by adding a new Appendix G. The RSWMP does not currently provide a comprehensive description of the types of businesses that should be targeted for waste prevention efforts. Local government representatives have requested clarification.
- ◆ **Amendments 3.A and 3.B - Expand the Recommended Practice relating to source-separated recycling for businesses, key element a) of Recommended Practice #2, to read:** “Collection of paper (newspaper, corrugated cardboard, high grade office paper, and scrap paper) and containers (glass, tin, aluminum, PET and HDPE) from businesses. For businesses that do not dispose of significant quantities of paper and containers, the most prevalently disposed recyclable materials (e.g., scrap metals, wood, yard debris or plastic film) will be collected.” The RSWMP currently provides for the collection of paper and containers from all businesses. The proposed amendment expands the Recommended Practice to include collection of other materials from those businesses that don't have significant quantities of paper and/or containers.

Key element a) of Recommended Practice #2 is described in two different places in the RSWMP. Amendment 3.A would change language in the Chapter 7 text. Amendment 3.B would change language in the Chapter 7 implementation table.

- ◆ **Amendments 4.A and 4.B - Provide clarification regarding recycling services for building industries** by amendment key element a) of Recommended Practice #2, to read: “Local governments assure the availability of on-site services for two or more materials and ensure that generators requesting hauling services for construction and demolition sites are offered these services.” This amendment provides that generators requesting hauling services for construction and demolition sites are offered those services. The amendment was requested by local governments to define the term “assure availability.”

Key element a) of this Recommended Practice is described in two different places in the RSWMP. Amendment 4.A would change language in the Chapter 7 text. Amendment 4.B would change language in the Chapter 7 implementation table.

Amendments 5.A and 5.B - Provides for in-house recycling for Metro construction-related projects by adding a new key element d) to Recommended Practice #2, to read: “Consistent with the provisions of Metro Executive Order No. 47 relating to in-house waste reduction practices, require the recycling of construction and demolition debris for Metro in-house construction, demolition and remodel projects.” This amendment was requested by Metro staff to ensure Metro's commitment to construction and demolition recycling for its own facilities and projects, to ensure that provisions of Metro Executive Order No. 47 were carried out, and to be consistent with the provisions of a City of Portland ordinance relating

to recycling requirements for businesses.

Key element d) of Recommended Practice #2 is described in two different places in the RSWMP. Amendment 5.A would add language in the Chapter 7 text. Amendment 5.B would add language in the Chapter 7 implementation table.

- ◆ **Amendment 6 - Assessment of Residential Scrap Paper Programs.** Changes the date for assessing curbside scrap paper collection from 1/97 to 12/98 on Table 1A, page 7-34, Recommended Practice #3, key element e). This change was requested by Metro and local government staff because the method for assessing the program will be through the region-wide waste characterization study that will be conducted during calendar year 1998.
- ◆ **Amendment 7 - Residential Curbside Recycling Promotion.** Provides clarification that local governments, rather than Metro, will take the lead to target neighborhoods for promotions to increase participation in curbside recycling programs. Changes Table 1A, page 7-34, Recommended Practice #3, key element d). This change corrects a typographical error.
- ◆ **Amendment 8 - Removed from consideration.** This amendment was removed from further consideration as a result of public involvement efforts and SWAC consensus. See Attachment 3 of this staff report for further explanation.
- ◆ **Amendment 9 - Business Recycling Recognition Program.** Provides clarification that local governments, rather than Metro, take the lead for business recycling recognition programs. Changes Table 2A, page 7-36, Recommended Practice #2, key element d). This change corrects a typographical error.
- ◆ **Amendments 10 and 11 - Removed from consideration.** These amendments were removed from further consideration as a result of public involvement efforts and SWAC consensus. See Attachment 3 of this staff report for further explanation.
- ◆ **Amendment 12 - Post-collection Recovery Fee Waivers.** This is a key date change to Table 2B, page 7-37, Recommended Practice #4, key element c). The amendment deletes the reference that the consideration of fee waivers on the material recovered at mixed dry waste processing facilities should coincide with the Metro FY 1995-96 rate revision process. The fee waiver issue will be addressed as part of the Metro Regulatory Code revision project which is currently in progress. No changes were made to Metro's rate structure as a result of the FY 1995-96 rate review process.
- ◆ **Amendment 13 - Post-collection Recovery and Vertical Integration.** This is a date change to Table 2B, page 7-37, Recommended Practice #4, key element e). The amendment deletes reference that consideration of vertical integration policies should coincide with the Metro FY 1995-96 rate revision process. The vertical integration policy will be addressed as part of the Metro Regulatory Code revision project which is currently in progress.

Amendments 14.A and 14.B - Salvaged Building Materials. Amendment 14.A would change Building Industries Recommended Practice #3 to read: "Develop markets to support reuse and recycling rather than energy recovery." The change would be made in three different places in the RSWMP.

Amendment 14.B would change the description of how the results of salvage efforts would be measured. It would change the measurement method described in Table 3, page 7-38, Recommended Practice #3, key elements a) and b), from a percentage of wood recovered for energy to a percentage of increase in salvaged materials. This change was recommended by Metro staff because the amount of materials salvaged is a more comprehensive and accurate measure of progress and is easier to track.

- ◆ **Amendments 15.A, 15.B and 15.C - Yard Debris Facilities and Regulation.** Amendment 15.A would change the language in the Chapter 7 text that describes Recommended Practice #1, key element c): "Local Governments require use of Metro and Oregon DEQ authorized facilities by their franchised curbside yard debris collectors." Amendment 15.B would change the language in Chapter 7, Table 4 to read the same as a) above.

Amendment 15.C would change Chapter 7, Table 4, page 39, to adjust the implementation date by which local governments require franchised curbside and yard debris collectors to use Metro authorized facilities - from 1/97 to 1/98. The licensing of Metro-area yard debris composting facilities is currently in progress and will be completed by 6/97. Metro and DEQ staff are currently developing state-wise standards which will be completed in late 1997. Metro and DEQ will work with local governments to implement the recommended practice.

- ◆ **Amendment 16 - Removed from consideration.** This amendment was removed from further consideration as a result of public involvement efforts and SWAC consensus. See Attachment 3 of this staff report for further explanation.
- ◆ **Amendment 17 - Organic Waste Regulatory System.** This is a date change to Table 4, page 39, Recommended Practice #2, key element a). The amendment adjusts the implementation date for developing a regulatory system for the processors of food and other organic waste - from 7/97 to 12/97. This work will begin once the Metro Regulatory Code is revised.
- ◆ **Amendment 18 - Removed from consideration.** This amendment was removed from further consideration as a result of public involvement efforts and SWAC consensus. See Attachment 3 of this staff report for further explanation.
- ◆ **Amendment 19 - Metro Facility Capital Improvement Planning.** This is a change to Table 5, page 7-40, Recommended Practice #1, key element a). The amendment adjusts the implementation date of the Metro capital improvement plan from 7/96 to 10/97. Adjust key date of new Metro South and Central contracts from 10/96 to 10/97. These date changes were recommended by Metro staff. It became necessary to amend the implementation schedule because of the impacts of flooding at Metro South Station.

- ◆ **Amendment 20 - Metro Transfer Station Assessment.** This amendment changes the lead role for this responsibility as described in Table 5, page 7-40, Recommended Practice #1, key element c). The amendment provides clarification that Metro, rather than local governments, will take the lead role to implement waste handling practices at Metro's transfer stations sufficient to reduce the demand on transfer facilities.
- ◆ **Amendment 21 - Maintain Disposal Options and Alternatives.** This amendment changes the lead role for the responsibility as described in Table 5, page 7-40, Recommended Practice #3, key element b). It provides clarification that Metro, rather than local governments, will take the lead role to maintain the franchised, in-region system of private landfills and processing facilities. The change was requested by Metro staff.
- ◆ **Amendments 22.A through 22.H.** These amendments provide more information to the reader about certain Recommended Practices described in Chapter 7. It adds a reference in several places that the reader can refer to Appendix E for technical specifications of designated Recommended Practices or to Tables 9.2a and 9.2b for information about how the practices are expected to perform.

Executive Offer Recommendation

The Executive Officer recommends adoption of Ordinance No. 97-700.

Attachments to this staff report:

- Attachment 1 Public Involvement Process and Schedule
- Attachment 2 RSWMP Amendment Task Force Membership
- Attachment 3 Summary of Comments Received as a Result of Public Involvement
- Attachment 4 Letter from the DEQ - Criteria for DEQ Approval of Plan Amendments

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Attachment 1

**Regional Solid Waste Management Plan - Amendment Process
Public Involvement Process and Schedule**

Preliminary Process		
Interested Parties	. Submittal of proposed Plan amendments to staff by various interested parties . Staff solicited public comment regarding certain Plan amendments as part of the Year 8 Waste Reduction Work Plan public involvement process	Jan. 1995 through Jan. 1996
REM Director	Release of annual "State of the Plan" report; need for certain Plan amendments reported	Nov. 1995
REM Director	Authorized consideration of certain Plan amendments	Jan. 1996
RECOM	Recommended Council approval of the Year 8 Waste Reduction Work Plan; authorized consideration of certain Plan amendments	Jan. 22 (Council approved Year 8 Work Plan on Feb. 6)
SWAC	Established RSWMP Amendment Task Force and defined the group's scope of work	Jan. 15
DEQ	Transmitted a letter to Metro stating the criteria by which DEQ would approve RSWMP amendments	Feb. 10
1st Draft Phase - Process and Timeline		
SWAC Task Force	SWAC Task Force developed recommendations	April 9
Full SWAC	SWAC recommended Metro Executive Officer and Council approval of proposed amendments relating to solid waste facilities	April 16
Council RECOM	Review and comment on 1st draft	April 25 - May 12
Public Review	Mailing to interested parties: . Letter summarizing proposed amendments . Summary of process and timeline Deadline for public comments on proposals	April 25 May 12
SWAC Task Force	The Task Force considered public comments and developed final recommendations	May 19
Final Draft Phase - Process and Timeline		
Full SWAC	Accepted the Task Force's recommendations; Recommended Council adoption of proposed waste reduction and "housekeeping" amendments as	May 21
Full SWAC	Discussion regarding the possible impacts of the amendments relating to solid waste facilities	June 18
Executive Officer	Executive Officer reviews ordinance; Staff report and ordinance filed with Council	July 2
Full Council	1st reading of the ordinance to adopt amendments (no public hearing or deliberation will occur at this meeting)	July 17 (tentative)
Public Hearing Council RECOM	Public hearing on the ordinance to adopt the amendments; RECOM forms its recommendation to the Council	July 23 (tentative)
Full Council	2nd reading of the ordinance to adopt the Plan; Consideration of Plan adoption	August 7 (tentative)
DEQ	DEQ approval the amendments adopted by Council	August
	Distribution of amendments to interested parties	September

RSWMP: The Regional Solid Waste Management Plan.

RECOM: Regional Environmental Management Committee, a subcommittee of the Metro Council.

SWAC: Regional Solid Waste Advisory Committee; advisory to the Metro Executive Officer and Council.

Meeting times and places: Call the Metro Council Office (797-1540) for information about RECOM meeting

Attachment 2

**Regional Task Force
Solid Waste Management Plan Amendments**

Name	Affiliation
TASK FORCE MEMBERS:	
Lee Barrett	City of Portland
Susan Ziolko	Clackamas County
Scott Klag	Metro
Jennifer Erickson (Alt.)	
Dave Kunz	DEQ, NW Region
Tom Miller	waste haulers
Mike Misovetz	citizen, business
Jeff Murray	recycling industry
Jeanne Roy	Recycling Advocates
Betty Patton	environmental advocate
Lynne Storz	Washington County

OTHER INTERESTED PARTIES:

The following people received agendas throughout the process. Some of these people attended meetings and offered comments during the process.

Tam Driscoll	East Multnomah County Cities
Kathy Kiwala	Washington County
JoAnn Herrigel	City of Milwaukie
Dave White	ORRA / Tri-County Council
Estle Harlan	Clackamas County Haulers

Attachment 3, pg. 1
Summary of Comments Received
as a Result of Public Involvement Efforts

Summary of Comments Received	Task Force's Recommendations to SWAC *
<p>Amendment 1 - Annual Work Planning Process Amend Exhibit C, pg. 1, Proposed Appendix F. Provide opportunities for public comment on the draft Annual Work Plan before the REMCom work session and the public hearing. (J. Roy)</p>	<p>Amend as requested. See Exhibit C, pg. 1 for proposed language change.</p>
<p>Amendment 1 - Annual Work Plan Implementation Amend Exhibit C, Proposed Appendix F. Provide an opportunity for public comment on the local implementation plans before they are approved by Metro. (J. Roy)</p>	<p>Amend as requested. See Exhibit C, pg. 1, for proposed language change. Add an additional page to Exhibit C (pg. 2) to describe how the public process would work.</p>
<p>Amendment 1 - Alternative Practices - Review and Approval Amend Exhibit C, Proposed Appendix F. Include an opportunity for public comment on proposed alternative practices before they are approved by Metro. (J. Roy)</p>	<p>Amend as requested. See Exhibit C, pg. 1, for proposed language change.</p>
<p>Amendment 5 - Metro In-House Recycling / Bldg. Industries Either eliminate the amendment or provide a more specific description of the requirements of Executive Order No. 47. (J. Roy)</p>	<p>Amend as requested: <u>"Ensure the provisions of Metro Executive Order No. 47 relating to waste reduction practices for Metro construction, demolition and remodel projects. Metro will continue to implement waste reduction practices on its in-house construction, demolition, and remodeling projects. The following waste reduction practices shall be considered for each project: reuse, salvage, recycling, use of products with recycled content, and facility designs that provide space for recycling and promote conservation of resources such as energy and water. Specific requirements for projects are currently established in Metro Executive Order No. 47 and shall be updated as necessary due to changes in construction technologies, state statutes or other relevant considerations."</u></p>
<p>Amendment 8 - Residential Food Waste Collection, Lead Role. Do not amend the RSWMP to change lead role from local governments to waste haulers. Local governments should retain the lead role for residential food collection. (J. Roy, Washington County Recycling Cooperative)</p>	<p>We agree. Withdraw the amendment from consideration.</p>
<p>Amendment 10 - Organic Waste Processing Pilot Projects, Date Change. Extend the target dates out further than 1/98. (Wash. Co. Coop.)</p>	<p>Withdraw the amendment from consideration. Reasonable implementation target dates will be established by 4/98 as part of the long-range organic waste management system planning effort (coordinated by B. Metzler and J. Ness). The RSWMP can be amended once those dates are established.</p>
<p>Amendment 11 - Organic Waste Processing Pilot Projects - Date Change. A reasonable target date should be established. (J. Roy)</p>	<p>Withdraw the amendment from consideration. See Amendment 10 for explanation.</p>

* On May 21, SWAC voted to recommend Metro Council approval of the proposed amendments as recommended by the Task Force.

Attachment 3, pg. 2

Summary of Comments Received	Task Force's Recommendations to SWAC *
<p>Amendment 14 - Salvaged Building Materials. Change Recommended Practice #3 to "Develop markets to support <u>reuse and recycling</u> rather than energy recovery." This supports the intent of the practice more closely. Also, it is not obvious how it could be "easier to track" salvaged materials (rather than energy recovery levels), but Metro staff may have more information on that matter. (Wash. Co. Coop.)</p>	<p>Amend the language as requested. Metro staff will develop a plan for measuring the results of region-wide salvage efforts.</p>
<p>Amendment 15 - Yard Debris Facilities and Regulation. Change Recommended Practice #1 to read: "Local Governments require use of Metro or State authorized facilities by their franchised curbside yard debris collectors." (Wash. Co. Coop.)</p>	<p>Amend the language as requested. "Local Governments require use of Metro or Oregon DEQ authorized facilities by their franchised curbside yard debris collectors." Metro and DEQ staff are currently developing state-wide standards which will be completed by late 1997. Metro and DEQ will work with local governments to implement the recommended practice.</p>
<p>Amendment 16 - Yard Debris Facility Siting, Date Change. The target date should be extended further out to make sure local siting codes are consistent with new state land use codes. (Wash. Co. Coop.)</p>	<p>Withdraw the amendment from consideration. See Amendment 10 for an explanation. We agree with the Coop's concerns and recognize the need for coordination among local governments, Metro, and the Oregon LCDC regarding compost facility siting.</p>
<p>Amendment 17 - Organic Waste Regulatory System. Instead of Metro developing its own regulatory and performance standards for organics facilities, Metro should use the DEQ's recently developed standards. It is an excellent piece of work and it seems pointless to duplicate such an effort. If DEQ's standards are used, it could place organics into Metro's code revision in a more timely fashion. (Wash. Co. Coop.)</p>	<p>We agree. Maintain the proposed language. Metro will coordinate with the DEQ to streamline the regulatory system. A precedent already exists per Metro's proposed intergovernmental agreement with the DEQ regarding the oversight of yard debris processing facilities.</p>
<p>Amendment 18 - Organic Facility Siting Standards, Date Change. A reasonable target date should be retained. (J. Roy, Wash. Co. Coop.)</p>	<p>Withdraw the amendment from consideration. See Amendment 10 for response.</p>
<p>Amendment 20, Metro Transfer Station Assessment. It is assumed that this statement refers to "waste handling practices" within the transfer stations and not by haulers. (Wash. Co. Coop.)</p>	<p>That assumption is correct. Maintain the proposed language.</p>

* On May 21, SWAC voted to recommend Metro Council approval of the proposed amendments as recommended by the Task Force.

Attachment 4
Letter from the DEQ
Criteria for Approval of Plan Amendments

February 10, 1997

RECEIVED

Oregon

FEB 12 1997

DOUG ANDERSON
ACTING WASTE REDUCTION MANAGER
METRO
600 NE GRAND AVE
PORTLAND, OR 97232-2736

METRO REGIONAL
ENVIRONMENTAL MANAGEMENT

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

RE: DEQ Approval of RSWMP Amendments
NORTHWEST REGION

Dear Doug:

As indicated in the memo prepared by Marie Nelson dated, February 6, 1997, regarding the meeting held between Metro staff and Dave Kunz of DEQ on the above referenced topic, the following is the Department's understanding:

- 1) DEQ expects that approval of any alternatives to recommended practices listed in the adopted RSWMP will be evaluated by Metro to ensure that the alternative practice is equivalent to or better than recommended practice within the existing plan.
- 2) All amendments to the RSWMP shall be evaluated by Metro to determine if the amendment affects specific waste diversion levels, or rates, as indicated on Tables 9.2a and 9.2b will occur. Metro's analysis of the effect of the amendment on specific waste diversion levels, or rates, shall be provided to DEQ when the amendment to the RSWMP is submitted to DEQ.

Continued best wishes on the success of the RSWMP. If you have any questions or further comments, please feel free to contact me at 229-5151.

Sincerely,



Ed Druback
Manager, Air and Solid Waste Sections
Northwest Region

ED:dpk

I HEREBY CERTIFY THAT THE FOREGOING IS A COMPLETE AND EXACT COPY OF THE ORIGINAL THEREOF.

Rebecca V. Suomala, Accountant
Clerk of the Metro Council

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AMENDING)
THE REGIONAL SOLID WASTE)
MANAGEMENT PLAN)

ORDINANCE NO. 98-761

Introduced by Mike Burton,
Executive Officer

WHEREAS, The Regional Solid Waste Management Plan (Plan), adopted by the Council as a functional plan via Ordinance No. 95-624, describes a process for the Plan's annual review and periodic revision; and

WHEREAS, In keeping with the review and revision process, staff, local government representatives, and other interested parties have proposed amendments to the Plan; and

WHEREAS, The Regional Solid Waste Advisory Committee (SWAC) appointed a task force to review the proposed amendments, to involve the public in that process, and to make recommendations to SWAC, the Executive Officer, and the Council; and

WHEREAS, SWAC has recommended Council adoption of the amendments described in Exhibit A to this ordinance; and

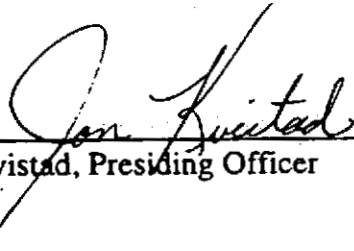
WHEREAS, the Executive Officer has recommended Council adoption of the amendments described in Exhibit A to this ordinance; and

WHEREAS, The amendments are consistent with the overall goal of the Regional Solid Waste Management Plan: To continue to develop and implement a Solid Waste Management Plan that achieves a solid waste system that is regionally balanced, environmentally sound, cost-effective, technologically feasible and acceptable to the public.

THE METRO COUNCIL ORDAINS AS FOLLOWS:

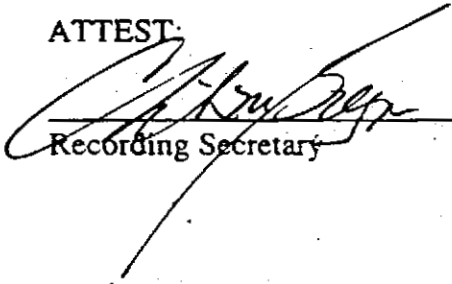
1. The amendments described in Exhibit A to this ordinance be adopted into the Regional Solid Waste Management Plan.

ADOPTED by the Metro Council this 16th day of July, 1998.

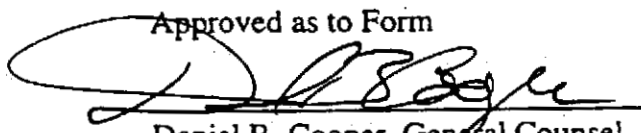


Jon Kvistad, Presiding Officer

ATTEST:



Recording Secretary

Approved as to Form


Daniel B. Cooper, General Counsel

Exhibit A to Ordinance No. 98-761
Amendments to the Regional Solid Waste Management Plan

Note: New language is shown as underlined. Deleted language is shown as crossed out.

The Regional Solid Waste Management Plan (RSWMP) Amendment Task Force was appointed by SWAC in January 1997 to review proposed amendments to the RSWMP that had been advanced by the Director of Regional Environmental Management. The Task Force made recommendations to the full SWAC membership. SWAC reviewed the Task Force's conclusions and made specific recommendations about these amendments to the Metro Executive Officer and Council. The Task Force considered possible Regional Plan clarifications and amendments in the following areas:

1. *Facility issues* - Defining the relationship between materials processing facilities (MRFs) and source separation programs, and between reload facilities and transfer stations.
2. *Alternative practices* - The process and schedule by which the Metro REM Director approves alternatives to the RSWMP's recommended practices proposed by local governments.
3. *Waste prevention for businesses* - The targeting approach (types, sizes, numbers, materials, etc.) for two recommended practices: a) waste prevention evaluations; and b) model waste prevention programs.
4. *Source-separated recycling for businesses* - a) The intent of the practice calling for distribution of containers to small businesses; and b) Expansion of the recommended practice which calls for more recycling of paper and container materials to include other prevalently disposed recyclable materials.
5. *Source-separated recycling for construction and demolition sites* - Clarification of the term "assure availability" of source-separated recycling for construction and demolition sites.
6. *Other* - A number of "housekeeping" type amendments to the RSWMP, such as implementation date changes, and clarification of lead roles and responsibilities.

Ordinance 97-700 was passed by the Metro Council on August 7, 1997 and included amendments to the RSWMP in all of the above areas with the exception of 1: *Facility Issues*. The adopted solid waste facilities amendments raised a number of implementation issues that SWAC and the REM Department discussed over the past year. These discussions have concluded and the implementation issues are addressed in the revised Metro Code chapter 5.01 being brought forward under Ordinance 98-762. This Ordinance, 98-761, brings forward the amendments on the facility issues only. Passage of these amendments ensures consistency between the RSWMP and the proposed Code revision.

The following Amendments to the Regional Solid Waste Management Plan were adopted unanimously by the Metro Solid Waste Advisory Committee and are hereby recommended to the Metro Council for consideration.

Amendment A - Clarify Purpose of Dry Waste Processing for Business Waste Reduction Practices

Amend the "key concept and approach" description, RSWMP page 7-17, for Recommended Practice #4 relating to processing facilities for mixed dry waste, to read:

Because of high disposal costs and the market value of recovered materials, there are strong economic incentives to develop dry waste processing facilities. ~~The majority of construction materials are recyclable. The percentage that can be recycled from any project is dependent on the job.~~ Even with good source separation services in place, there may be materials from businesses that are economically recoverable at processing facilities. More than 85 percent of the waste from residential construction is currently recyclable in the metro region. The recommended practice is to rely on the private sector to develop additional dry waste processing capacity.

Amendment B - Correction of Typographical Error

Amend key element d), RSWMP page 7-22, of Recommended Practice #4 relating to processing facilities for mixed dry waste, to read:

Support and develop markets for recovered materials through technical assistance ~~and~~ to processors and end users of recovered materials.

Amendment C - Clarification to the Plan's description of reload facilities

Amend the description of Recommended Practice #4, RSWMP page 7-25; to read:

~~Allow reload facilities sited, owned and operated by haulers for consolidation of loads for hauling to Metro transfer stations to serve areas distant from transfer stations.~~ Allow the siting of reload facilities for consolidation of loads hauled to appropriate disposal facilities.

Amendment D - Standards for Reload Facilities

Amend key element d) of Recommended Practice #4 relating to reload facilities, RSWMP page 7-27, to read:

Low-level recovery activities (manual "dump and sort" activities and other low technology methods) at reload facilities will comply with all federal, state, regional, and local laws and regulations regarding the recovery of recyclable materials from mixed wastes and be consistent with the Plan's recommendations regarding source-separated recycling efforts.

STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 98-761, FOR THE PURPOSE OF AMENDING THE REGIONAL SOLID WASTE MANAGEMENT PLAN (RSWMP)

DATE: May 28, 1998

Presented by: Bruce Warner

Action Requested and Purpose of the Ordinance

The Council is requested to adopt Ordinance No. 98-761 which approves amendments to the Regional Solid Waste Management Plan (RSWMP) developed during the 1997 review of the RSWMP. The amendments make the changes necessary to ensure the RSWMP remains a current and relevant policy document. The amendments are summarized later in this staff report.

Background

RSWMP requirements for Plan amendments. The amendments proposed under Ordinance No. 98-761 are consistent with the overall goal of the RSWMP which is to continue to develop and implement a Solid Waste Management Plan that achieves a solid waste system that is regionally balanced, environmentally sound, cost-effective, technologically feasible and acceptable to the public.

Regional Task Force and SWAC consideration of proposed amendments. In January 1997 the Regional Solid Waste Advisory Committee (SWAC) appointed a task force to review proposed amendments. The task force included representatives from the solid waste hauling, processing and recycling industries, recycling advocates, a business representative, and local regional and state government interests. SWAC voted to accept all of the Task Force's recommendations regarding RSWMP amendments. Ordinance 97-700, adopted on August 7, 1997, included all of the amendments to the RSWMP recommended by SWAC with the exception of those amendments relating to solid waste facilities.

These facility-related amendments were not included in Ordinance No. 97-700 due to implementation issues raised by one particular amendment. The amendment in question (C below) attempted to clarify what some saw as an ambiguity in the Plan about whether reload facilities could haul materials only to Metro transfer stations or were allowed to haul to any "appropriate disposal facility". Under the latter interpretation, the direct-haul of putrescible wastes to Columbia Ridge Landfill by reloads would be consistent with the Plan.

The Department recognized that direct-haul raised a number of implementation issues such as how to mitigate the impact of additional transport contractors in the Gorge and how Metro could keep benefits from Change Order 7 of the disposal contract. The Department and SWAC subsequently began a process that resulted in twelve months of discussion on direct-haul and related issues. These discussions have concluded and the Department and SWAC made recommendations regarding the conditions under which direct-haul should occur. These recommendations are incorporated into the revised code being submitted as Ordinance 98-762. The solid waste facility issue amendments included in this Ordinance 98-761 were previously approved by SWAC and are being brought forward to ensure that the RSWMP can be unambiguously interpreted as allowing direct-haul.

DEQ Approval. The process also includes Oregon Department of Environmental Quality (DEQ) review and approval of RSWMP amendments once they are approved by the Metro Council.

Summary of the Proposed Amendments

The role of the SWAC Task Force was to review whether the RSWMP provisions were sufficient to guide the region considering the recent growth in Material Recovery Facilities (MRFs) and the potential growth of reload facilities. The four amendments that were eventually approved by SWAC are those that were deemed necessary. The amendments are as follows:

Amendment A - Clarify Purpose of Dry Waste Processing for Business Waste Reduction Practices

SWAC Recommendation - Amend the "key concept and approach" description, RSWMP page 7-17, for Recommended Practice #4 relating to processing facilities for mixed dry waste, to read:

Because of high disposal costs and the market value of recovered materials, there are strong economic incentives to develop dry waste processing facilities. ~~The majority of construction materials are recyclable. The percentage that can be recycled from any project is dependent on the job. Even with good source separation services in place, there may be materials from businesses that are economically recoverable at processing facilities.~~ More than 85 percent of the waste from residential construction is currently recyclable in the metro region. The recommended practice is to rely on the private sector to develop additional dry waste processing capacity.

Rationale - This amendment corrects the impression that only construction and demolition materials go to dry waste facilities. The Plan discusses dry waste processing in two different sections: Business Waste Reduction practices and Building Industries Waste Reduction. The two sections currently contain the same basic language and policy recommendations

about dry waste processing. The above amendment would not change any policies but corrects the impression that only construction and demolition materials go to dry waste facilities.

Amendment B - Correction of Typographical Error

SWAC Recommendation - Amend key element d), RSWMP page 7-22, of Recommended Practice #4 relating to processing facilities for mixed dry waste, to read:

Support and develop markets for recovered materials through technical assistance ~~and~~ to processors and end users of recovered materials.

Rationale - This change was proposed by staff to correct a typographical error.

Amendment C - Clarification to the Plan's description of reload facilities

SWAC Recommendation - Amend the description of Recommended Practice #4, RSWMP page 7-25, to read:

~~Allow reload facilities sited, owned and operated by haulers for consolidation of loads for hauling to Metro transfer stations to serve areas distant from transfer stations.~~ Allow the siting of reload facilities for consolidation of loads hauled to appropriate disposal facilities.

Rationale - The amendment changes the language on page 7-25 to be the same as on page 7-27. The change is intended to clarify where reload facilities could haul their consolidated loads.

Amendment D - Standards for Reload Facilities

SWAC Recommendation - Amend key element d) of Recommended Practice #4 relating to reload facilities, RSWMP page 7-27, to read:

Low-level recovery activities (manual "dump and sort" activities and other low technology methods) at reload facilities will comply with all federal, state, regional, and local laws and regulations regarding the recovery of recyclable materials from mixed wastes and be consistent with the Plan's recommendations regarding source-separated recycling efforts.

Rationale - The proposed amendment is intended to clarify the proper relationship of reload facilities within both the regional solid waste system and the regulatory authorities under which they operate.

I HEREBY CERTIFY THAT THE FOREGOING IS A COMPLETE AND EXACT COPY OF THE ORIGINAL THEREOF

Rebecca V. Shoemaker
METRO COUNCIL ARCHIVIST

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AMENDING)
THE REGIONAL SOLID WASTE)
MANAGEMENT PLAN REGARDING)
GOALS, OBJECTIVES AND)
RECOMMENDED STRATEGIES)
FOR THE MANAGEMENT OF)
HOUSEHOLD HAZARDOUS WASTES)

ORDINANCE NO. 00-851B
Introduced by Councilor Rod Park

WHEREAS, the Regional Solid Waste Management Plan (Plan), was adopted by the Council as a functional plan by Ordinance No. 95-624; and

WHEREAS, the Plan includes goals and objectives for the management of household hazardous wastes; and

WHEREAS, Metro has engaged in a public process with staff, local governments and other interested parties to set a new strategic direction for the program for the next five years; and

WHEREAS, that new strategic direction requires amendments to the Plan; and

WHEREAS, the Solid Waste Advisory Committee has reviewed the new hazardous waste strategies and has recommended that Council adopt the strategies described in this ordinance; and

WHEREAS, the amendments are consistent with the overall goal of the Regional Solid Waste Management Plan: To continue to develop and implement a Solid Waste Management Plan that achieves a solid waste system that is regionally balanced, environmentally sound, cost-effective, technologically feasible and acceptable to the public; and

WHEREAS, the ordinance was submitted to the Executive Officer for consideration and was forwarded to Council for approval; now, therefore,

THE METRO COUNCIL ORDAINS AS FOLLOWS:

SECTION 1. The Regional Solid Waste Management Plan's Goal 13, located at pages 5-8, is amended to read:

Goal 13 - Toxics Reduction

Protect the environment, residents of the region and workers who collect, transport, process and dispose of waste by educating residents of the region on methods of eliminating or reducing the risks arising from hazardous materials.

Objective 13.1 Manage hazardous waste based on the Environmental Protection Agency's hierarchy of "reduce, reuse, recycle, treat, incinerate and landfill."

Objective 13.2 Educate residents of the region about alternatives to the use of hazardous products, proper use of hazardous products, how to generate less hazardous wastes and proper disposal methods for hazardous waste.

Objective 13.3 Provide convenient, safe, efficient and environmentally sound disposal services for hazardous waste that remains after implementing prevention and reuse practices.

SECTION 2. The Regional Solid Waste Management Plan section entitled "Solid Waste Facilities and Services, Household Hazardous Waste (HHW) Management" located at pages 7-28 to 7-32 is repealed.

SECTION 3. Section 4 of this Ordinance is added to and made a part of the Regional Solid Waste Management Plan.

SECTION 4.

Solid Waste Facilities and Services Hazardous Waste Program

The following recommended strategies are designed to provide a unified direction for the hazardous waste program firmly based on waste reduction education and targeting programs to reduce risks to public health and safety and the environment.

1. Pursue a strategic direction that emphasizes non-hazardous alternatives, proper use of hazardous products, waste reduction education within a risk reduction perspective.
2. Focus outreach and education programs on reducing risks from exposure to, improper storage of or improper disposal of hazardous products.
3. Incorporate a shared product responsibility approach to managing hazardous wastes.
4. Design collection services to target reduction of identified risks and to include an integrated education component.
5. Utilize public and private solid waste facilities efficiently and effectively for the delivery of education and collection services.

1. Strategic Framework – Pursue a strategic direction that emphasizes non-hazardous alternatives, proper use of hazardous products, waste reduction education within a risk reduction perspective.

Exposure to, improper storage of, or improper disposal of products containing hazardous components poses risks to human health and the environment. These risks include: fires or child poisonings resulting from improper storage; injuries to disposal system workers (haulers, transfer station or landfill workers); damage to streams and fish from runoff of improperly applied lawn and garden care products; and pollution of streams or ground water from improper disposal of auto products such as used oil or antifreeze.

Adoption of a strategic framework emphasizing reduction in these risks will entail incorporating the following directions into the work plan for the hazardous waste program:

- a) Make hazardous waste education a critical priority.
- b) Identify the risks (e.g. fires, poisonings, and pollution) that arise from the use of, transport of, improper storage of and improper disposal of hazardous products.
- c) Target education programs and collection services to reduce these risks.
- d) Coordinate with education and collection programs in other areas to ensure the efficiency and effectiveness of regional programs.
- e) Coordinate education efforts with water and air quality agencies to ensure residents do not shift from disposing of hazardous waste in the garbage to

disposing of it in the storm or sanitary sewer systems or through open air evaporation.

- f) Coordinate with stream habitat and water quality programs.
- g) Measure the impact of programs and services in reducing the identified risks.

2. Outreach and Education – Focus outreach and education programs on reducing risks from exposure to, improper storage of or improper disposal of hazardous products.

Education programs will be directed to changing people's behavior in ways that reduce the identified risks from hazardous products. Education programs targeted to both adults and school children will provide information on alternatives to hazardous products, proper use of hazardous products, waste reduction methods and proper management of hazardous products.

Focusing education programs on alternatives, proper use, waste reduction and reducing identified risks will require:

- a) Developing education and outreach programs that target identified risks.
 - b) Utilizing education methods that are shown to effectively teach proper use, transport, storage and disposal practices.
 - c) Ensuring a unified approach and message across education and outreach programs.
 - d) Integrating education programs with collection services.
3. Shared Product Responsibility – Incorporate a shared product responsibility approach to managing hazardous wastes.

Shared product responsibility is the effort to get all those involved in the production and use of a product (consumers, retailers, distributors and manufacturers) to take responsibility for managing the costs and other impacts of a product on society and the environment. A shared responsibility approach for hazardous products should be flexible and may include different elements depending on the product. Examples include: producers' eliminating or reducing the toxicity of a product; product return to manufacturers or retailers when safe and appropriate; and collection through Metro with assistance of resources from product manufacturers or retailers. Development of non-Metro collection options for some products may provide opportunities to improve the efficiency of the system.

Developing a shared product responsibility approach to managing hazardous wastes will require, as appropriate:

- a) Exploring development and promotion of additional collection options, for example, returning products to stores.
 - b) Providing consumer information and education at a product's point-of-sale. Education should include information on alternatives and proper use, transport, storage and disposal.
 - c) Establishing cooperative efforts with retailers, distributors and manufacturers.
 - d) Securing alternative funding sources for hazardous waste services through charges when feasible and appropriate on products that make identifiable extraordinary burdens on the disposal system.
4. **Collection Services – Design collection services to target reduction of identified risks and to include an integrated education component.**

Collection services are a critical component of the strategy to reduce risks from exposure to, improper storage of and improper disposal of hazardous products. Through targeting of households subject to greater risk (for example, households with large old stockpiles of hazardous materials) and integrating education into the service, collection services can achieve the risk reduction goal of the program – rather than simply accommodating disposal.

Designing collection services to reduce identified risks will require:

- a) Promoting and targeting services (events and facilities) to serve households identified as being at greater risk. Selecting the targets (e.g. households with stockpiles) is an integral part of the process of establishing the strategic direction for the program.
- b) Increasing the convenience of collection events. For example, locating events closer to targeted households.
- c) Integrating hazardous waste prevention education with collection events. Techniques such as reducing the size or increasing the duration of collection events to allow education opportunities will be explored.
- d) Regional funding of collection services.

5. **Facilities – Utilize public and private solid waste facilities efficiently and effectively for the delivery of education and collection services.**

Metro's two permanent collection facilities will provide the infrastructure necessary to process hazardous wastes received at solid waste facilities and collection events.

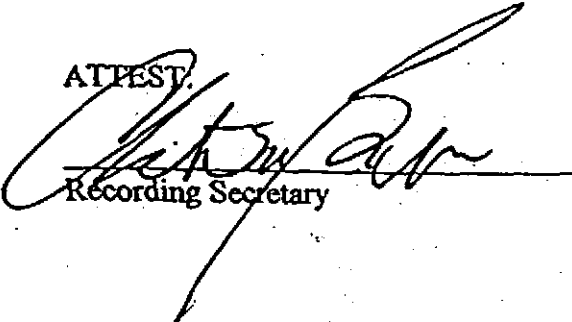
The strategy will require:

- a) Continuing operation of the two permanent Metro hazardous waste facilities.
- b) Ensuring education programs are integrated into collection services at facilities.
- c) Utilizing private solid waste facilities where appropriate for collection events.
- d) Regional transfer stations that accept public customers to provide opportunities for these customers to dispose of their household hazardous waste.
- e) Monitoring and analyzing usage patterns of facilities and events.
- f) Assessing the effectiveness of education programs.
- g) Exploring the need for any additional permanent facilities in five years.

ADOPTED by the Metro Council this 25th day of May, 2000.


David Bragdon, Presiding Officer

ATTEST.


Recording Secretary

Approved as to Form


Daniel B. Cooper, General Counsel

EXECUTIVE SUMMARY

Proposed Action

Adoption of Ordinance No. 00-851, which amends the Regional Solid Waste Management Plan's (Plan) regarding goals, objectives and recommended strategies for the management of household hazardous wastes.

Why Necessary

Over the past year, Metro has engaged in a process with staff, local governments and other interested parties to set a strategic direction for the program for the next five years. The process was undertaken in response to a steady growth in the number of customers using the collection facilities, and a need to move the Plan's recommended strategies beyond a focus on collection and disposal services. The process produced amendments to the Plan that places education for hazardous waste reduction at the heart of the program.

Issues/Concerns

The proposed amendments provide strategic direction for the hazardous waste program for the next five years. Specific provisions in the amendments direct the Department to:

- Emphasize non-hazardous alternatives, waste reduction education and a risk reduction perspective.
- Focus outreach and education programs on effective methods of providing information about alternatives to hazardous products and waste reduction methods.
- Explore "shared product responsibility" initiatives with retailers, distributors and manufacturers as a means of reducing household dependence on Metro for collection and education services.
- Design collection services to reach targeted households (e.g. those with stockpiled materials) and to include an integrated education component.
- Utilize public and private solid waste facilities efficiently and effectively for the delivery of education and collection services.

Budget Impact

In the short term, there will be increased expenditures for the new approach to collection services and the stronger focus on education. Over the longer term of three to five years, the strategies are intended to stabilize or reduce demand for collection services.

A draft implementation schedule showing task and costs associated with the program that implements the plan amendments is available for Council during the hearings on the present ordinance, as well as during the upcoming budget process.

STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 00-851, FOR THE PURPOSE OF AMENDING THE REGIONAL SOLID WASTE MANAGEMENT PLAN REGARDING GOALS, OBJECTIVES AND RECOMMENDED STRATEGIES FOR THE MANAGEMENT OF HOUSEHOLD HAZARDOUS WASTES

Date: March 9, 2000

Presented by: Terry Petersen

Action Requested and Purpose of the Ordinance

The Council is requested to adopt Ordinance No. 00-851, which approves amendments to the Regional Solid Waste Management Plan's (Plan) revising the Plan's recommendations on the management of household hazardous wastes. The amendments make the changes that are necessary to ensure the Plan remains a current and relevant policy document. The amendments are summarized later in this staff report.

Existing Law

The policies governing provision of hazardous waste services are contained within the Regional Solid Waste Management Plan (Plan). The Plan was adopted by the Council as a functional plan via Ordinance No. 95-624 and requires Council action by ordinance to be amended.

Background

Introduction

The adopted goal of Metro's hazardous waste program is to protect public health, safety and the environment. In order to achieve this goal, Metro's Regional Environmental Management Department (REM) provides hazardous waste reduction education programs and collection and processing services for residents and some small businesses within the region.

Metro provided its first collection event in 1986. By 1999, Metro's hazardous waste programs and services had grown to include:

- Two permanent facilities serving 24,000 customers per year
- Satellite collection events serving 7,000 customers per year
- Education programs including: education booklets and brochures; a telephone hotline; Natural Gardening workshops; and primary and secondary school education programs.

The services provided by these programs are well received by the public and broadly supported by citizens and Metro's local government partners. Other agencies also support Metro's hazardous waste programs (for example, fire departments, sewer and water quality agencies) because they see them as complementing their efforts.

Planning Process

The number of customers using the permanent facilities has been growing steadily over the past several years and the Department wanted to ensure the program was focused on meeting specific objectives and not just "growing to meet demand." To address these issues, REM staff undertook a planning process to determine the best direction for the program for the next five years.

The process looked at what the program was trying to achieve and how best to get there. Planning sessions were held with educators, outreach staff from neighborhood, fire, sewer, and water agencies, local government waste reduction staff and Metro's hazardous waste facility staff. REM staff developed options for education and collection service strategies for stakeholders' review and comment. The sessions provided very constructive feedback that was incorporated into the proposed strategies. Of particular value were suggestions about how to strengthen the education strategies. The strategic recommendations that resulted from the process place education about alternatives to hazardous products and ways to reduce generation of hazardous wastes at the center of the program.

Development of Amendments

Based on the outcomes of the planning sessions, staff developed a set of recommended strategies for incorporation into the Plan. The amendments make minor clarifications to the Plan's hazardous waste goal and objectives and replace the current recommended strategies with a set of unified strategies reflective of the results of the planning process. The new recommended strategies differ in focus and emphasis rather than substance from those being replaced. While the previous recommendations did include waste reduction strategies, they were focused in large part on the collection system.

Draft recommended amendments were present to the Solid Waste Advisory Council (SWAC) on December 15, 1999. The amendments were discussed further and unanimously approved at the January 19, 2000 meeting.

DEQ Approval

Review of RSWMP amendments by the Oregon Department of Environmental Quality (DEQ) is required once the Metro Council approves them. The DEQ has the right of final approval on any RSWP amendments. The DEQ had an initial opportunity to comment on the amendments through their membership on the Solid Waste Advisory Committee and their staff has indicated they can support the amendments.

Summary of the Proposed Amendments

The proposed amendments are contained in two parts: (1) Clarifications to the goals and objectives covering hazardous wastes; (2) Replacement of the existing recommended strategies in the Plan's hazardous waste chapter with the new recommendations developed during the planning process.

Goals and Objectives

The language in the current goal does not clearly state the importance of "upstream" efforts to eliminate or reduce hazardous wastes. The current emphasis is primarily on potential problems for disposal system workers. However, this narrow emphasis conflicts with a wider perspective displayed in the three objectives enumerated under the goal as currently written. All three objectives currently refer to the importance of various "upstream" efforts including the use of non-hazardous alternatives, prevention, reuse and recycling. The proposed modifications bring the language of the overarching goal more in line with the language in the objectives.

Goal 13 Toxics Reduction

~~Reduce the toxicity of mixed solid waste to~~ Protect the environment, residents of the region and workers who collect, transport, process and dispose of waste by eliminating or reducing the risks from use, storage and disposal of hazardous materials by households and small businesses. ~~keeping hazardous waste out of the mixed solid waste collection and disposal system.~~

During the review of the proposed amendments with SWAC, the question was considered whether the phrase "from use, storage and disposal" somehow broadened the scope of the program. For example, would the program be critiquing manufacturers' instructions on the proper application of a product? This is not the intent of the phrase. The aim is to point out how risks can arise from more than just improper disposal and that the program's primary recommendation would be to eliminate use or find a non-hazardous alternative.

The proposed changes to the objectives clarify the aims of the education and disposal services provided by the program. The concept of reducing generation is now included as an aim of education efforts in Objective 13.2. In Objective 13.3, hazardous waste disposal services are to be "efficient and environmentally sound" as well as safe and convenient.

Objective 13.2 Educate residents of the region about alternatives to the use of hazardous products, how to generate less hazardous wastes and the proper disposal methods for hazardous waste.

Objective 13.3 Provide convenient, and safe, efficient and environmentally sound disposal services for hazardous waste that remains after implementing prevention and reuse practices.

Recommended Strategies

The following five recommended strategies are proposed to replace those currently contained in the Plan.

1. **Strategic Framework** - Pursue a strategic direction that emphasizes non-hazardous alternatives, waste reduction education and a risk reduction perspective.

The strategic framework is intended to guide the development of a unified work plan for the hazardous waste program. The sharpened focus on education and identifying and targeting specific risks (e.g. households stockpiles of hazardous wastes) is intended to prevent the program from developing in a direction that simply accommodates increases in demand for disposal. Other specific elements of the strategy direct the program to measure program impacts, coordinate with related programs (e.g. sewer and waste agency pollution prevention efforts) and compare our regional efforts with other areas to ensure their effectiveness.

2. **Outreach and Education** - Focus outreach and education programs on reducing risks from use, storage or disposal of hazardous products.

The planning process revealed strong support from stakeholders for hazardous waste reduction education. While current Plan recommendations also endorse education efforts, the new recommendations place greater emphasis on identifying, targeting and changing specific household behaviors. The recommendations also direct attention to developing a unified message across all the program's components and integrating education into collection services.

3. **Shared Product Responsibility** - Incorporate a shared product responsibility approach to managing hazardous wastes.

Shared product responsibility is the effort to get all those involved in the production and use of a product (consumers, retailers, distributors and manufacturers) to share responsibility for managing the costs and other impacts of a product on society and the environment. For example, under this approach, residents could be provided with waste reduction information at retail stores and, if safe and feasible, an opportunity to "take-back" product residuals to a retail store. Staff expects that implementation of this strategy will be a longer-term development requiring extensive work with stakeholders.

4. **Collection Services - Design collection services to target reduction of identified risks and to include an integrated education component.**

The recommended strategy recognizes collection services as a critical component of the strategy to reduce risks from use, storage and disposal of hazardous products. Through targeting of households subject to greater risk (for example, households with large old stockpiles of hazardous materials) and integrating education into the service, collection services can achieve the risk reduction goal of the program – rather than simply accommodating disposal. Specific elements of the strategy may include making collection events more accessible, reducing the size of events and increasing the duration of events. These changes are to allow a greater opportunity for education services at the events. Funding for collection services is recommended to remain a regional responsibility.

5. **Facilities - Utilize public and private solid waste facilities efficiently and effectively for the delivery of education and collection services.**

Under the recommended strategy, Metro's two permanent collection facilities will provide the infrastructure needed to process waste received at solid waste facilities and collection events for the next five years. Specific elements of the recommended strategy include using other solid waste facilities (e.g. material recovery facilities) in the region as sites for collection events and requiring regional transfer stations that take public customers to provide collection opportunities.

Budget Impact

Implementation of the strategic direction set out in the amendments is expected to have both short and long term impacts. In the short-term of the next two years, there will be increased expenditures for the new approach to collection services and the stronger focus on education. In the longer term of three or more years, the strategies are intended to stabilize or reduce demand for collection services. Shared product responsibility initiatives are also intended to reduce the need for Metro to carry the entire fiscal burden of providing education and collection services.

Implementation of the plan for the hazardous waste program is to occur in three main phases: 1) Implementation of the new approach to collection; 2) Exploration of expanded adult education programs; 3) Shared Product Responsibility initiatives. Over the next two fiscal years, the major budget impacts would result from the implementation of the new approach to collection.

Phase I – New Approach to Collection

Implementation of the new approach to collection consists of the smaller "roundup" events and integrated hazardous waste reduction education. The one-time costs of developing the education and targeting programs is estimated at \$105,000 and purchase of

equipment for the roundups is estimated at \$71,000. After the first year, maintaining the education and targeting efforts is estimated at \$40,000 per year in materials and services. Under the draft implementation plan, additional resources for the education and outreach efforts are recommended if available.

The traditional large collection events are still planned for the fall of 2000 regardless of the status of any new initiatives. If Council approves Ordinance 00-851 in time for the FY 2000-01, the new roundups would start in the spring of 2001. FY 2001-02 would be the first full year of operation of the roundup system.

The roundup event system is projected to serve a larger number of customers than does the current event system. However, the growth in the number of customers using the permanent facilities will be reduced. The total number of customers (events and permanent facilities) served by FY 2001-02 under the new approach is projected to be slightly greater than would have been the case under the old approach (45,000 versus 43,000). The cost to serve the additional customers is estimated at \$129,000.

The additional costs for the new approach to collection are an investment in waste prevention education. Without this investment, the number of customers using the collection facilities would be expected to continue to grow at a rapid rate. The new collection system can provide both the benefits from the proper disposal of hazardous wastes and a reduction in future collection and disposal costs.

Phase II – Expanded Adult Education

Phase II will explore expanding adult education efforts such as the Natural Gardening program. Retail point of purchase programs and coordination with water quality and salmon recovery efforts in the region are expected to be important elements. A regional program would require two years to develop placing potential implementation in FY 2002-03. During this development process, Council would be kept apprised of the program and its budget impacts.

Phase III – Shared Product Responsibility

Phase III would pursue shared product responsibility initiatives. These initiatives are long-term issues with short-term budget impacts limited to funds to research options and conduct stakeholder processes. Council would be kept apprised of the initiatives and potential budgetary impacts.

A draft implementation schedule showing tasks and costs associated with each phase is available on request to REM at (503) 797-1665.

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AMENDING) METRO ORDINANCE NO. 00-866
METRO CODE CHAPTER 5.01)
RELATED TO SOLID WASTE) Introduced by
FACILITIES.) Executive Officer Mike Burton

WHEREAS, The Metro Council is considering Ordinance No. 00-865 amending the Regional Solid Waste Management Plan; and

WHEREAS, If such amendments are approved by Metro Council, it is necessary to amend Metro Code Chapter 5.01 to implement these amendments; and

WHEREAS, This ordinance was submitted to the Executive Officer for consideration and was forwarded to the Council for approval; now, therefore,

THE METRO COUNCIL ORDAINS AS FOLLOWS:

SECTION 1. Metro Code Section 5.01.010 is amended to read:

5.01.010 Definitions

For the purposes of this chapter unless the context requires otherwise the following terms shall have the meaning indicated:

(a) "Activity" means a primary operation or function that is performed in a Solid Waste Facility or at a Disposal Site, including but not limited to Resource Recovery, Composting, Energy Recovery, and other types of Processing; Recycling; Transfer; incineration; and disposal of Solid Waste; but excluding operations or functions such as Segregation that serve to support the primary Activity.

(b) "Agronomic application rate" has the meaning provided in OAR 340-93-030(4)

(c) "Certificate" means the permission given by the Executive Officer to operate certain solid waste Activities

(d) "Cleanup Material Contaminated By Hazardous Substances" means solid waste resulting from the cleanup of releases of hazardous substances into the environment, including petroleum contaminated soils and sandbags from chemical spills. Cleanup Material Contaminated By Hazardous Substances does not mean solid waste generated by manufacturing or industrial processes.

(e) "Code" means the Metro Code.

(f) "Compost" means the stabilized product of composting.

(g) "Composting" means the controlled biological decomposition of organic material.

(h) "Composting Facility" means a site or facility which utilizes organic material to produce a useful product through the process of composting.

(i) "Council" means the Metro council.

(j) "DEQ" means the Department of Environmental Quality of the State of Oregon.

(k) "Direct haul" means the delivery of Putrescible Waste from a Solid Waste Facility directly to Metro's contract operator for disposal of Putrescible Waste. Direct Haul is an Activity under this chapter.

(l) "Disposal site" means the land and facilities used for the disposal of Solid Wastes whether or not open to the public, but does not include transfer stations or processing facilities.

(m) "District" has the same meaning as in Code section 1.01.040.

(n) "Energy recovery" means a type of Resource Recovery that is limited to methods in which all or a part of Solid Waste materials are processed to use the heat content, or other forms of energy, of or from the material.

(o) "Executive officer" means the Metro Executive Officer or the Executive Officer's designee.

(p) "Franchise" means the grant of authority or privilege given by the Council to operate a Disposal Site, a Transfer Station or a Resource Recovery facility.

(q) "Franchisee" means the person to whom a Franchise is granted by the Council under this chapter.

(r) "Franchise fee" means the fee charged by the district to the Franchisee for the administration of the Franchise.

(s) "Hazardous waste" has the meaning provided in ORS 466.005.

(t) "Household hazardous waste" means any discarded, useless or unwanted chemical, material, substance or product that is or may be hazardous or toxic to the public or the environment and is commonly used in or around households and is generated by the household. "Household hazardous waste" may include but is not limited to some cleaners, solvents, pesticides, and automotive and paint products.

(u) "Inert" means containing only constituents that are biologically and chemically inactive and that, when exposed to biodegradation and/or leaching, will not adversely impact the waters of the state or public health.

(v) "License" means the permission given by the Council or Executive Officer to operate a Solid Waste Facility not exempted or requiring a Certificate or Franchise under this chapter that Transfers, and Processes Solid Waste, and may perform other authorized Activities.

(w) "Licensee" means the person to whom a License is granted by the Council or Executive Officer under this chapter.

(x) "Local Transfer Station" means a Transfer Station that delivers each calendar year to Disposal Sites or other Solid Waste Facilities 50,000 or fewer tons of Solid Waste, excluding special waste and recovered materials.

(y) "Material recovery" means a type of Resource Recovery that is limited to mechanical methods of obtaining from Solid Waste materials which still have useful physical or chemical properties and can be reused, recycled, or composted for some purpose. Material Recovery includes obtaining from Solid Waste materials used in the preparation of fuel, but excludes the extraction of heat content or other forms of energy from the material.

(z) "Metro Designated Facility" means a facility in the system of transfer stations, Metro Franchised facilities and landfills authorized under chapter 5.05 of this Title to accept waste generated in the area within the jurisdiction of Metro.

(aa) "Non-putrescible waste" means any Waste that contains trivial amounts of Putrescible materials. This category includes construction, demolition debris, and land clearing debris; but excludes Source-Separated Recyclable Material whether or not sorted into individual material categories by the generator.

(bb) "Non-putrescible waste" means any Waste that contains no more than trivial amounts of Putrescible materials or minor amounts of Putrescible materials contained in such a way that they can be easily separated from the remainder of the load without causing contamination of the load. This category includes construction, demolition debris, and land clearing debris; but excludes Cleanup Materials Contaminated by Hazardous Substances

and Source-Separated Recyclable Material whether or not sorted into individual material categories by the generator.

(cc) "Person" has the same meaning as in Code section 1.01.040.

(dd) "Petroleum contaminated soil" means soil into which hydrocarbons, including gasoline, diesel fuel, bunker oil or other petroleum products have been released. Soil that is contaminated with petroleum products but also contaminated with a hazardous waste as defined in ORS 466.005, or a radioactive waste as defined in ORS 469.300, is not included in the term.

(ee) "Process," "Processing" or "Processed" means a method or system of altering the form, condition or content of Wastes, including but not limited to composting, vermiprocessing and other controlled methods of biological decomposition; classifying; separating; shredding, milling, pulverizing, or hydropulping; but excluding incineration or mechanical volume reduction techniques such as baling and compaction.

(ff) "Processing facility" means a place or piece of equipment where or by which Solid Wastes are processed. This definition does not include commercial and home garbage disposal units, which are used to process food wastes and are part of the sewage system, hospital incinerators, crematoriums, paper shredders in commercial establishments, or equipment used by a recycling drop center.

(gg) "Processing residual" means the Solid Waste destined for disposal which remains after Resource Recovery has taken place.

(hh) "Putrescible" means rapidly decomposable by microorganisms, 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.

(ii) "Putrescible waste" means Waste containing Putrescible material.

(jj) "Rate" means the amount approved by the district and charged by the Franchisee, excluding the user fee and franchise fee.

(kk) "Recyclable material" means material that still has or retains useful physical, chemical, or biological properties after serving its original purpose(s) or function(s), and that can be reused, recycled, or composted for the same or other purpose(s).

(ll) "Recycling" means any process by which Waste materials are transformed into new products in such a manner that the original products may lose their identity.

(mm) "Recycling drop center" means a facility that receives and temporarily stores multiple source separated recyclable materials, including but not limited to glass,

scrap paper, corrugated paper, newspaper, tin cans, aluminum, plastic and oil, which materials will be transported or sold to third parties for reuse or resale.

(nn) "Regional Solid Waste Management Plan" means the Regional Solid Waste Management Plan adopted as a functional plan by Council and approved by DEQ.

(oo) "Regional Transfer Station" means a Transfer Station that delivers each calendar year to Disposal Sites or other Solid Waste Facilities more than 50,000 tons of Solid Waste.

(pp) "Reload" or "Reload facility" means a facility that performs only Transfer by means of a fixed or mobile facilities including but not limited to drop boxes and gondola cars, but excluding solid waste collection vehicles, normally used as an adjunct of a solid waste collection and disposal system, between a collection route and a Solid Waste facility or a disposal site.

(qq) "Resource recovery " means a process by which useful material or energy resources are obtained from Solid Waste.

(rr) "Reuse" means the return of a commodity into the economic stream for use in the same kind of application as before without change in its identity.

(ss) "Segregation" means the removal of prohibited wastes, unauthorized wastes, bulky material (such as but not limited to white goods and metals) incidental to the Transfer of Solid Waste. Segregation does not include Resource Recovery or other Processing of Solid Waste. The sole intent of segregation is not to separate Useful Material from the Solid Waste but to remove prohibited, unauthorized waste or bulky materials that could be hard to handle by either the facility personnel or operation equipment.

(tt) "Solid waste" means all Putrescible and Non-Putrescible Wastes, including without limitation, garbage, rubbish, refuse, ashes, waste paper and cardboard; discarded or abandoned vehicles or parts thereof; sewage sludge, septic tank and cesspool pumpings or other sludge; commercial, industrial, demolition and construction waste; discarded home and industrial appliances; asphalt, broken concrete and bricks; manure, vegetable or animal solid and semi-Solid Wastes, dead animals, infectious waste as defined in ORS 459.386, petroleum-contaminated soils and other wastes; but the term does not include:

- (1) Hazardous wastes as defined in ORS 466.005;
- (2) Radioactive wastes as defined in ORS 469.300;
- (3) Materials used for fertilizer, soil conditioning, humus restoration, or for other productive purposes or which 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; or

(4) Explosives.

(uu) "Solid waste facility" means the land and buildings at which Solid Waste is received for Transfer, Resource Recovery, and/or Processing but excludes disposal.

(vv) "Source Separate" or "Source Separated" or "Source Separation" means that the person who last uses recyclable material separates the recyclable material from Solid Waste.

(ww) "Source-separated recyclable material" or "Source-separated recyclables" means material that has been Source Separated for the purpose of Reuse, Recycling, or Composting. This term includes Recyclable Materials that are Source Separated by material type (i.e., source-sorted) and Recyclable Materials that are mixed together in one container (i.e., commingled).

(xx) "System cost" means the sum of the dollar amounts expended for collection, hauling, processing, transfer and disposal of all Solid Waste generated within the District.

(yy) "Transfer" means the Activity of receiving Solid Waste for purposes of transferring the Solid Waste from one vehicle or container to another vehicle or container for transport. Transfer may include segregation, temporary storage, consolidation of Solid Waste from more than one vehicle, and compaction, but does not include Resource Recovery or other Processing of Solid Waste.

(zz) "Transfer station" means a Solid Waste Facility whose primary Activities include, but are not limited to, the Transfer of Solid Waste.

(aaa) "Useful material" means material that still has or retains useful physical, chemical, or biological properties after serving its original purpose(s) or function(s), and which, when separated from Solid Waste, is suitable for use in the same or other purpose(s). Types of Useful Materials are: material that can be Reused; Recyclable Material; organic material(s) suitable for controlled biological decomposition such as for making Compost; material used in the preparation of fuel; material intended to be used, and which is in fact used, for construction or land reclamation such as Inert material for fill; and material intended to be used, and which is in fact used, productively in the operation of landfills such as roadbeds or alternative daily cover. For purposes of this Code, Cleanup Material Contaminated By Hazardous Substances are not Useful Materials.

(bbb) "User fee" means a user fee established by the district under ORS 268.515.

(ccc) "Vermiprocessing" means a controlled method or system of biological Processing that utilizes worms to consume and digest organic materials, and that produces worm castings for productive uses.

(ddd) "Waste" means any material considered to be useless, unwanted or discarded by the person who last used the material for its intended and original purpose.

(eee) "Yard debris" means vegetative and woody material generated from residential property or from commercial landscaping activities. "Yard debris" includes landscape waste, grass clippings, leaves, hedge trimmings, stumps and other vegetative waste having similar properties, but does not include demolition debris, painted or treated wood.

(fff) "Yard debris facility" means a yard debris processing facility or a yard debris reload facility.

(ggg) "Yard debris reload facility" means an operation or facility that receives yard debris for temporary storage, awaiting transport to a processing facility.

SECTION 2. Metro Code Section 5.01.040 is amended to read:

5.01.040 Exemptions

(a) In furtherance of the purposes set forth in this chapter, the Metro Council declares the provisions of this chapter shall not apply to:

- (1) Municipal or industrial sewage treatment plants accepting sewage, sludge, septic tank and cesspool pumpings or other sludge;
- (2) Disposal Sites, Transfer Stations, or Solid Waste Facilities owned or operated by the District.
- (3) Facilities that exclusively receive non-Putrescible Source-Separated Recyclable Materials
- (4) Facilities that exclusively receive, process, transfer or dispose of Inert Wastes;
- (5) The following operations, which do not constitute yard debris facilities:
 - (A) Persons who generate and maintain residential compost piles for residential garden or landscaping purposes.

- (B) Residences, parks, community gardens and homeowner associations.
 - (C) Universities, schools, hospitals, golf courses, industrial parks, and other similar facilities, if the landscape waste or yard debris was generated from the facility's own activities, the product remains on the facility grounds, and the product is not offered for off-site sale or use.
 - (D) Operations or facilities that chip or grind wood wastes (e.g. untreated lumber, wood pallets), unless such chipped materials are composted at the site following chipping or grinding.
- (6) Temporary transfer stations or processing centers established and operated by a government for 60 days or less to temporarily receive, store or process Solid Waste if the District finds an emergency situation exists.
- (7) Any Reload facility that:
- (A) Accepts Solid Waste collected under the authority of a single franchise granted by a local government unit, or from multiple franchises so long as the area encompassed by the franchises is geographically contiguous; and
 - (B) Is owned or controlled by the same person granted franchise authority ascribed in subsection (A); and
 - (C) Delivers any Putrescible Waste accepted at the facility to a Transfer Station owned, operated, Licensed or Franchised by the District; and
 - (D) Delivers all other Solid Waste accepted at the facility except Inert Wastes to a Metro Designated Facility authorized to accept said Solid Waste, or to another facility or Disposal Site under authority of a Metro Non-System License issued pursuant to chapter 5.05.
- (8) Persons who own or operate a mobile facility that processes Petroleum Contaminated Soil at the site of origin and retains any treated Petroleum Contaminated Soil on the site of origin.

(b) Notwithstanding section 5.01.040(a)(2) of this chapter, the District shall comply with section 5.01.150, User Fees.

SECTION 3. Metro Code Section 5.01.045 is amended to read:

5.01.045 Certificate, License and Franchise Requirements

(a) A Metro Solid Waste Certificate shall be required of the Person owning or controlling a facility which:

- (1) Processes Non-Putrescible Waste if such processing results in Processing Residual of less than ten percent; or
- (2) Processes Petroleum Contaminated Soil by thermal destruction, distillation, bioremediation, or by any other methods that either destroys or removes and contains such petroleum contamination from the soil.

(b) A Metro Solid Waste License shall be required of the Person owning or controlling a facility at which any of the following Activities are performed:

- (1) Processing of Non-Putrescible Waste that results in Processing Residual of more than ten percent.
- (2) Processing or Reloading of Yard Debris. A local government that owns or operates a yard debris facility may enter into an intergovernmental agreement with Metro under which the local government will administer and enforce yard debris standards at the facility in lieu of compliance with this chapter.
- (3) Operation of a Local Transfer Station.
- (4) Operation of a Reload unless exempt under section 5.01.040(a)(7) of this chapter.

(c) A Metro Solid Waste Franchise shall be required for the Person owning or controlling a facility at which any of the following Activities are performed:

- (1) Operation of a Regional Transfer Station. .
- (2) Operation of a Disposal Site or of an Energy Recovery Facility.
- (3) Any process using chemical or biological methods whose primary purpose is reduction of Solid Waste weight or volumes.
- (4) Delivery of Putrescible Waste directly from the facility to any Disposal Site.

- (5) Any other Activity not listed in this section, or exempted by Metro Code section 5.01.040.

SECTION 4. Metro Code Section 5.01.060 is amended to read:

5.01.060 Applications for Certificates, Licenses or Franchises

(a) Applications for a Certificate, Franchise or License or for renewal of an existing Certificate, Franchise or License shall be filed on forms or in the format provided by the Executive Officer.

(b) In addition to any information required on the forms or in the format provided by the Executive Officer, all applications shall include a description of the Activities proposed to be conducted and a description of Wastes sought to be accepted.

(c) In addition to the information required on the forms or in the format provided by the Executive Officer, applications for a License or Franchise shall include the following information to the Executive Officer:

- (1) Proof that the applicant can obtain the types of insurance specified by the Executive Officer during the term of the Franchise or License;
- (2) A duplicate copy of all applications for necessary DEQ permits and any other information required by or submitted to DEQ;
- (3) A duplicate copy of any closure plan required to be submitted to DEQ, or if DEQ does not require a closure plan, a closure document describing closure protocol for the Solid Waste Facility at any point in its active life;
- (4) A duplicate copy of any documents required to be submitted to DEQ demonstrating financial assurance for the costs of closure, or if DEQ does not require such documents, proof of financial assurance for the costs of closure of the facility;
- (5) Signed consent by the owner(s) of the property to the proposed use of the property. The consent shall disclose the property interest held by the Licensee or Franchisee, the duration of that interest and shall include a statement that the property owner(s) have read and agree to be bound by the provisions of section 5.01.180(e) of this chapter if the License or Franchise is revoked or any License or Franchise renewal is refused;
- (6) Proof that the applicant has received proper land use approval; or, if land use approval has not been obtained, a written recommendation

of the planning director of the local governmental unit having land use jurisdiction regarding new or existing disposal sites, or alterations, expansions, improvements or changes in the method or type of disposal at new or existing disposal sites. Such recommendation may include, but is not limited to a statement of compatibility of the site, the Solid Waste Disposal Facility located thereon and the proposed operation with the acknowledged local comprehensive plan and zoning requirements or with the Statewide Planning Goals of the Land Conservation and Development Commission; and

- (7) Identify any other known or anticipated permits required from any other governmental agency. If application for such other permits has been previously made, a copy of such permit application, and any permit that has been granted shall be provided.

(d) An application for a Transfer Station or Disposal Site shall be accompanied by an analysis showing that the proposed facility is consistent with the Regional Solid Waste Management Plan.

(e) A person holding or making application for a Solid Waste Facility License or Franchise from Metro authorizing receipt of Putrescible Waste may make application to deliver Putrescible Waste directly to Metro's contract operator for disposal of Putrescible Waste. Said application must be accompanied by: (A) a showing that the proposed Direct Haul authorization is consistent with the Regional Solid Waste Management Plan, and (B) an analysis of the System Costs with and without the authorization for Direct Haul from the Solid Waste Facility.

SECTION 5. Metro Code Section 5.01.125 is amended to read:

5.01.125 Obligations and Limits for Selected Types of Activities

(a) A holder of a Certificate, License or Franchise for a Material Recovery facility, Reload or Local Transfer Station, or a holder of a Franchise issued after July 1, 2000 for a Regional Transfer Station shall perform Material Recovery from Non-Putrescible Waste accepted at the facility, or shall deliver Non-Putrescible Waste to a Solid Waste facility whose primary purpose is to recover useful materials from Solid Waste.

(b) A holder of a Certificate, License or Franchise for a Material Recovery facility or Local Transfer Station, or a holder of a Franchise issued after July 1, 2000 for a Regional Transfer Station, shall recover at least 25% by weight of non-putrescible waste accepted at the facility and waste delivered by public customers. Failure to

maintain the minimum recovery rate specified in this section shall constitute a violation enforceable under Metro Code section 5.01.180 and 5.01.200.

(c) In addition to the requirements of (a) and (b) in this subsection, holders of a License or Franchise for a Local Transfer Station:

(1) Shall accept Putrescible Waste originating within the Metro boundary only from persons who are franchised or permitted by a local government unit to collect and haul Putrescible Waste.

(2) Shall not accept hazardous waste.

(c) In addition to the requirements of (a) and (b) in this subsection, holders of a Franchise for a Regional Transfer Station issued after July 1, 2000:

(1) Shall accept authorized Solid Waste originating within the Metro boundary from any person who delivers authorized waste to the facility, on the days and at the times established by Metro in approving the Franchise application.

(2) Shall provide an area for collecting Household Hazardous Waste from residential generators at the Franchised Solid Waste Facility, or at another location more convenient to the population being served by the franchised Solid Waste Facility, on the days and at the times established by Metro in approving the Franchise application.

(3) Shall provide an area for collecting source-separated recyclable materials without charge at the Franchised Solid Waste Facility, or at another location more convenient to the population being served by the franchised Solid Waste Facility, on the days and at the times established by Metro in approving the Franchise application.

SECTION 6. Metro Code Section 5.01.150 is amended to read:

5.01.150 User Fees

(a) Notwithstanding section 5.01.040(a)(2) of this chapter, the Council shall set user fees annually, and more frequently if necessary, which fees shall apply to Solid Waste Facilities or Disposal Sites which are owned, operated, Certified, Licensed, or Franchised by the district or which are liable for payment of user fees pursuant to a special agreement with the district.

(b) User fees shall not apply to:

- (1) Solid waste received at facilities that are certified, licensed, franchised or exempt from regulation under this Chapter, other than any Disposal Sites or Transfer Stations that are not subject to the requirements of section 5.01.125(a) ; or**
- (2) Cleanup Material Contaminated By Hazardous Substances accepted at facilities that treat said Cleanup Material Contaminated By Hazardous Substances to applicable DEQ standards; or**
- (3) Source-separated yard debris accepted at Licensed yard debris processing facilities or yard debris reload facilities; or**
- (4) Useful Material that is accepted at a Disposal Site that is listed as a Metro Designated Facility in chapter 5.05 or accepted at a Disposal Site under authority of a Metro Non-System License issued pursuant to chapter 5.05, provided that the Useful Material: (A) is intended to be used, and is in fact used, productively in the operation of the Disposal Site such as for roadbeds or alternative daily cover; and (B) is accepted at the Disposal Site at no charge; or**
- (5) Processing Residual produced by any tire processor that is regulated pursuant to this chapter and that sorts, classifies or processes used tires into fuel or other products, provided said Processing Residual conforms to Environmental Quality Commission standards established pursuant to ORS 459.710(2). This exemption is only granted to the extent, and under the terms, specified in the Metro certificate, license or franchise.**

(c) Notwithstanding any other provisions of this Code, user fees shall apply to Cleanup Material Contaminated By Hazardous Substances that is derived from an environmental cleanup of a nonrecurring event, and delivered to any Solid Waste System Facility authorized to accept such substances. Such Cleanup Materials Contaminated By Hazardous Substances may be subject to credits against user fees pursuant to sections 5.02.047(c) and (d) of this Code.

(d) User fees shall be in addition to any other fee, tax or charge imposed upon a Solid Waste Facility or Disposal Site.

(e) User fees shall be separately stated upon records of the Solid Waste Facility or Disposal Site.

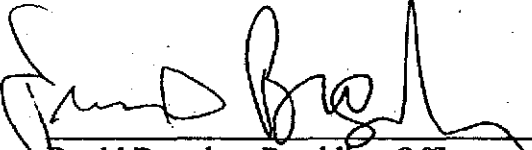
(f) User fees and finance charges on user fees shall be paid as specified in Metro Code section 5.02.055.

(g) There is no liability for user fees on charge accounts that are worthless and charged off as uncollectible, provided that an affidavit is filed with the district stating the name and amount of each uncollectible charge account and documenting good faith efforts that have been made to collect the accounts. User fees may not be deemed uncollectible unless the underlying account is also uncollectible. If the fees have previously been paid, a deduction may be taken from the next payment due to the district for the amount found worthless and charged off. If any such account is thereafter collected, in whole or in part, the amount so collected shall be included in the first return filed after such collection, and the fees shall be paid with the return.

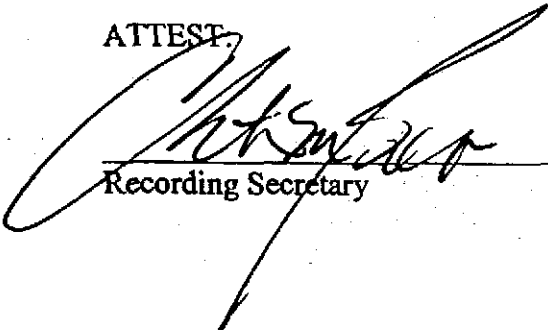
(h) All user fees shall be paid in the form of a remittance payable to the district. All user fees received by the district shall be deposited in the solid waste operating fund and used only for the administration, implementation, operation and enforcement of the Regional Solid Waste Management Plan.

(i) Certificate, License or Franchise holders are eligible to apply for and receive Regional System Fee Credits pursuant to section 5.02.047 of the Metro Code.

ADOPTED by the Metro Council this 15th day of June, 2000.


David Bragdon, Presiding Officer

ATTEST


Recording Secretary

Approved as to Form:


Daniel B. Cooper, General Counsel

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AMENDING) METRO ORDINANCE NO. 00-866
METRO CODE CHAPTER 5.01)
RELATED TO SOLID WASTE) Introduced by
FACILITIES.) Executive Officer Mike Burton

WHEREAS, The Metro Council is considering Ordinance No. 00-865 amending the Regional Solid Waste Management Plan; and

WHEREAS, If such amendments are approved by Metro Council, it is necessary to amend Metro Code Chapter 5.01 to implement these amendments; and

WHEREAS, This ordinance was submitted to the Executive Officer for consideration and was forwarded to the Council for approval; now, therefore,

THE METRO COUNCIL ORDAINS AS FOLLOWS:

SECTION 1. Metro Code Section 5.01.010 is amended to read:

5.01.010 Definitions

For the purposes of this chapter unless the context requires otherwise the following terms shall have the meaning indicated:

(a) "Activity" means a primary operation or function that is performed in a Solid Waste Facility or at a Disposal Site, including but not limited to Resource Recovery, Composting, Energy Recovery, and other types of Processing; Recycling; Transfer; incineration; and disposal of Solid Waste; but excluding operations or functions such as Segregation that serve to support the primary Activity.

(b) "Agronomic application rate" has the meaning provided in OAR 340-93-030(4)

(c) "Certificate" means the permission given by the Executive Officer to operate certain solid waste Activities

(d) "Cleanup Material Contaminated By Hazardous Substances" means solid waste resulting from the cleanup of releases of hazardous substances into the environment, including petroleum contaminated soils and sandbags from chemical spills. Cleanup Material Contaminated By Hazardous Substances does not mean solid waste generated by manufacturing or industrial processes.

(de) "Code" means the Metro Code.

(ef) "Compost" means the stabilized product of composting.

(fg) "Composting" means the controlled biological decomposition of organic material.

(gh) "Composting Facility" means a site or facility which utilizes organic material to produce a useful product through the process of composting.

(hi) "Council" means the Metro council.

(ij) "DEQ" means the Department of Environmental Quality of the State of Oregon.

(jk) "Direct haul" means the delivery of Putrescible Waste from a Solid Waste Facility directly to Metro's contract operator for disposal of Putrescible Waste. Direct Haul is an Activity under this chapter.

(kl) "Disposal site" means the land and facilities used for the disposal of Solid Wastes whether or not open to the public, but does not include transfer stations or processing facilities.

(lm) "District" has the same meaning as in Code section 1.01.040.

(mn) "Energy recovery" means a type of Resource Recovery that is limited to methods in which all or a part of Solid Waste materials are processed to use the heat content, or other forms of energy, of or from the material.

(no) "Executive officer" means the Metro Executive Officer or the Executive Officer's designee.

(op) "Franchise" means the grant of authority or privilege given by the Council to operate a Disposal Site, a Transfer Station or a Resource Recovery facility.

(pq) "Franchisee" means the person to whom a Franchise is granted by the Council under this chapter.

(qr) "Franchise fee" means the fee charged by the district to the Franchisee for the administration of the Franchise.

(fs) "Hazardous waste" has the meaning provided in ORS 466.005.

(st) "Household hazardous waste" means any discarded, useless or unwanted chemical, material, substance or product that is or may be hazardous or toxic to the public or the environment and is commonly used in or around households and is generated by the household. "Household hazardous waste" may include but is not limited to some cleaners, solvents, pesticides, and automotive and paint products.

(tu) "Inert" means containing only constituents that are biologically and chemically inactive and that, when exposed to biodegradation and/or leaching, will not adversely impact the waters of the state or public health.

(uv) "License" means the permission given by the Council or Executive Officer to operate a Solid Waste Facility not exempted or requiring a Certificate or Franchise under this chapter that Transfers, and Processes Solid Waste, and may perform other authorized Activities.

(vw) "Licensee" means the person to whom a License is granted by the Council or Executive Officer under this chapter.

(x) "Local Transfer Station" means a Transfer Station that delivers each calendar year to Disposal Sites or other Solid Waste Facilities 50,000 or fewer tons of Solid Waste, excluding special waste and recovered materials.

(wy) "Material recovery" means a type of Resource Recovery that is limited to mechanical methods of obtaining from Solid Waste materials which still have useful physical or chemical properties and can be reused, recycled, or composted for some purpose. Material Recovery includes obtaining from Solid Waste materials used in the preparation of fuel, but excludes the extraction of heat content or other forms of energy from the material.

(xz) "Metro Designated Facility" means a facility in the system of transfer stations, Metro Franchised facilities and landfills authorized under chapter 5.05 of this Title to accept waste generated in the area within the jurisdiction of Metro.

(yaa) "Non-putrescible waste" means any Waste that contains trivial amounts of Putrescible materials. This category includes construction, demolition debris, and land clearing debris; but excludes Source-Separated Recyclable Material whether or not sorted into individual material categories by the generator.

(ybb) "Non-putrescible waste" means any Waste that contains no more than -trivial amounts of Putrescible materials or minor amounts of Putrescible materials contained in such a way that they can be easily separated from the remainder of the load without causing contamination of the load. This category includes construction, demolition debris, and land clearing debris; but excludes Cleanup Materials Contaminated by Hazardous Substances

and Source-Separated Recyclable Material whether or not sorted into individual material categories by the generator.

(zcc) "Person" has the same meaning as in Code section 1.01.040.

(aadd) "Petroleum contaminated soil" means soil into which hydrocarbons, including gasoline, diesel fuel, bunker oil or other petroleum products have been released. Soil that is contaminated with petroleum products but also contaminated with a hazardous waste as defined in ORS 466.005, or a radioactive waste as defined in ORS 469.300, is not included in the term.

(bbe) "Process," "Processing" or "Processed" means a method or system of altering the form, condition or content of Wastes, including but not limited to composting, vermiprocessing and other controlled methods of biological decomposition; classifying; separating; shredding, milling, pulverizing, or hydropulping; but excluding incineration or mechanical volume reduction techniques such as baling and compaction.

(ceff) "Processing facility" means a place or piece of equipment where or by which Solid Wastes are processed. This definition does not include commercial and home garbage disposal units, which are used to process food wastes and are part of the sewage system, hospital incinerators, crematoriums, paper shredders in commercial establishments, or equipment used by a recycling drop center.

(ddgg) "Processing residual" means the Solid Waste destined for disposal which remains after Resource Recovery has taken place.

(eehh) "Putrescible" means rapidly decomposable by microorganisms, 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.

(ffi) "Putrescible waste" means Waste containing Putrescible material.

(ggjj) "Rate" means the amount approved by the district and charged by the Franchisee, excluding the user fee and franchise fee.

(hhkk) "Recyclable material" means material that still has or retains useful physical, chemical, or biological properties after serving its original purpose(s) or function(s), and that can be reused, recycled, or composted for the same or other purpose(s).

(iill) "Recycling" means any process by which Waste materials are transformed into new products in such a manner that the original products may lose their identity.

(jimm) "Recycling drop center" means a facility that receives and temporarily stores multiple source separated recyclable materials, including but not limited to glass,

scrap paper, corrugated paper, newspaper, tin cans, aluminum, plastic and oil, which materials will be transported or sold to third parties for reuse or resale.

~~(kkn)~~ "Regional Solid Waste Management Plan" means the Regional Solid Waste Management Plan adopted as a functional plan by Council and approved by DEQ.

(oo) "Regional Transfer Station" means a Transfer Station that delivers each calendar year to Disposal Sites or other Solid Waste Facilities more than 50,000 tons of Solid Waste.

~~(lpp)~~ "Reload" or "Reload facility" means a facility that performs only Transfer only by means of

~~(vv)~~ "Transfer station" means a fixed or mobile facilities including but not limited to drop boxes and gondola cars, but excluding solid waste collection vehicles, normally used as an adjunct of a solid waste collection and disposal system or resource recovery system, between a collection route and a Solid Waste processing facility or a disposal site. This definition does not include solid waste collection vehicles.

~~(mmqg)~~ "Resource recovery " means a process by which useful material or energy resources are obtained from Solid Waste.

~~(nrr)~~ "Reuse" means the return of a commodity into the economic stream for use in the same kind of application as before without change in its identity.

~~(oss)~~ "Segregation" means the removal of prohibited wastes, unauthorized wastes, bulky material (such as but not limited to white goods and metals) incidental to the Transfer of Solid Waste. Segregation does not include Resource Recovery or other Processing of Solid Waste. The sole intent of segregation is not to separate Useful Material from the Solid Waste but to remove prohibited, unauthorized waste or bulky materials that could be hard to handle by either the facility personnel or operation equipment.

~~(ppt)~~ "Solid waste" means all Putrescible and Non-Putrescible Wastes, including without limitation, garbage, rubbish, refuse, ashes, waste paper and cardboard; discarded or abandoned vehicles or parts thereof; sewage sludge, septic tank and cesspool pumpings or other sludge; commercial, industrial, demolition and construction waste; discarded home and industrial appliances; asphalt, broken concrete and bricks; manure, vegetable or animal solid and semi-Solid Wastes, dead animals, infectious waste as defined in ORS 459.386, petroleum-contaminated soils and other wastes; but the term does not include:

- (1) Hazardous wastes as defined in ORS 466.005;
- (2) Radioactive wastes as defined in ORS 469.300;

- (3) Materials used for fertilizer, soil conditioning, humus restoration, or for other productive purposes or which 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; or
- (4) Explosives.

(qquu) "Solid waste facility" means the land and buildings at which Solid Waste is received for Transfer, Resource Recovery, and/or Processing but excludes disposal.

(ffvv) "Source Separate" or "Source Separated" or "Source Separation" means that the person who last uses recyclable material separates the recyclable material from Solid Waste.

(ssww) "Source-separated recyclable material" or "Source-separated recyclables" means material that has been Source Separated for the purpose of Reuse, Recycling, or Composting. This term includes Recyclable Materials that are Source Separated by material type (i.e., source-sorted) and Recyclable Materials that are mixed together in one container (i.e., commingled).

(ttxx) "System cost" means the sum of the dollar amounts expended for collection, hauling, processing, transfer and disposal of all Solid Waste generated within the District.

(uuyy) "Transfer" means the Activity of receiving Solid Waste for purposes of transferring the Solid Waste from one vehicle or container to another vehicle or container for transport. Transfer may include segregation, temporary storage, consolidation of Solid Waste from more than one vehicle, and compaction, but does not include Resource Recovery or other Processing of Solid Waste.

(vvzz) "Transfer station" means a Solid Waste Facility whose primary Activities include, but are not limited to, the Transfer of Solid Waste. ~~fixed or mobile facilities including but not limited to drop boxes and gondola cars normally used as an adjunct of a solid waste collection and disposal system or resource recovery system, between a collection route and a processing facility or a disposal site. This definition does not include solid waste collection vehicles.~~

(wwaaa) "Useful material" means material that still has or retains useful physical, chemical, or biological properties after serving its original purpose(s) or function(s), and which, when separated from Solid Waste, is suitable for use in the same or other purpose(s). Types of Useful Materials are: material that can be Reused; Recyclable Material; organic material(s) suitable for controlled biological decomposition such as for making Compost; material used in the preparation of fuel; material intended to be used, and which is in fact used, for construction or land reclamation such as Inert

material for fill; and material intended to be used, and which is in fact used, productively in the operation of landfills such as roadbeds or alternative daily cover. For purposes of this Code, Cleanup Material Contaminated By Hazardous Substances are not Useful Materials.

(~~xx~~bbb) "User fee" means a user fee established by the district under ORS 268.515.

(~~yy~~ccc) "Vermiprocessing" means a controlled method or system of biological Processing that utilizes worms to consume and digest organic materials, and that produces worm castings for productive uses.

(zzddd) "Waste" means any material considered to be useless, unwanted or discarded by the person who last used the material for its intended and original purpose.

(aaeee) "Yard debris" means vegetative and woody material generated from residential property or from commercial landscaping activities. "Yard debris" includes landscape waste, grass clippings, leaves, hedge trimmings, stumps and other vegetative waste having similar properties, but does not include demolition debris, painted or treated wood.

(bbfff) "Yard debris facility" means a yard debris processing facility or a yard debris reload facility.

(ccggg) "Yard debris reload facility" means an operation or facility that receives yard debris for temporary storage, awaiting transport to a processing facility.

SECTION 2. Metro Code Section 5.01.040 is amended to read:

5.01.040 Exemptions

(a) In furtherance of the purposes set forth in this chapter, the Metro Council declares the provisions of this chapter shall not apply to:

- (1) Municipal or industrial sewage treatment plants accepting sewage, sludge, septic tank and cesspool pumpings or other sludge;
- (2) Disposal Sites, Transfer Stations, or Solid Waste Facilities owned or operated by the District.
- (3) Facilities that exclusively receive non-Putrescible Source-Separated Recyclable Materials
- (4) Facilities that exclusively receive, process, transfer or dispose of Inert Wastes;

- (5) The following operations, which do not constitute yard debris facilities:
- (A) Persons who generate and maintain residential compost piles for residential garden or landscaping purposes.
 - (B) Residences, parks, community gardens and homeowner associations.
 - (C) Universities, schools, hospitals, golf courses, industrial parks, and other similar facilities, if the landscape waste or yard debris was generated from the facility's own activities, the product remains on the facility grounds, and the product is not offered for off-site sale or use.
 - (D) Operations or facilities that chip or grind wood wastes (e.g. untreated lumber, wood pallets), unless such chipped materials are composted at the site following chipping or grinding.
- (6) Temporary transfer stations or processing centers established and operated by a government for 60 days or less to temporarily receive, store or process Solid Waste if the District finds an emergency situation exists.
- (7) Any Reload facility facilities that deliver:
- (A) Accepts Solid Waste collected under the authority of a single franchise granted by a local government unit, or from multiple franchises so long as the area encompassed by the franchises is geographically contiguous; and
 - (B) Is owned or controlled by the same person granted franchise authority ascribed in subsection (A); and
 - (CA) Delivers any Putrescible Waste accepted at the facility to a Transfer Station owned, operated, Licensed or Franchised by the District; and and
 - (DB) Delivers all other Solid Waste accepted at the facility except Inert Wastes to a Metro Designated Facility authorized to accept said Solid Waste, or to another facility or Disposal Site under authority of a Metro Non-System License issued pursuant to chapter 5.05.

- (8) Persons who own or operate a mobile facility that processes Petroleum Contaminated Soil at the site of origin and retains any treated Petroleum Contaminated Soil on the site of origin.

(b) Notwithstanding section 5.01.040(a)(2) of this chapter, the District shall comply with section 5.01.150, User Fees.

SECTION 3. Metro Code Section 5.01.045 is amended to read:

5.01.045 Certificate, License and Franchise Requirements

(a) A Metro Solid Waste Certificate shall be required of the Person owning or controlling a facility which:

- (1) Processes Non-Putrescible Waste if such processing results in Processing Residual of less than ten percent; or
- (2) Processes Petroleum Contaminated Soil by thermal destruction, distillation, bioremediation, or by any other methods that either destroys or removes and contains such petroleum contamination from the soil.

(b) A Metro Solid Waste License shall be required of the Person owning or controlling a facility at which any of the following Activities are performed:

- (1) Processing of Non-Putrescible Waste that results in Processing Residual of more than ten percent.
- (2) Processing or Reloading of Yard Debris: A local government that owns or operates a yard debris facility may enter into an intergovernmental agreement with Metro under which the local government will administer and enforce yard debris standards at the facility in lieu of compliance with this chapter.
- (3) ~~Operation of a Local Transfer Station of Putrescible Waste, and any other Activity or combination of Activities taking place in the same facility that results in disposal of fewer than 50,000 tons of Solid Waste including Processing Residual during any calendar year.~~
- (4) Operation of a Reload unless exempt under section 5.01.040(a)(7) of this chapter.

(c) A Metro Solid Waste Franchise shall be required for the Person owning or controlling a facility at which any of the following Activities are performed:

- (1) ~~Operation of a Regional Transfer Station of Putrescible Waste, and any other Activity or combination of Activities taking place in the same facility that results in disposal of more than 50,000 tons of Solid Waste including Processing Residual during any calendar year.~~
- (2) Operation of a Disposal Site or of an Energy Recovery Facility.
- (3) Any process using chemical or biological methods whose primary purpose is reduction of Solid Waste weight or volumes.
- (4) Delivery of Putrescible Waste directly from the facility to any Disposal Site. ~~Metro's contract operator for disposal of Putrescible Waste.~~
- (5) Any other Activity not listed in this section, or exempted by Metro Code section 5.01.040.

SECTION 4. Metro Code Section 5.01.060 is amended to read:

5.01.060 Applications for Certificates, Licenses or Franchises

(a) Applications for a Certificate, Franchise or License or for renewal of an existing Certificate, Franchise or License shall be filed on forms or in the format provided by the Executive Officer.

(b) In addition to any information required on the forms or in the format provided by the Executive Officer, all applications shall include a description of the Activities proposed to be conducted and a description of Wastes sought to be accepted.

(c) In addition to the information required on the forms or in the format provided by the Executive Officer, applications for a License or Franchise shall include the following information to the Executive Officer:

- (1) Proof that the applicant can obtain the types of insurance specified by the Executive Officer during the term of the Franchise or License;
- (2) A duplicate copy of all applications for necessary DEQ permits and any other information required by or submitted to DEQ;
- (3) A duplicate copy of any closure plan required to be submitted to DEQ, or if DEQ does not require a closure plan, a closure document describing closure protocol for the Solid Waste Facility at any point in its active life;

- (4) A duplicate copy of any documents required to be submitted to DEQ demonstrating financial assurance for the costs of closure, or if DEQ does not require such documents, proof of financial assurance for the costs of closure of the facility;
- (5) Signed consent by the owner(s) of the property to the proposed use of the property. The consent shall disclose the property interest held by the Licensee or Franchisee, the duration of that interest and shall include a statement that the property owner(s) have read and agree to be bound by the provisions of section 5.01.180(e) of this chapter if the License or Franchise is revoked or any License or Franchise renewal is refused;
- (6) Proof that the applicant has received proper land use approval; or, if land use approval has not been obtained, a written recommendation of the planning director of the local governmental unit having land use jurisdiction regarding new or existing disposal sites, or alterations, expansions, improvements or changes in the method or type of disposal at new or existing disposal sites. Such recommendation may include, but is not limited to a statement of compatibility of the site, the Solid Waste Disposal Facility located thereon and the proposed operation with the acknowledged local comprehensive plan and zoning requirements or with the Statewide Planning Goals of the Land Conservation and Development Commission; and
- (7) Identify any other known or anticipated permits required from any other governmental agency. If application for such other permits has been previously made, a copy of such permit application, and any permit that has been granted shall be provided.

(d) ~~An application for to deliver more than 50,000 tons per calendar year of Solid Waste to a Transfer Station or Disposal Site from a non-exempt facility that is authorized to accept Putrescible Waste shall be accompanied by an analysis showing that the proposed facility is consistent with the Regional Solid Waste Management Plan.~~

(e) A person holding or making application for a Solid Waste Facility License or Franchise from Metro authorizing receipt of Putrescible Waste may make application to deliver Putrescible Waste directly to Metro's contract operator for disposal of Putrescible Waste. Said application must be accompanied by: (A) a showing that the proposed Direct Haul authorization is consistent with the Regional Solid Waste Management Plan, and (B) an analysis of the System Costs with and without the authorization for Direct Haul from the Solid Waste Facility.

SECTION 5. Metro Code Section 5.01.125 is amended to read:

5.01.125 Obligations and Limits for Selected Types of Activities

(a) A holder of a Certificate, License or Franchise authorized to perform for a Material Recovery facility, Reload or Local Transfer Station, or a holder of a Franchise issued after July 1, 2000 for a Regional Transfer Station shall perform Material Recovery from Non-Putrescible Waste accepted at the facility, or shall deliver Non-Putrescible Waste to a Solid Waste facility whose primary purpose is to recover useful materials from Solid Waste.

(b) A holder of a Certificate, License or Franchise for a Material Recovery facility or Local Transfer Station, or a holder of a Franchise issued after July 1, 2000 for a Regional Transfer Station, shall recover at least 25% by weight of non-putrescible waste accepted at the facility and waste delivered by public customers. Failure to maintain the minimum recovery rate specified in this section shall constitute a violation enforceable under Metro Code section 5.01.180 and 5.01.200.

(cb) In addition to the requirements of (a) and (b) in this subsection, holders of a Licensees or Franchisees for a Local Transfer Station: who deliver 50,000 or fewer tons per calendar year of Solid Waste to all Transfer Stations and Disposal Sites from a Solid Waste Facility authorized to accept Putrescible Waste:

(1) Shall accept Putrescible Waste originating within the Metro boundary only from persons who are franchised or permitted by a local government unit to collect and haul Putrescible Waste.

(2) Shall not accept hazardous waste.

(c) In addition to the requirements of (a) and (b) in this subsection, holders of a Franchisees for a Regional Transfer Station issued after July 1, 2000: who deliver more than 50,000 tons per calendar year of Solid Waste to all Transfer Stations and Disposal Sites from a Solid Waste Facility authorized to accept Putrescible Waste:

(1) Shall accept authorized Solid Waste originating within the Metro boundary from any person who delivers authorized waste to the facility, on the days and at the times established by Metro in approving the Franchise application.

(2) Shall provide an area for collecting Household Hazardous Waste from residential generators at the Franchised Solid Waste Facility, or at another location more convenient to the population being served by the franchised Solid Waste Facility, on the days and at the times established by Metro the Executive Officer in approving the Franchise application.

(3) Shall provide an area for collecting source-separated recyclable materials without charge at the Franchised Solid Waste Facility, or at another location more convenient to the population being served by the franchised Solid Waste Facility, on the days and at the times established by Metro the Executive Officer in approving the Franchise application.

SECTION 6. Metro Code Section 5.01.150 is amended to read:

5.01.150 User Fees

(a) Notwithstanding section 5.01.040(a)(2) of this chapter, the Council shall will set user fees annually, and more frequently if necessary, which fees shall apply to Solid Waste Facilities or Disposal Sites which are owned, operated, Certified, Licensed, or Franchised by the district or which are liable for payment of user fees pursuant to a special agreement with the district.

(b) User fees shall not apply to:

- (1) Solid waste received at facilities that are certified, licensed, franchised or exempt from regulation under this Chapter, other than any Disposal Sites or Transfer Stations that are not subject to the requirements of section 5.01.125(a) Non-putrescible Wastes accepted at a Franchised or Licensed Solid Waste Facility that is authorized to perform only Materials Recovery or Recycling Activities; or
- (2) Cleanup Material Contaminated By Hazardous Substances Petroleum Contaminated Soils accepted at Certified facilities that treat said Cleanup Material Contaminated By Hazardous Substances petroleum-contaminated soil to applicable DEQ standards; or
- (3) Source-separated yard debris accepted at Licensed yard debris processing facilities or yard debris reload facilities; or
- ~~(4) Wastes accepted at a Licensed or Franchised Solid Waste Facility that delivers Putrescible Waste to a Transfer Station owned, operated, Licensed or Franchised by the District, or to the District's contract operator for the disposal of Putrescible Waste; and that delivers Non-Putrescible Waste and Processing Residuals to: (A) a Licensed or Franchised facility that is authorized to perform Materials Recovery or Recycling Activities, or (B) to a Solid Waste Facility or Disposal Site listed as a Metro Designated~~

~~Facility in chapter 5.05, or (C) another facility or Disposal Site under authority of a Metro Non-System License issued pursuant to chapter 5.05, provided that the Person holding the Non-System License and License or Franchise pays all fees and taxes required by this Code; or~~

(45) Useful Material that is accepted at a Disposal Site that is listed as a Metro Designated Facility in chapter 5.05 or accepted at a Disposal Site under authority of a Metro Non-System License issued pursuant to chapter 5.05, provided that the Useful Material: (A) is intended to be used, and is in fact used, productively in the operation of the Disposal Site such as for roadbeds or alternative daily cover; and (B) is accepted at the Disposal Site at no charge; or

(5) Processing Residual produced by any tire processor that is regulated pursuant to this chapter and that sorts, classifies or processes used tires into fuel or other products, provided said Processing Residual conforms to Environmental Quality Commission standards established pursuant to ORS 459.710(2). This exemption is only granted to the extent, and under the terms, specified in the Metro certificate, license or franchise.

(c) Notwithstanding any other provisions of this Code, user fees shall apply to Cleanup Material Contaminated By Hazardous Substances that is derived from an environmental cleanup of a nonrecurring event, and delivered to any Solid Waste System Facility authorized to accept such substances. Such Cleanup Materials Contaminated By Hazardous Substances may be subject to credits against user fees pursuant to sections 5.02.047(c) and (d) of this Code. ~~petroleum-contaminated soils disposed of by landfilling.~~

(d) User fees shall be in addition to any other fee, tax or charge imposed upon a Solid Waste Facility or Disposal Site.

(e) User fees shall be separately stated upon records of the Solid Waste Facility or Disposal Site.

(f) User fees and finance charges on user fees shall be paid as specified in Metro Code section 5.02.055.

(g) There is no liability for user fees on charge accounts that are worthless and charged off as uncollectible, provided that an affidavit is filed with the district stating the name and amount of each uncollectible charge account and documenting good faith efforts that have been made to collect the accounts. User fees may not be deemed uncollectible unless the underlying account is also uncollectible. If the fees have previously been paid, a deduction may be taken from the next payment due to the district for the amount found worthless and charged off. If any such account is thereafter

collected, in whole or in part, the amount so collected shall be included in the first return filed after such collection, and the fees shall be paid with the return.

(h) All user fees shall be paid in the form of a remittance payable to the district. All user fees received by the district shall be deposited in the solid waste operating fund and used only for the administration, implementation, operation and enforcement of the Regional Solid Waste Management Plan.

(i) Certificate, License or Franchise holders are eligible to apply for and receive Regional System Fee Credits pursuant to section 5.02.047 of the Metro Code.

ADOPTED by the Metro Council this _____ day of _____, 2000.

David Bragdon, Presiding Officer

ATTEST:

Approved as to Form:

Recording Secretary

Daniel B. Cooper, General Counsel

EXECUTIVE SUMMARY
ORDINANCE NO. 00-866 AND ORDINANCE NO. 00-867
AMEND METRO CODE RELATED TO FACILITIES AND SYSTEM FEE CREDITS

PROPOSED ACTIONS

Adopt Ordinances No. 00-866 and No. 00-867, which amend the Metro Code Chapters 5.01 and 5.02, respectively, to implement the guiding policies contained in the RSWMP amendments under Ordinance No. 00-865 related to disposal sites.

WHY NECESSARY

- If Council were to approve amendments to the Regional Solid Waste Management Plan consistent with the option laid out in Ordinance No. 00-865, then Metro could begin considering applications for "large" transfer stations. To implement this change, Metro Code would be amended to formally define a "Regional Transfer Station," to re-affirm the obligations currently specified in Metro Code for "large" transfer stations, and to include a minimum recovery rate requirement of 25% from non-putrescible waste.
- The recovery requirements would also be imposed on local transfer stations and MRFs, primarily for equity; but also to strengthen the effect of the policy by minimizing the number of alternatives that are not subject to the recovery requirement.
- The proposed revisions to the Code definitions clarifies the purpose, obligations and limits of specific solid waste facilities: reloads, local transfer stations and regional transfer stations.

ISSUES / CONCERNS

- This recovery rate reflects a balance between a number that is real and achievable at a solid waste facility, and a concern that too-high a standard might provide a disincentive to serve source-separation programs.
- The proposed amendments maintain a distinction between types of solid waste facilities, and specifies the level of public obligations and operating conditions that would be required of them.

BUDGET / FINANCIAL IMPACTS

- Metro's costs change as tonnage shifts to new transfer stations. These changes are reflected in costs to operate its two transfer stations, and to transport and dispose of the waste. Generally these costs decline as the waste shifts to the new facilities. Under the scenario where two transfer stations are added to the system, the cost at Metro facilities would decline by over \$7 million (almost \$9.5 million in inflated dollars).
- While overall Metro's costs decline as waste shifts to other facilities, its unit cost (cost per ton) increases. This is due to the declining block rate structure of its transfer station operation and disposal contracts, and the fixed costs charged only at Metro's facilities. Metro's unit cost for the two transfer stations would rise about \$1.70 per ton (\$2.26 in inflated dollars in 2010) under the scenarios above. If Metro makes no changes to its cost or rate structures, this might ultimately have to be reflected in the tip fee.

BM:gbc

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STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 00-866 FOR THE PURPOSE OF AMENDING METRO CODE CHAPTER 5.01 RELATED TO SOLID WASTE FACILITIES.

DATE: June 1, 2000

Presented by: Terry Petersen
Doug Anderson

Action Requested and Purpose of the Ordinance

The Metro Council is considering Ordinance No. 00-865, which would amend the Regional Solid Waste Management Plan regarding disposal facilities.

If these Plan amendments are adopted, it is also necessary to amend Metro Code Chapter 5.01, "Solid Waste Facility Regulation," to implement these amendments.

Please see the staff report for Ordinance No. 00-865 for the relationship between this Ordinance No. 00-866 and the Plan amendments.

The Council is requested to adopt Ordinance No. 00-866 if the Council adopts Ordinances, No. 00-865.

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BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AMENDING THE)
REGIONAL SOLID WASTE MANAGEMENT)
PLAN REGARDING RECOVERY GOALS AND)
RECOMMENDED WASTE REDUCTION)
STRATEGIES FOR THE MANAGEMENT OF)
BUSINESS, BUILDING INDUSTRIES AND)
COMMERCIALY GENERATED ORGANIC)
WASTES)

ORDINANCE NO. 03-1004

Introduced by: Mark Williams,
Interim Chief Operating Officer,
with the concurrence of David
Bragdon, Council President

WHEREAS, Metro Council adopted Ordinance No. 95-624, "For the purpose of adopting the Regional Solid Waste Management Plan," as a functional plan; and,

WHEREAS, the Plan includes recovery goals and recommendations for the management of wastes generated by businesses in the region; and,

WHEREAS, recovery goals as listed in the Plan need to be updated to reflect changes in State statute; and,

WHEREAS, Metro in cooperation with local governments has developed new waste reduction initiatives for business, building industries and commercially generated organic wastes; and,

WHEREAS, the Plan should be updated to incorporate these new initiatives by amendment; and,

WHEREAS, the Solid Waste Advisory Committee has reviewed the updated recovery goal and new business waste reduction strategies and has recommended that Council adopt the recovery goal and strategies described in this ordinance; and,

WHEREAS, the amendments are consistent with the overall goal of the Regional Solid Waste Management Plan: to continue to develop and implement a Solid Waste Management Plan that achieves a solid waste system that is regionally balanced, environmentally sound, cost-effective, technologically feasible and acceptable to the public; and,

THE METRO COUNCIL ORDAINS AS FOLLOWS:

SECTION 1. The Regional Solid Waste Management Plan's Goal 7, located at page 5-7, is amended to read:

Goal 7 - Regional Waste Reduction Goal. The regional waste reduction goal is to achieve a recovery rate of 62% as defined by state statute by the year 2005, at least a 50 percent recycling rate by the year 2005. Per capita disposal rate and reductions in waste generated attributable to waste prevention programs are also acknowledged to be key waste reduction indicators. ~~The region's interim goal for the year 2000 is the 52 percent recovery rate as defined by state statute.~~

SECTION 2. The introduction to the Regional Solid Waste Management Plan Chapter 7 "Recommended Solid Waste Practices to the Year 2005" located at page 7-1 is amended to include the following as a footnote:

The 2003 Waste Reduction Amendments (Metro Ordinance No. 03-1004):

1. incorporate new waste reduction initiatives to assist the region in meeting its recovery goals;
2. delegate development of yearly work plans for Businesses, Building Industries and Commercial Organics to regional work groups (tonnage objectives required to reach the recovery goals that were previously contained in Chapter 9, "Monitoring and Assessing Plan Performance," will be calculated by Metro on an annual basis and supplied to the work groups); and
3. present waste reduction recommendations as "strategies" rather than "practices." This helps clarify the role of this Regional Solid Waste Management as primarily a planning rather than an implementation document.

SECTION 3. Sections of the Regional Solid Waste Management Plan entitled "Business Waste Reduction Practices" and "Building Industries (Construction and Demolition) Waste Reduction Practices" at pages 7-13 to 7-22 and as amended by Metro Ordinances No. 97-700 and No. 98-761 are repealed.

SECTION 4. Section 4 of this Ordinance is added to and made a part of the Regional Solid Waste Management Plan.

Business Waste Reduction

The following strategies are designed to provide an integrated framework that supports businesses in their efforts to develop sustainable practices promoting environmental protection and resource conservation. These strategies promote the principles of waste prevention, recycling and buy recycled. The strategies will assist the region in meeting the waste reduction goals as specified in the adopted 1995-2005 RSWMP. In addition, these strategies will assist the region in meeting its new 2009 waste shed recovery goal and the State in meeting its waste recovery and generation goals for 2005 and 2009.

Recommended Strategies

1. Provide information and technical assistance about waste reduction designed and adapted to meet the needs of businesses.

Developing effective information and technical assistance services requires understanding of how businesses operate, receive information and respond to waste reduction initiatives. Delivering these services will require, as appropriate:

- Providing commercial technical assistance programs that include on-site visits.
- Coordinating waste reduction information services, including web-based resources.

2. Improve businesses' access to, and ease of use of, business waste prevention, recycling and buy recycled services.

Increasing business use of waste reduction services requires that the services be made easier and more convenient to use. Examples of programs that incorporate this approach may include:

- Coordinating the availability of commercial recycling services across the region, such as standardizing the list of recovered materials.
 - Reviewing economic incentives to haulers to maximize recycling service levels.
 - Addressing barriers that contribute to low participation by commercial multi-tenant buildings and facilities.
 - Conducting projects and providing grants to organizations to build the infrastructure and measurement tools for commercial waste prevention and reuse.
 - Developing a program to promote purchases of recycled content products by businesses, including a database of recycled-content products and other efforts to ensure that information on the availability, performance and pricing of recycled-content products is readily available.
 - Helping businesses work with suppliers to green the supply chain by having products and services incorporate waste reduction criteria, including waste prevention, recycled content and recyclable materials.
 - Promoting design guidelines for recycling areas for new or remodeled buildings.
3. Improve the capture and recovery of materials from the business waste stream.

Studies of the region's waste indicate that significant quantities of recoverable materials remain in the waste stream. Meeting the region's recovery goals may include:

- Targeting specific materials for recovery from business collection programs.
 - Ensuring the region's processing system has the capacity and capability to sort additional quantities of recyclables needed to meet the region's recovery goal into commodities that meet the quality requirements of end markets.
 - Researching issues with problem materials, such as shredded paper that cause processing and recovery issues for processors.
 - Maintaining current Metro fee waivers on recovered material.
 - Requiring that processing facilities pay fees to Metro only on disposed residuals.
4. Coordinate outreach efforts and develop a common message for businesses that integrates concepts of waste prevention, recycling and buy recycled.

Businesses today are faced with a barrage of messages and programs urging them to act in socially and environmentally responsible ways. Outreach messages can improve their effectiveness by:

- Promoting an understanding of sustainability as a way of integrating these concepts.
 - Promoting multimedia resource efficiency programs that qualify for state recycling rate credits.
 - Promoting a region-wide or industry-specific approach, as appropriate, for example, promoting region-wide commingled collection and processing services or targeting real estate firms.
 - Providing a business recognition program.
5. Support market development efforts.

Successful business waste reduction programs will increase the supply of recyclable materials. Market development efforts are needed to foster demand for these materials. Regional market development efforts may improve markets for the reuse or recycling of locally generated materials through:

- Expanding markets and marketing efforts for recycled content and reused products.
- Assisting in development of new technologies and products that increase the use of recycled material.
- Providing technical or financial assistance to processors and end users of recovered materials.

Implementation

Implementation of these strategies will be coordinated through the Commercial Waste Reduction Work Group. The Work Group will present its implementation plans for review to the Regional Solid Waste Advisory Committee annually.

Waste Reduction for Building Industries

The following strategies are designed to provide an integrated framework that supports the development of sustainable practices promoting environmental protection and resource conservation in the building industries. These strategies are intended to implement the waste reduction hierarchy by promoting principles of waste prevention and recycling. The strategies will assist the region in meeting the waste reduction goals as specified in the adopted 1995-2005 RSWMP. In addition, these strategies will assist the region in meeting its new 2009 wasteshed recovery goal and the State in meeting its waste recovery and generation goals for 2005 and 2009.

Note: The term “building industries” includes, but is not limited to, contractors, builders, developers, architects, designers, construction specification writers, property owners and managers.

Recommended Strategies

1. Promote salvage and deconstruction practices within the building industries.

Salvage and deconstruction activities prevent waste and preserve critical natural resources, such as old growth timber. These practices are an efficient and effective way to prevent demolition wastes from entering the waste stream. Support for these practices may include:

- Creating outreach programs to the salvage and deconstruction industry and to those utilizing salvage and deconstruction services.
 - Supporting market development activities that assist in the start-up, expansion or ongoing operation of building material reuse organizations.
 - Developing public/private partnerships between building material reuse organizations and other government organizations with an interest in reuse.
2. Provide information and technical assistance about waste reduction designed and adapted to meet the needs of the building industry.

Each segment of the building industry needs to be reached with targeted waste reduction information. Developing effective waste reduction information and technical assistance services requires an understanding of how these stakeholders are involved in a demolition or construction project and how best to provide them with waste reduction services. Programs may include:

- Providing technical assistance tailored to the needs of the building industry.
- Producing waste reduction information endorsed by and distributed by local governments, industry associations and other sources.
- Supporting agencies and organizations that promote sustainable building or "green" practices. Support programs that provide model specifications related to salvage, design and selection of materials used in construction.

3. Increase the diversion of construction and demolition wastes from landfills.

Studies of the region's waste indicate that significant quantities of recoverable materials in the C&D waste stream continue to be disposed directly into landfills. Meeting the region's recovery goals may include:

- Continuing to promote the availability of on-site source separation services.
- Creating economic incentives for generators, processing facilities or landfills that divert materials from disposal.
- Developing and promoting C&D (i.e., mixed construction waste) processing facilities within the region.
- Ensuring capacity of local used building material industry.
- Ensuring capacity and reasonable access to mixed construction waste processing facilities.
- Maintaining current Metro fee waivers on recovered material
- Requiring processing facilities to pay fees to Metro only on disposed residuals.

4. Support market development efforts.

Successful business industry waste reduction programs will increase the supply of reusable and recyclable materials. Market development efforts are needed to foster demand for these materials. Regional market development efforts may improve markets for the reuse or recycling of locally generated materials through:

- Expanding markets and marketing efforts for recycled content and reused building industry products.
- Assisting the development of new technologies and products to increase the use and value of recycled building materials.
- Providing technical and/or financial assistance to processors and end users of recovered building materials.

Implementation

Implementation of these strategies will be coordinated through the Construction and Demolition Waste Reduction Work Group. The Work Group will present its implementation plans for review to the Regional Solid Waste Advisory Committee annually.

Waste Reduction for Commercially Generated Organics

The following strategies are designed to provide an integrated framework that supports the development of sustainable practices promoting environmental protection and resource conservation in businesses generating organic wastes. These strategies are intended to implement the waste reduction hierarchy through waste prevention (including food donation and diversion) and organics processing. The strategies will assist the region in meeting the waste reduction goals as specified in the adopted 1995-2005. In addition, these strategies will assist the region in meeting its new 2009 wasteshed recovery goal and the state in meeting its waste recovery and generation goals for 2005 and 2009.

Recommended Strategies

1. **Develop and implement waste prevention and food donation programs for businesses that generate organic waste.**

This strategy is designed to prevent the generation of excessive food waste and to target the highest end use for those food wastes generated by businesses. The value of surplus food products to food rescue agencies (food banks and pantries) generally far exceeds the value of the waste as a feedstock for an organic processing facility. Programs diverting edible materials to local food banks are designed to capture some of that value. Support for these programs may include:

- Providing grants to improve the infrastructure of the food donation industry to enable food rescue agencies to build greater capacity to collect, store and redistribute perishable foods that would otherwise be landfilled.
- Delivering outreach and education programs to businesses about preventing food waste and about strategies to donate edible surplus food to food rescue agencies.

2. **Develop and provide information and technical assistance to businesses regarding options for their organic waste.**

A wide range of business types, including restaurants, food processors and grocery stores generate food wastes. Understanding how these business types operate will assist in developing and delivering effective waste reduction information and technical assistance services to these businesses. Programs may include:

- Delivering on-site technical assistance tailored to the needs of each business type.
- Delivering coordinated information services utilizing a wide range of media designed to reach each business type

3. Assist in developing a processing infrastructure.

Studies of the region's waste indicate that even with increased waste prevention through successful diversion and food donation programs, there will be significant quantities of organic waste left in the waste stream. Development of an organic waste-processing infrastructure to enable the region to meet its recovery goals may include:

- Developing collection and processing services within the region through grants and pilot programs.
- Providing assistance (grants, technical assistance) to existing local processing facilities to enhance their processing capacity and broaden the types of organic materials they can receive and process in an environmentally sound manner.
- Addressing facility siting and zoning issues with local authorities.

4. Increase the recovery of residential food wastes.

Conducting research on the potential for implementing residential food waste collection programs, pending the development of sufficient organics processing capacity for the region.

5. Support market development efforts.

Successful organics recovery efforts will increase the supply of compost and other soil enhancement products from processing facilities. Market development efforts are needed to ensure demand for these products. Regional market development efforts may improve markets for the use of these locally generated materials through:

- Expanding markets and marketing efforts for compost and other soil enhancement products.
- Working with the Composting Council of Oregon on market development in the Metro region.

Implementation

Implementation of these strategies will be coordinated through the intergovernmental Organics Work Group. The Work Group will present its implementation plans for review to the Regional Solid Waste Advisory Committee annually.

Recommended Waste Reduction Contingency Plan

Background

In 1999, faced with evidence that progress toward regional recovery goals had stalled, Metro and local governments created work teams to address the problem. The result was a set of "Waste Reduction Initiatives" that identified opportunities for increasing recovery in the C&D, Commercial and Commercial Organics sectors. The strategies in this Plan chapter integrate those efforts into this Regional Solid Waste Management Plan.

The waste reduction strategies contained in this Plan are primarily based on an "opportunity Model." Under this model, recycling services are required to be available and promoted to businesses, but participation in the programs remains voluntary. The Commercial and C&D Waste Reduction Initiatives

work groups identified strategies that would add additional requirements on generators or facilities to this Opportunity Model. These "required recycling" strategies are not part of this Plan at this time. Although the Commercial Organics work group did not identify specific additional strategies it is recommended that they should be developed.

Contingency Plan

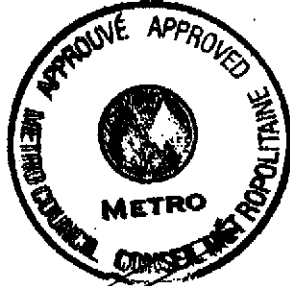
In addition to the strategies contained in the Plan, it is essential that the region have a contingency plan in place if progress toward recovery goals is inadequate. Regional solid waste stakeholders have agreed that if we clearly are not going to reach our 2005 goal, waiting until 2005 to address the problem is not acceptable.

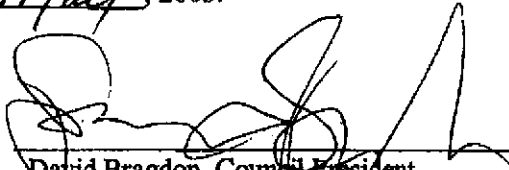
The basic outline of the contingency plan is for a work group to meet to develop a set of feasible and effective strategies to enhance recovery. If progress toward recovery goals is inadequate, these strategies would represent options that could be put in place. Based on the work of the Waste Reduction Initiative teams, these strategies would focus on adding "required recycling" policies to the existing policy framework.

The contingency plan will take the following form:

- A work group will be convened to consider methods of increasing progress toward recovery goals through increased recycling requirements.
 - For the Building Industries sector, types of required recycling to be considered will include: (a) requirements on C&D generators to recycle a majority of their recyclable wastes through source separation or at mixed-waste processing facilities; and (b) disposal bans for generators or facilities on selected recyclable materials.
 - For the Business sector, types of required recycling to be considered will include: (a) requirements on generators to recycle at least a majority of their wastes; and (b) disposal bans for generators or facilities on selected recyclable materials.
 - For the Commercially-generated Organics sector, approaches to be considered will include: (a) requirements on business organic generators to source separate on site or send their organic wastes to processing facilities; and (b) develop a common regional approach to increase the efficiency and economic feasibility of organics collection;
- The work group will consider whether such requirements are best implemented through actions of local governments, Metro or the State of Oregon. Combined or joint action by these agencies will be considered.
- The work group will determine whether adoption of these methods would be legally and financially feasible and would enable the region to meet its recovery goals. The work group can consider other methods (e.g., financial incentives or subsidies); such methods must be compared in terms of feasibility and effectiveness with the required recycling approaches.
- The work group will make its recommendations to Metro and the Regional Solid Waste Advisory Committee on or before January 1, 2004.. If sufficient progress toward recovery is not reflected in recovery reports, Metro and the appropriate governments will work to implement the work group's recommendations after that date.

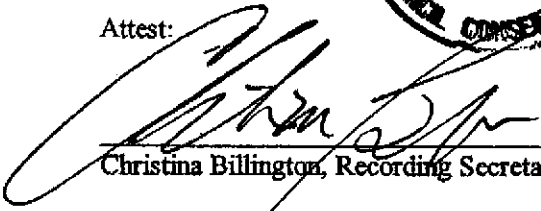
ADOPTED by the Metro Council this 15 day of May, 2003.





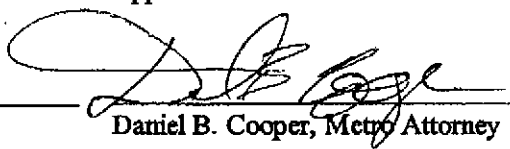
David Bragdon, Council President

Attest:



Christina Billington, Recording Secretary

Approved as to Form:



Daniel B. Cooper, Metro Attorney

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STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 03-1004, FOR THE PURPOSE OF AMENDING THE REGIONAL SOLID WASTE MANAGEMENT PLAN REGARDING RECOVERY GOALS AND RECOMMENDED WASTE REDUCTION STRATEGIES FOR THE MANAGEMENT OF BUSINESS, BUILDING INDUSTRIES AND COMMERCIALY GENERATED ORGANIC WASTES

Date: March 27, 2003

Prepared by: Scott Klag

BACKGROUND

Metro and local governments have developed waste reduction initiatives for business, building industries and commercially generated organic wastes. The purpose of Ordinance No. 03-1004 is to incorporate these initiatives into the Plan by amendment and thereby keep regional policies, strategies and programs aligned. In addition, the State of Oregon Legislature has revised the watershed goal for the Metro region, and the amendments update the Plan to reflect that change.

The proposed amendments update the strategic direction for a major portion of the Plan's waste reduction recommendations. Specific provisions of the amendments:

- Affirm the region's commitment to recovery goals.

The amendments update the region's stated recovery goal to 62% by the year 2005.

- Incorporate the waste reduction initiatives into the Plan.

Under the region's "opportunity model" approach to waste reduction, governments ensure that recycling services are available and promoted, while use of the services remains voluntary. The proposed amendments build upon this approach and contain common strategies: promoting waste prevention; providing information and technical assistance; increasing access and use of services; and supporting market development efforts.

- Recommend a contingency planning process.

The amendments require development of a contingency plan to keep the region on track to its recovery goals. A work group will convene to examine adding required recycling strategies (e.g. disposal bans, generator or facility requirements) to the current opportunity model approach. The contingency plan work group will report to Metro Council by January 1, 2004.

Solid Waste Advisory Committee (SWAC) Review: On March 17, 2003, SWAC reviewed the amendments in draft form and voted to send to them on to a Council informal, understanding that the amendments would come back to SWAC in final form as an ordinance and staff report.

ANALYSIS/INFORMATION

1. Known Opposition

None.

2. Legal Antecedents

Council adopted the Regional Solid Waste Management Plan (Plan) as a functional plan by Ordinance No. 95-624, "For the purpose of adopting the Regional Solid Waste Management Plan." The Plan serves as a regional framework for the coordination of solid waste programs and to satisfy state law requiring development of a waste reduction plan for the Metro region (ORS 459).

3. Anticipated Effects

Adoption of the ordinance will ensure that Plan policies and strategies are aligned with waste reduction programs in the region. The amendments to the Plan also call for a work group to be convened that will recommend a contingency plan to keep the region on track to meeting its recovery goals.

4. Budget Impacts

Adoption of the proposed ordinance will not have a direct fiscal impact. Any fiscal impact would occur through Council's regular program planning and budget processes for the Solid Waste and Recycling Department.

RECOMMENDED ACTION

The Chief Operating Officer recommends approval of Ordinance No. 03-1004.

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Regional Solid Waste Management Plan

1995-2005

Illegal Dumping Plan

**Goal, Objectives, and
Management Practices**

**Metro
Regional Environmental Management
600 NE Grand Avenue
Portland, OR 97232**

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Goal and Objectives

Illegal dumping is a problem that affects public health and safety as well as the region's environment, economic vitality and livability. It is also costly to investigate and prosecute illegal dumping and to clean up dump sites.

This draft plan was developed to address the problem within Metro's boundaries. It also acknowledges that local governments can use this plan to address illegal dumping problems within the rural portions of Clackamas, Multnomah and Washington Counties. This plan was developed collaboratively with government, waste hauler, and private sector representatives who work in the region to prevent illegal dumping, enforce illegal dumping laws, clean up dump sites, and plan for the future. The goal and objectives that guide this plan are:

Goal:

Help keep the Metro region clean, livable, and healthy through the cooperative efforts of the public and private sectors to promote proper disposal of solid waste.

Objectives:

- Educate the public about illegal dumping and promote legal alternatives
- Reduce illegal dumping
- Clean up dump sites
- Reduce the unauthorized use of disposal containers

The main goal of the Regional Solid Waste Management Plan (RSWMP) is to develop a plan that achieves a solid waste system that is regionally balanced, environmentally sound, cost-effective, technologically feasible and acceptable to the public. This Illegal Dumping Plan is consistent with that goal. This plan also acknowledges Metro's responsibilities for regional solid waste management planning and disposal.

Summary of Management Practices

The management practices listed below are proposed as the six most effective ways to accomplish the goal and objectives. They identify areas of regional interest where coordination and continued planning will be required, they set expectations for what can be accomplished, and they provide a strategy or approach for implementation.

- Practice 1: Improve communication, coordination and planning
- Practice 2: Prevent illegal dumping through mitigation and public education
- Practice 3: Provide for dump site cleanup
- Practice 4: Coordinate prosecution and enforcement efforts
- Practice 5: Reduce the incidents of unauthorized use of disposal containers through public education and enforcement
- Practice 6: Track progress and measure results

Each proposed management practice includes the components listed below.

Key Concept: A description of the problem or opportunity the practice addresses.

Key Element: The specific programs or activities that make up the practice.

Roles and Responsibilities: The responsibilities of each party to implement the practice.

Implementation of the Management Practices

Roles and Responsibilities

The management practices will be implemented through cooperative and individual efforts of governments and the private sector. Roles and responsibilities have been proposed for the purpose of ensuring the best use of resources and respecting the authorities of state, regional and local governments over specific solid waste management functions. The table on the next page summarizes proposed roles for each partner to implement the management practices.

Illegal Dumping - Recommended Management Practices
Summary of Roles and Responsibilities

Mgt. Practice	Regional Coordination *	State DEQ	Metro	Cities and Counties	Private Sector **
Practice 1: Regional Coordination and Planning	Establish an effective means to coordinate and plan region-wide efforts	Participate Share information	Lead role to coordinate regional planning efforts Participate Share information Provide for meeting space and facilitation	Participate Share information	Participate Share information
Practice 2: Educate the Public	Plan effective education strategies and programs	Implement state programs to educate the public and specific audiences	Lead role to coordinate regional education and promotion planning efforts Implement regional programs to educate the public and specific audiences	Implement local programs to educate the public and specific audiences	Implement private sector programs to educate the public and specific audiences
Practice 2: Mitigate Illegal Dumping	Plan effective mitigation strategies and programs		Lead role to coordinate regional mitigation planning efforts. Provide mitigation programs Assist with implementation of programs per agreements with cities and counties Enforce Metro's "covered load" regulation	Lead role to provide mitigation programs	Lead role to provide mitigation programs
Practice 3: Clean Up Dump Sites	Develop a regional call referral service to report dump sites and related problems; develop a matrix of services and referrals	Lead role to provide technical assistance to other governments as requested to identify and handle special and hazardous materials Lead role to clean up large waste tire dump sites	Lead role to provide the regional call referral service Assist with clean up of dump sites per agreements with cities and counties	Lead role to clean up dump sites consistent with local regulations	Lead role to coordinate and conduct region-wide clean up events Lead role to provide volunteers as available for local cleanup events
<i>continued</i>					

* Regional Coordination = Coordinated planning by state, Metro and local governments and the private sector ** Private Sector = Organizations or individuals working to solve the illegal dumping problem.

Summary of Roles and Responsibilities

Mgt. Practice	Regional Coordination *	State DEQ	Metro	Cities and Counties	Private Sector **
Practice 4: Coordinate Investigation and Prosecution	Develop and maintain a regional database of dump sites, suspects, and known illegal perpetrators	Lead role to enforce state regulations Assist to maintain the regional database	Lead role to coordinate the development and maintenance of a regional database. Lead role to enforce Metro regulations related to revenue flow and facility franchises If requested, assist cities and counties to develop "civil penalty" laws Provide investigation and prosecution services per agreements with cities and counties Provide assistance to develop and maintain the regional database	Lead role to investigate and prosecute cases relating to collection, theft of recyclables, theft of services, and illegal dumping Lead role to enforce local facility franchise agreements (if applicable) Coordinate with other governments on cases as appropriate Assist to maintain the regional database	
Practice 5: Reduce the Incidence of Unauthorized Use of Disposal Containers	Develop a regional public education campaign	Participate in the development of a public education campaign	Lead role to coordinate the development of a regional public education campaign; implement specific education strategies as determined If permitted by local laws and if requested, assist cities and counties to investigate and prosecute theft of services cases	Lead role to investigate and prosecute theft of services cases Participate in the development of a regional public education campaign; implement specific education strategies as determined	Participate in the development of a regional public education campaign
Practice 6: Track Progress Measure Results	Track program results and plan program improvements where necessary	Assist to provide data for the annual report Participate to assess program results and to plan improvements where necessary	Lead role to provide data, produce and distribute an annual report of activities Lead role to conduct surveys and studies to measure regional progress Lead role to assess program results and to plan improvements	Assist to provide data for the annual report Assist with surveys and studies as appropriate Participate to assess program results and to plan improvements	Assist to provide data for the annual report as appropriate Assist with surveys and studies as appropriate Participate to assess program results and to plan improvements

Practice 1: Improve Communication and Regional Coordination

Key Concept and Approach

Effective communication and regional coordination will be required to accomplish the goal, objectives, and management practices of this plan, and to minimize duplication of efforts and service gaps. The other management practices describe key projects where coordination will be necessary. This practice describes the specific mechanisms to improve cooperation and coordination.

Key Elements

Roles and Responsibilities

[In addition to the descriptions below, see the table at the beginning of this document for a summary of roles and responsibilities]

- a) **Establish and support, financially and through staffing, a regional committee or committees.** The purpose of the committee(s) will be to provide an effective, ongoing regional forum to share information, discuss key issues, develop plans and programs, implement programs to involve the public in plan development, and to assess program results. Metro will provide meeting space and facilitation services as required. Governments and the private sector will participate.
- b) Metro and DEQ will coordinate cooperative efforts developed through the regional committee, as defined in "a)."

Practice 2: Prevent Illegal Dumping through Mitigation and Public Education

Key Concept and Approach

Resources invested to prevent illegal dumping will result in fewer resources expended to investigate and prosecute cases, and to clean up illegal dump sites. Effective prevention can also help alleviate the negative economic consequences of chronic illegal dumping for neighborhoods, businesses, and government. The results of annual tracking surveys suggest that prevention efforts implemented in the last several years have resulted in fewer dump sites in locations that have traditionally experienced problems. Prevention activities should be strengthened to increase this momentum. Prevention activities should address the principal reasons illegal dumping continues to be a problem. These include:

Chronic dump sites - Known illegal dump sites attract more illegal dumping. Prompt cleanup and physical barricades will make these sites less attractive to potential perpetrators.

Economic considerations - Problems that lead to illegal dumping and are sometimes economic in nature, such as low-income residents who cannot otherwise afford garbage service. The public needs to be made aware of low cost, legal options such as recycling.

Problem materials - Some materials have proven to be a chronic illegal dumping problem. Implementation of solutions that help to improve their chances of being recycled or properly disposed is a key step in managing illegal dumping.

Problem generators - Certain types of commercial and industrial waste generators have been found to be more prone to dispose of materials through illegal means. Specific solutions should be implemented to mitigate potential illegal dumping activities.

Lack of public awareness - Large segments of the general public and certain targeted generators may not be aware of the health, safety, social, economic, environmental, and legal consequences of illegal dumping. They may not be aware of legal recycling and disposal options. Effective promotional and educational efforts will raise awareness and help prevent illegal activity.

Key Elements

Roles and Responsibilities

[In addition to the descriptions below, see the table at the beginning of this document for a summary of roles and responsibilities]

- a) **Mitigate chronic illegal dump sites.** Make chronic dump sites less attractive to perpetrators by placing or removing barriers, signs, lighting and other deterrents at chronic dump sites whenever feasible. Monitor chronic sites for problems. Work with private property owners to mitigate illegal dumping.
- b) **Abate Disposal Facility Litter.** Metro will continue to mitigate litter problems at Metro-owned and franchised solid waste facilities and roadsides by levying a surcharge for loads arriving without proper cover or containment.
- c) **Provide economic incentives for proper waste disposal.** Make it convenient and economically viable for waste generators to recycle bulky and hazardous items thus making it less likely they will be illegally dumped. Continue special collection events for these materials. Provide grants to fund these events.

d) Continue effective programs for problem materials and launch new programs that will solve acute problems.

Bulky materials - As noted in c) above, continue special collection events for bulky materials that are often illegally dumped.

Waste tires - Accept waste tires at community cleanup events. Encourage state legislation for the better management of waste tires and to strengthen actions that can be taken against the illegal disposal of waste tires.

Construction and demolition materials - Initiate programs to educate construction and demolition contractors on proper waste disposal techniques and recycling opportunities. When feasible, implement additional measures to increase proper management of waste. Examples could include: 1) require waste generators to develop and submit recycling plans to local governments; or 2) increase enforcement of regulations that require the use of authorized haulers.

Hazardous materials - Work cooperatively to implement state, regional and local programs to promote the safe and legal use and disposal of hazardous materials.

Sharps - promote the safe and legal disposal of sharps generated by households and institutions. Support the planning and public outreach efforts of the Pollution Prevention Outreach Group, a region-wide group working to promote the safe and legal disposal of sharps generated by households and institutions and work cooperatively with that group as opportunities arise. Metro will continue to collect properly contained sharps at its permanent hazardous waste facilities and at satellite household hazardous waste collection events, subject to the conditions of Metro's sharps container exchange program.

Sharps are defined in ORS 459.386 as including needles, IV tubing with needles attached, scalpel blades, lancets, glass tubes that could be broken during handling, and syringes that have been removed from their original sterile containers.

Renters - Local governments may elect to implement policies requiring landlords to subscribe to garbage and recycling service for their tenants. These policies have been effective in other jurisdictions.

e) Educate the general public and targeted audiences. Collaborate to develop and implement effective education to:

- Help the general public and targeted audiences to understand what illegal dumping is and its legal, social, economic, and environmental consequences;
- Inform the general public and targeted audiences about the roles and responsibilities of citizens, governments and the private sector to solve the problem of illegal dumping;
- In applicable jurisdictions, inform the general public and targeted audiences that they may be directly responsible if they hire a hauler who illegally disposes of their waste;
- Promote legal recycling, disposal alternatives, and locations of service facilities; and
- Inform the public government enforcement officers' success in apprehending perpetrators.

Target audiences should include business owners, rental property owners and associations of investors, self-haulers, people who use the services of haulers that are not authorized by local governments to haul waste, remodelers, carpenters, roofers, landscapers, painters, security personnel, judges, hearing officers, police officers, and fire fighters.

Depending on target audiences and messages, specific education methods could include: newspaper articles or ads; city, county or neighborhood association newsletters; professional association newsletters, cable access television programs; public service announcements (radio and television); garbage bill inserts; videos; speakers bureaus (slide presentations and talks to civic groups and trade associations); workshops or roundtable discussions with business groups, law enforcement and fire fighter associations.

Proper solid waste reduction, disposal, and recycling practices will continue to be promoted.

Practice 3: Provide for Illegal Dump Site Cleanup

Key Concept and Approach

Prompt cleanup of illegal dump sites ensures the removal of health and safety hazards, provides a means to obtain and preserve evidence and information that could lead to prosecution, and lessens the likelihood of more dumping at the same site. The region's local governments have different approaches to dump site cleanup. In addition, private sector organizations have assumed an important role to coordinate regional cleanup events and services. Roles and responsibilities need to be worked out in order to avoid service gaps and overlaps.

Key Elements

Roles and Responsibilities

[In addition to the descriptions below, see the table at the beginning of this document for a summary of roles and responsibilities]

- a) **Provide dumpsite cleanup services according to local policies.** Local governments have the authority to provide dumpsite cleanup within their jurisdictions.

Metro may provide illegal cleanup services on private property for victims of illegal dumping per agreements with cities and counties, and according to the following criteria:

- The property is not a county or city right-of-way that is regularly cleaned up by a local jurisdiction
- The dump site is a health and/or safety hazard to the public
- The dump site is unsightly
- It would present an undue hardship to the property owner under the circumstances to clean up the site.
- Evidence about the probable perpetrator can be gathered in the process of cleaning up the site

Metro's objective will be to provide quick response to appropriate service requests in order to mitigate additional illegal dumping problems at the site.

DEQ will continue to provide technical assistance to other governments and the private sector as requested to identify potentially hazardous materials that have been illegally dumped or abandoned. It will also address water and air quality concerns that arise as a result of illegal dump sites.

- b) **Establish a regional call referral service for reporting illegal dumping.** The purpose of the call referral service is to provide better public service. It will ensure that the public has a simple and understandable way to report incidents. Metro will provide the service through its existing Recycling Information Center and will promote the new number to the public. Regional coordination will be required to set up and maintain reliable referrals as described in c) below.

- c) **Develop a matrix and map of dump site cleanup policies and services.** Through a cooperative regional effort, identify the laws, codes, and enforcement procedures, including penalties and cleanup policies, that exist within the region and including Vancouver and Clark County, Washington. Identify the boundaries of those programs on a regional map. Identify reliable phone numbers and referrals for different types of illegal dumping situations that are likely to occur. Ensure that all jurisdictions receive the information and that the information is updated on a regular basis. This matrix and map will be used by the call referral service described in b) above.
- d) **Continue to provide local and region-wide dump site cleanup events.** Governments and the private sector will continue to plan and implement cleanup events. This includes those organized by Stop Oregon Litter & Vandafism (SOLV). SOLV will also provide volunteers as available for cleanups coordinated by state, regional or local governments.

Practice 4: Coordinate Prosecution and Enforcement Efforts

Key Concept and Approach

There are challenges to prosecution and enforcement efforts that heighten the need for coordination. For example, illegal dumping policies and enforcement practices vary among jurisdictions. Another challenge is that perpetrators do not usually confine their activities to one jurisdiction. Instead, they tend to cross jurisdictional boundaries and continue those activities. Also, some local officials may not see illegal dumping cases as a high priority and may be unaware of an offender's prior illegal dumping offenses. Coordination is required to address these challenges effectively.

Key Elements

Roles and Responsibilities

[In addition to the descriptions below, see the table at the beginning of this document for a summary of roles and responsibilities]

- a) **Prosecution and investigation is under the authority of local governments.** Local jurisdictions have the authority to investigate and prosecute illegal dumping incidents that occur within their boundaries. When permitted by law, this enforcement authority may delegate to another jurisdiction by written agreement. Metro will assist to investigate and prosecute cases per written agreements with cities and counties.
- b) **Develop and maintain a regional, computerized database of suspects, offenders, dump sites, and open and closed cases.** The purpose of the database is to provide the means to electronically share current information region-wide about illegal dump sites, suspects and perpetrators in order to apprehend more offenders. Metro will provide technical assistance and funding to establish and maintain the database and to provide other governments the opportunity to access the database. All jurisdictions will coordinate to maintain the database, to evaluate its effectiveness, and to plan improvements.
- c) **Conduct information meetings with criminal enforcement personnel.** Governments will coordinate to plan and conduct regional and local meetings with civil and criminal enforcement personnel. The purpose of these meetings will be to increase awareness of illegal dumping enforcement programs and the serious nature of the offense.

d) **Other Actions.** In the interest of establishing more consistent policies, any of the following elements can be implemented by governments as appropriate:

- Local governments may choose to issue citations under Metro's illegal dumping ordinance through written agreements with Metro.
- Adopt laws to:
 - Allow liens to be placed on the personal property of perpetrators (e.g., vehicles) if they fail to pay civil penalties or costs of cleanup.
 - Restrict homeowners' use of unauthorized haulers and hold unauthorized haulers and/or homeowners liable for cleanup of illegally-dumped materials.
 - Advocate for a state law that would restrict homeowners' use of unauthorized haulers and hold unauthorized haulers and/or homeowners liable for cleanup of illegally-dumped materials.
 - Require convicted offenders to subscribe to residential garbage service.
 - Enact an illegal dumping ordinance.
 - Develop procedures to identify repeat offenders across the region
 - Provide cost-effective ways for recycling coordinators and enforcement officials to access the state Department of Motor Vehicle's automated voice exchange system (DAVE) in order to do license plate checks on illegal dumping suspects.

Practice 5: Reduce the incidents of unauthorized use of disposal containers through public education and enforcement

Key Concept and Approach

Illegal disposal includes the unauthorized placing of one's garbage in another's refuse container. Considering that "garbage collection" is a service that is paid for by the customer, this activity is tantamount to stealing the service from the individual or business that paid for it. As disposal costs increase, so does the monetary significance to the victim and the number of incidents.

Illegal disposal also includes cases where waste or recyclables are deposited at a legitimate disposal or recovery facility but dumped after hours and/or without proper payment. Such cases occur infrequently and can be handled either as thefts or as illegal dumping.

"Theft of service" is a crime under Oregon law and as such, it is the responsibility of the local law enforcement agency to investigate the offense and prosecute through the district attorney's office. Individuals who participate in this activity may be unaware that it is a crime and the possible consequences. Public education would raise awareness and help prevent this activity.

Due to limited law enforcement resources, local jurisdictions may determine that this activity is a low priority for criminal investigation and prosecution. The regional committee established under Practice 1 of this Plan could investigate alternative approaches to address this problem, including prosecuting as a civil offense.

Key Elements

Roles and Responsibilities

[In addition to the descriptions below, see the table at the beginning of this document for a summary of roles and responsibilities]

- a) **Investigation and Prosecution is under the authority of local governments.** Local jurisdictions have the authority under Oregon law to investigate and prosecute the unauthorized use of disposal containers (theft of services) occurring within their boundaries. This enforcement authority may be delegated to another jurisdiction by written agreement.
- b) **Develop a public education campaign** to inform individuals that this activity is "theft" and of the legal consequences. In addition, both residential and business waste collection customers should be educated on steps that may be taken to protect their disposal containers from unauthorized use, such as lighting, signage and locks.
- c) **Enact legislation.** Local jurisdictions may enact legislation making unauthorized use of a disposal container a civil violation, thereby removing investigation and prosecution from the criminal justice system.

Practice 6: Track Progress and Measure Results

Key Concept and Approach

Surveys and program tracking are traditional management tools used to measure and evaluate the effectiveness of programs. These same types of management tools should be used to assess the effectiveness of illegal dumping programs, to plan better approaches to solve the problem, and to ensure to best use of resources. Annual reviews will be necessary given the changing face of the problem. For example, new illegal dump sites may emerge as old ones are cleaned up, changing solid waste policies may result in the decrease or increase of illegal activity, or an increase in construction activity in a particular area may result in more illegally disposed construction waste.

Key Elements

Roles and Responsibilities

[In addition to the descriptions below, see the table at the beginning of this document for a summary of roles and responsibilities]

- a) **Identify performance indicators.** In order to track progress from year to year, governments and the private sector have identified key indicators of performance. These indicators will be used to assess region-wide progress toward reaching the objectives of this plan.

Communication and Regional Coordination

- Participation in the Solid Waste Interagency Network of Enforcers (SWINE)
- Participation in regional planning efforts
- Successful implementation of regional programs

Prevention and Public Education

- Identify sites where mitigation measures have been taken and determine whether or not they are dumped on less frequently
- Decrease in the size and number of illegal dump sites
- Changes in public attitudes (surveyed through public opinion polls)
- Changes in the behavior of targeted waste generators
- Numbers and types of calls to the regional call referral service phone number

Illegal Dump Site Cleanup

- Number of sites cleaned up, who cleaned them up, and who paid for the cleanup. Calls to the regional call referral service

Coordinated Investigation and Prosecution

- Adoption of new laws
- Jurisdictions use the new regional database
- Number of informational meeting with enforcement personnel
- Number of cases involving coordinated investigation and prosecution

b) **Produce and distribute an annual report on the status of illegal dumping.** The purpose of this report is to survey and inventory the current status of the illegal dumping problem. The report will also analyze survey information and make specific recommendations for change as discussed in element b) below. The report may include the following information for each annual reporting period:

- Size, locations and types of known illegal dump sites
(“types” can include whether the land was privately or publicly owned, the types of materials dumped, and whether the material was dumped by households or businesses)
- Number, size, locations, and types of illegal dump site cleanups, quantities of materials collected, whether the site owner or the local government cleaned the site, how much money was recovered from local government cleanups, and the costs of cleanup activities.
- Number of violators apprehended
- Status of repeat violators
- Number of cases successfully cleared
- Call activity - regional call referral service by geographic location
- Summary of programs implemented
- Summary of new solid waste management policies and their probable effects on illegal dumping
- Comparisons with prior years and analysis
- Recommendations for change
- Survey of types of materials dumped
- Map matrix to mitigate repeat calls and transferring of calls
- Response times for resolving problems

Metro will compile and distribute the report annually. Local governments may contribute information for their jurisdictions. Metro will work with state and local governments to determine specific reporting needs.

c) **Analyze report data and recommend program improvements.** All parties will participate in the following activities:

- Analyze annual data
- Assess the effectiveness of current programs
- Amend existing programs as a result of surveys
- Recommend new programs to address emerging problems

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BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF ADOPTING)	ORDINANCE NO. 97- 673
THE REGIONAL DISASTER DEBRIS)	
MANAGEMENT PLAN AND)	Introduced by Mike Burton
INCORPORATING PART 2 INTO THE)	Executive Officer
REGIONAL SOLID WASTE MANAGEMENT)	
PLAN)	

WHEREAS, the Regional Solid Waste Management Plan (Solid Waste Plan) was adopted by Metro Council November 1995 through Metro Ordinance No. 95-624; and

WHEREAS, the Solid Waste Plan includes goals and objectives for disaster management and mandates the development of recommended practices for disaster management; and

WHEREAS, Metro is a member of the Regional Emergency Management Group (REMG), which is developing the Regional Emergency Management Plan (REMP); and

WHEREAS, one of the major elements being addressed by REMG in the REMP is disaster debris; and

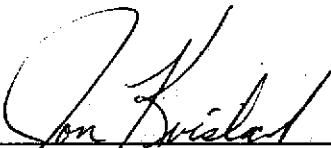
WHEREAS, the flood of 1996 in the Metro region demonstrated the need for a regional disaster debris management plan to ensure that debris management activities after a disaster are coordinated, effective, and address the waste management hierarchy; and

WHEREAS, The ordinance was submitted to the Executive Officer for consideration and was forwarded to the Council for approval; now therefore,

THE METRO COUNCIL ORDAINS AS FOLLOWS:

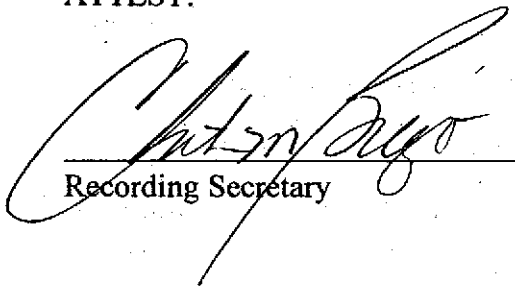
1. The Regional Disaster Debris Management Plan as shown in Exhibit A to this ordinance is adopted and Part 2 incorporated into the Regional Solid Waste Management Plan, a functional plan under ORS268.390.

ADOPTED by the Metro Council this 1st day of May, 1997.



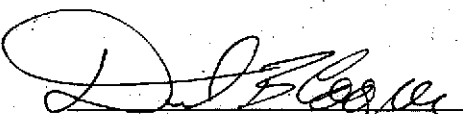
Jon Kvistad, Presiding Officer

ATTEST:



Recording Secretary

Approved as to Form:



Daniel B. Cooper, General Counsel

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STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 97-673 FOR THE PURPOSE OF ADOPTING THE REGIONAL DISASTER DEBRIS MANAGEMENT PLAN AND INCORPORATING PART TWO INTO THE REGIONAL SOLID WASTE MANAGEMENT PLAN.

DATE: December 13, 1996

Presented by: Marie Nelson

PROPOSED ACTION

This resolution adopts the Regional Disaster Debris Management Plan as a part of the Regional Solid Waste Management Plan through Ordinance No. 97-673.

BACKGROUND

In 1994, the Regional Emergency Management Group (REMG) was formalized through an inter-governmental agreement. The agreement included a work plan of 21 elements identified as having regional significance in the emergency management process. Debris removal is one of those elements and Metro was tasked with developing a disaster debris removal plan for the REMG region¹.

In November 1995, the Metro Council adopted the revised Regional Solid Waste Management Plan (Solid Waste Plan) (Ordinance 95-624). The Plan includes a goal and five objectives for debris management and directs that recommended practices for debris management be developed. The adopted goal and objectives had been drafted by a task force, including local government solid waste and emergency management staff, the Army Corps of Engineers, DEQ, and Metro, in the spring of 1995.

In January of 1996, the Regional Disaster Debris Management Task Force was formed to develop recommended practices and implementation strategies for the Regional Disaster Debris Management Plan using the adopted Solid Waste Plan disaster management goal and objectives. The Task Force met for nine months and periodically sent their work to the Metro Solid Waste Advisory Committee (SWAC) for review, as well as to the Regional Emergency Management Technical subcommittee (REMTEC)², the Army Corps of Engineers (USACE), the Oregon Department of Environmental Quality (DEQ), and the Oregon Office of Emergency Management (OEM).

ORGANIZATION OF THE PLAN

- Introduction
Part 1

The first section discusses the purpose of the Debris Plan, background information, and the process used to develop the recommended practices and implementation strategies. Part 1 also includes a list of acronyms and a glossary of words that may be unfamiliar.

- Policies and Summary of Practices
Part 2

This section contains the recommended practices required by the Solid Waste Plan and will be included in the body of the Solid Waste Plan document. The recommended practices describe how the adopted disaster debris management goal and objectives will be implemented and assigns roles and responsibilities. Amendments to this section will be made consistent with the established process for amending the Solid Waste Plan.

¹ The REMG region is comprised of Clackamas, Columbia, Multnomah, and Washington counties in Oregon, and Clark County in Washington.

² REMTEC is the technical subcommittee of REMG.

Parts 3, 4, and 5 will become an appendix to the Solid Waste Plan. Amendments to these sections may be made through the annual State of the Plan Report process.

- **Response Phase Strategies**
Part 3

This section describes strategies for disaster debris management to be implemented during the response phase, or first 72 hours after a disaster. During this time, the focus is on saving lives, preliminary damage assessment, and clearing roadways. However, this section addresses the many vital communication and coordination functions for disaster debris management that can begin during this time.

- **Recovery Phase Strategies**
Part 4

This section describes strategies for disaster debris management to be implemented during the recovery phase of a disaster. During the recovery phase, debris management activities move to the forefront of importance. This section contains guidelines and strategies designed to help jurisdictions make the process of managing disaster debris more efficient and effective.

- **Appendices**
Part 5

The appendices include a task matrix and timeline for the Debris Plan that outlines key tasks, who is responsible for their completion, and the date the tasks are due. Other appendices include sample flyers, results of studies, and additional pertinent information about disaster debris management. Some appendices are not done and will be added to the Debris Plan as they are completed.

PLAN SUMMARY

The planning effort for the Debris Plan recognizes that Metro has authority for solid waste management planning and disposal in the region and that responsibility includes planning for regional disaster debris management efforts. As directed by the overall goal of the Solid Waste Plan, the Debris Plan is a continuation of the effort to develop and implement a comprehensive Solid Waste Management Plan. The Debris Plan recommends guidelines and strategies for debris management that are environmentally sound, cost-effective, and technologically feasible. The Debris Plan was also developed with the public's needs in mind.

The Debris Plan recognizes the importance of advance planning for disaster debris management. The Plan strives to ensure that the region is prepared to deal with the removal and disposition of disaster debris in a way that is coordinated, efficient, effective, and that causes minimal adverse environmental impact.

The five main principles of the overall Debris Plan are:

1. Manage disaster debris according to the state waste hierarchy:
 - Reduce
 - Reuse
 - Recycle
 - Recover
 - Landfill
2. Ensure debris management efforts are coordinated and cooperative throughout the region.
3. Use local resources for collection and disposal.
4. Restore normal garbage service as quickly as possible.
5. Ensure accurate and organized debris and expense tracking systems.

The specific recommended practices and implementation strategies in the Debris Plan are directly related to the Solid Waste Plan Disaster Management goal and objectives. Each of the five Solid Waste Plan objectives correlates with one of the five recommended practices. The five disaster management objectives/recommended practices areas are as follows:

1. Availability of current and usable information pertinent to disaster debris management in the region.
2. Emergency response phase guidelines that begin the process of coordinating and mobilizing regional resources and efforts.
3. Recovery phase guidelines that minimize environmental impacts and are consistent with the waste management hierarchy.
4. Implementation of innovative and flexible fiscal and financial arrangements.
5. Development of regional coordination mechanisms, such as intergovernmental and mutual aid agreements.

The implementation strategies are products of the recommended practices and were developed consistent with the goal and objectives.

PLAN ROLES AND RESPONSIBILITIES

There are numerous roles and responsibilities for the government and private sector laid out in the Debris Plan. In general, however, Metro is responsible for coordinating disaster debris management efforts on a regional level, providing for debris disposal and household hazardous waste collection and disposal services, and for providing post-disaster debris information to the public.

Local governments are responsible for all aspects of disaster debris collection. Working with their emergency management and solid waste personnel, as well as with their garbage haulers and with debris disposal and processing facilities, local governments will determine how best to collect and manage the disaster debris in their area. They will also be responsible for providing the Metro Recycling Information Center with current information about their disaster debris management programs.

FINAL DEVELOPMENT OF THE PLAN

There are some elements of the Debris Plan which are required but have not yet been developed. For Metro, these include determining fee collection contingencies for Metro transfer stations, developing a tracking system for disaster debris tons generated in the region, and designating Metro debris removal coordinators. These elements are outlined in Appendix C of the plan, along with timelines when they are known.

FINANCIAL IMPACTS

The pre-disaster responsibilities of Metro, as defined in the Debris Plan, consist of activities such as data gathering, performing studies, assistance to local governments and others, and collection, dissemination, and maintenance of a Regional Disaster Debris Management library. All of these responsibilities may be fulfilled using existing personnel and resources. However, if there are limited staff resources, some of the responsibilities could be fulfilled through small contracts (less than \$5,000 each) during various fiscal years (see Exhibit A to this staff report).

Ten thousand dollars was budgeted for FY 1996-97 for a personal services contract to develop damage assessment predictions for the Metro area. The RFP for this contract is expected to be released in late 1996 and the work completed in early 1997. Eight thousand dollars has been requested for FY 1997-96 for two studies to determine regional capacity for recyclables and an inventory of regional disposal, recycling, and processing facilities.

After a disaster, Metro may be asked to take on additional responsibilities, such as acting as the region's information coordinator. Part of this responsibility can be fulfilled using existing personnel. Temporary personnel may be needed, however, if the demand is more than current staff is able to meet. If this occurs, it will most likely be in the form of extra telephone representatives for the Recycling Information Center.

PUBLIC INVOLVEMENT EFFORTS

Because of the technical nature of the subject, public involvement in the development of the Debris Plan has focused on those outside groups with a direct interest in disaster planning and solid waste issues. The following organized groups and agencies were kept apprised of developments in the planning effort:

- U.S. Army Corps of Engineers (USACE)
- Oregon Office of Emergency Management (OEM)
- Oregon Department of Transportation (ODOT)
- Oregon Department of Environmental Quality (DEQ)
- Metro Solid Waste Advisory Committee (SWAC)
- Regional Emergency Management Technical Committee (REMTEC)

A mailing list of interested persons was kept throughout the process and information and work products were sent to those persons as they were available.

A presentation on the Debris Plan was made at the 1996 Association of Oregon Recyclers fall conference.

On October 1, 1996, a full draft of the Debris Plan was sent to the following for review and comment:

- OEM
- REMG
- SWAC members
- Regional Disaster Debris Management Task Force members
- Interested persons list

At that same time, a letter summarizing the Debris Plan process and content, and offering the opportunity to receive a full draft copy, was sent to the following list:

- SWAC mailing list, not including members
- Waste hauler associations
- Neighborhood associations
- Disposal facilities
- Recycling facilities

EXECUTIVE OFFICER RECOMMENDATION

The Executive Officer recommends approval of Ordinance No. 97-673.

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Regional Disaster Debris Management Plan

*Regional Environmental Management
Waste Reduction & Outreach Division*

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(503) 797-1650
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May 1997



METRO

Printed on recycled paper,
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please recycle!

Acknowledgements

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

The following people were members of the Disaster Debris Management Task Force. This task force met monthly or more frequently from January 1996 through September 1996 and were the primary developers of the recommended practices and implementation practices:

Tom Miller, Washington County Haulers
Lee Barrett, City of Portland
Dave Phillips/Rick Winterhalter, Clackamas County
Lynne Storz, Washington County
Loreen Mills, City of Tigard
Lynda Kotta, City of Gresham
Pat Vernon, Department of Environmental Quality
Dean Frasier, Washington County
Mike Gilsdorf, Multnomah County
Jim Quinn, Metro
Kelly Shafer Hossaini, Metro

Others who provided invaluable information, assistance, and feedback are:

Ed Berger, Army Corps of Engineers
Mark Thomas, Oregon Department of Transportation
Gerry Uba, Metro
Mike McGuire, Metro
Metro Solid Waste Advisory Committee (SWAC)
Regional Emergency Management Technical
Subcommittee (REMTEC)
Oregon Office of Emergency Management

*For questions or comments regarding this plan,
call Bryce Jacobson at (503) 797-1633.*

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- Appendix B: City of Oakland Debris Removal Permit Information
- Appendix C: Regional Disaster Debris Management Plan - Task Matrix and Timeline
- Appendix D: Inventory of Regional Solid Waste Disposal, Recycling, and Processing Facilities
- Appendix E: Inventory of Regional Debris Removal Resources
- Appendix F: Regional Recycling Market Capacity Assessment
- Appendix G: Debris Tonnage Predictions
- Appendix H: Inventory of Potential Temporary Debris Storage Sites
- Appendix I: Prediction of Need for Metro Hazardous Waste Services
- Appendix J: Waste Storage and Handling Capacity Analysis for Disaster Debris Management Planning
- Appendix K: Documenting and Tracking Disaster Debris
- Appendix L: Memorandum of Understanding for Solid Waste Services After a Disaster

Part 1

Introduction

Purpose

The purpose of the Regional Disaster Debris Management Plan (RDDMP) is to ensure that the metropolitan region is prepared to deal with the removal and disposition of debris generated in the event of a natural disaster. This plan specifies goals, objectives, and recommended practices for disaster debris removal and disposal, and describes potential implementation strategies to ensure that disaster debris efforts are coordinated, efficient, effective, and environmentally sound.

The RDDMP is based on five principles:

1. Manage disaster debris according to the state-mandated hierarchy describing solid waste practices:
 - Reduce
 - Reuse
 - Recycle
 - Recover
 - Landfill
2. Ensure debris management efforts are coordinated and cooperative throughout the region.
3. Use local resources for collection and disposal.
4. Restore normal garbage service as quickly as possible.
5. Ensure accurate and organized debris and expense tracking systems.

Background

The RDDMP is a component of the Regional Emergency Management Plan being developed by the Regional Emergency Management Group (REMG). The REMG is comprised of elected officials and emergency managers from the Metro region's cities and counties, representatives from Columbia County, Oregon, and Clark County, Washington, and Metro. The REMG was created by intergovernmental agreement in 1994, and as a part of that agreement a Regional Emergency Management Work Plan was created. The Work Plan identifies 21 elements that have regional relevance to emergency managers, including disaster debris removal.

The REMG consists of two advisory committees: the Regional Emergency Management Policy Advisory Committee (REMPAC) and the Regional Emergency Management Technical Committee (REMTEC).

The RDDMP is also a part of the Regional Solid Waste Management Plan (RSWMP). The RSWMP is the document that gives the metropolitan region, comprised of Washington, Multnomah, and Clackamas counties, direction for meeting solid waste needs through 2005. The RSWMP addresses such issues as regional waste reduction efforts, household hazardous waste management, and solid waste facilities siting and services.

Process

In early 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 RSWMP and served as the guide for the development of recommended practices and implementation strategies for the RDDMP.

In January 1996 a task force of local government officials and private sector interests was formed. Representatives from REMTEC and Metro's Solid Waste Advisory Committee (SWAC) served on the task force. The purpose of the task force was to use the adopted goal and objectives to develop the recommended practices and implementation strategies for the Plan. The task force met monthly over a nine month period to accomplish this task, and invited other stakeholders to participate in the process as appropriate.

Throughout the process, REMTEC, SWAC, the Metro Council, and Oregon's Office of Emergency Management were kept apprised and asked to comment on drafts of the Task Force's work in progress. A final draft copy of the Plan was also sent for review and comment to neighborhood associations, haulers, and other interested parties.

Although the goal, objectives, recommended practices, and implementation strategies of the Plan have been completed, there are ongoing efforts to complete additional elements of the Plan. Many of the products of these efforts will be added to the Plan as appendices as they are completed. (See the Table of Contents.) Appendix C lists the Plan's requirements, identifies the responsible parties, and the timeline for completion and updating. The matrix also identifies where additional information can be obtained.

Acronyms

DEQ - Oregon Department of Environmental Quality
EPA - U.S. Environmental Protection Agency
FEMA - Federal Emergency Management Agency
LDRC - Local Government Debris Removal Coordinator
MDRC - Metro Debris Removal Coordinator
ODOT - Oregon Department of Transportation
OEM - Oregon Emergency Management
REIC - Regional Information Coordinator
REMG - Regional Emergency Management Group
USACE - U.S. Army Corps of Engineers

Terms

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.

Waste management hierarchy - The EPA solid waste management hierarchy: Reduce, Reuse, Recycle, Recover, Landfill.

Putrescibles - Matter that rots or decays.

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

Recovery phase - The period in which a community restores services and rebuilds facilities after a disaster. The duration of this phase may take weeks or years.

Definition of Terms and Acronyms Used in This Plan

Response phase - The first 72 hours after a disaster. During this time, the focus is on saving lives, preliminary damage assessment, and clearing roadways.

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

Part 2
Policies and
Summary of
Practices

Disaster Debris Management Goal and Objectives *

RSWMP Goal 14 - Disaster Management

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

Objective 14.1. Provide both accurate and reliable information for use in predicting the consequences of a major disaster and an inventory of resources available for responding to and recovering from disasters.

Objective 14.2. Develop a response phase plan that coordinates emergency debris management services and maximizes public health and safety.

Objective 14.3. Develop a recovery plan that maximizes the amounts of materials recovered and recycled and minimizes potential environmental impacts.

Objective 14.4. Provide for innovative and flexible fiscal and financial arrangements that promote efficient and effective implementation of response and recovery plans.

Objective 14.5. Ensure the coordination and commitment of local, state, and federal governments and the private sector.

*The Disaster Debris Management goal and objectives listed here are part of the overall RSWMP goals and objectives adopted by the Metro Council in November 1995.

Disaster Debris Management - Recommended Practices

Definition of Participant Categories Used in Recommended Practices

Federal Government

- Federal Emergency Management Agency (FEMA)
- U.S. Army Corps of Engineers (USACE)

State Government

- Oregon Emergency Management (OEM)
- Department of Environmental Quality (DEQ)
- Oregon Department of Transportation (ODOT)

Regional Emergency Management Group (REMG)

Metro

Local Government

- County Governments
- City Governments

Waste Haulers

- Licensed and franchised haulers

Private Sector

- Landfill Operators
- Solid Waste Facility Operators
- Association of General Contractors
- Insurance Company Representatives
- Citizens

Recommended Practice 1 - Information

Ensure that current and usable information is available for the planning and implementation of disaster debris removal.

Key Concept and Approach: To properly 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.

Key Elements

- a) Inventory of regional solid waste disposal, recycling, and processing facilities. Includes: location, storage, processing, and market capacities, and material specifications.
- b) Inventory of regional debris removal resources, e.g., government-owned resources, demolition contractors, garbage haulers, dump truck companies. Includes: equipment and labor capacity.
- c) Assess capacity of regional markets to absorb recyclables produced by recovery activities. Include consideration of specifications required.
- d) Debris tonnage predictions, by geographical area and type of debris.
- e) Inventory of potential temporary debris disposal sites around the region.
- f) Prediction of the need for Metro hazardous waste management services.
- g) Real-time assessment of system capacity for debris removal.

Roles and Responsibilities

Federal Government

- Assist with the identification and acquisition of temporary debris disposal sites, as requested. (USACE only)
- Assist with debris tonnage predictions. (USACE only)

State Government

- Supply information regarding debris removal resources under its authority. (ODOT only)
- Provide inventory of potential temporary debris disposal sites under its authority. (ODOT only)

- Assist with the prediction of the need for Metro hazardous waste management services, as requested. (DEQ only)

Metro

- Conduct inventory of regional facilities.
- Conduct market capacity assessment.
- Use Metro's disaster management database to predict debris tonnage.
- Assist with the inventory of potential temporary debris disposal sites, as requested.
- Assemble and disseminate disaster debris management information and ensure its periodic updating.
- Obtain prediction of the need for Metro hazardous waste management services.
- Prepare real-time assessment of system capacity for debris removal.

Local Government

- Supply information regarding government-owned and privately-owned debris removal resources in its area.
- Provide inventory of potential temporary debris disposal sites in its area.
- Assist with debris tonnage predictions.
- Assist with preparation of real-time assessment of system capacity for debris removal.

Waste Haulers

- Supply information to government agencies.
- Assist with preparation of real-time assessment of system capacity for debris removal.

Private Sector

- Supply information to government agencies.
- Assist with preparation of real-time assessment of system capacity for debris removal.

Recommended Practice 2 - Emergency Response Phase

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 the initial stages of a disaster, a response strategy should mobilize resources, including executing contracts for debris removal. Priorities should be established for putrescible surge removal and debris removal in critical areas of the community.

Key Elements

Guidelines for a response strategy should:

- Designate Metro and local government debris removal coordinators and establish inter-communication
- Designate Regional Information Coordinator for disaster debris removal efforts
- Describe how the Regional Information Coordinator can retrieve damage assessment information from the debris removal coordinators
- Provide disaster debris prediction, inventory, and assessment information to the Regional Information Coordinator and debris removal coordinators
- Determine the extent of need and the degree to which regional or local response is required using previously developed criteria.
- Mobilize local resources through the execution of contracts with haulers and contractors responsible for initial work
- Execute intergovernmental agreements and mutual aid agreements, as required, e.g., between haulers and/or governments
- Prioritize cleanup areas

Disaster debris removal information/communication system.

Include:

- A phone tree with the following communication paths: FEMA, Oregon Emergency Management, Regional Emergency Management Group, media, Metro, local jurisdictions, and solid waste facilities
- Templates for information leaflets and distributional checklist for all written information

- A system for responding to incoming telephone and mail requests for disaster debris information
- Strategies for immediate and long-term information dissemination to the public, contractors, haulers, and facilities
- Dissemination of procedures for personal property recovery

Roles and Responsibilities

Federal Government

- Participate in the development of the information/communication system.
- Provide information on experiences with other areas of the country.

State Government

- Assist in the preparation of guidelines for the response phase.
- Assist in the design of the disaster debris removal information system.

Metro

- Designate Metro disaster debris removal coordinator.
- Prepare guidelines for the response phase.
- Provide disaster debris prediction, inventory, and assessment information to the Regional Information Coordinator.
- Develop criteria to be used in determining the extent of need and the degree to which regional or local response is required after a disaster.
- Design disaster debris removal information system.

Local Government

- Designate local government debris removal coordinator for each jurisdiction.
- Assist in the preparation of guidelines for the response phase.
- Assist with development of criteria to be used in determining the extent of need and the degree to which regional or local response is required after a disaster.
- Assist in the design of the disaster debris removal information system.

Waste Haulers

- Assist in the preparation of guidelines for the response phase.
- Assist with development of criteria to be used in determining the extent of need and the degree to which regional or local response is required after a disaster.
- Assist in the design of the disaster debris removal information system.

Private Sector

- Assist in the preparation of guidelines for the response phase.
- Assist with development of criteria to be used in determining the extent of need and the degree to which regional or local response is required after a disaster.
- Assist in the design of the disaster debris removal information system.

Recommended Practice 3 - Recovery Phase

Disaster debris management efforts in the recovery phase should minimize environmental impacts and be consistent with the waste management hierarchy. Restoring service by use of the existing local facility, hauler, and contractor infrastructure should also be a priority.

Key Concept and Approach: Debris disposition should be handled in an efficient, orderly, and cost-effective manner that minimizes adverse environmental impacts, respects the waste management hierarchy, and supports overall health and safety efforts. To ensure that equipment, labor, and services are supplied efficiently and cost-effectively, utilization of existing local resources in disaster debris management efforts in accordance with the solid waste hierarchy is a priority.

Key Elements

General guidelines for recovery phase disaster debris management efforts include:

- Guidelines for the use of burning as a disposal option.
- Guidelines to prevent and control illegal dumping.
- Procedures that allow people to recover personal property from damaged structures whenever practicable
- A process for private cleanup efforts - including a permit system that defines the process, time limits, requirements, and restrictions
- Multi-jurisdictional coordination of debris clearing efforts
- Continuation of efforts to mobilize local resources through the execution of contracts with haulers and contractors

Guidelines for recovery phase disaster debris collection, processing, and disposal include:

- Guidelines for removal of debris from residential, commercial, and government properties that are consistent with the waste management hierarchy - salvage, reuse, recycle, recover before landfilling
- Guidelines for the management and operation of temporary disposal sites
- Putrescible surge abatement strategies
- Guidelines to properly collect and process or dispose of exempt hazardous waste

- Resumption of regular garbage and recycling service as quickly as possible
- Contingency procedures for debris removal, including coordination with the Corps of Engineers, and mutual aid agreements between different haulers, processors, and facilities
- Contingency procedures for debris disposal in the event usual options are not available

Roles and Responsibilities

Federal Government

- Assist with development of guidelines for coordination of debris clearing efforts. (USACE only)

State Government

- Develop burning guidelines. (DEQ only)
- Assist with development of guidelines for coordination of debris clearing efforts. (ODOT only)
- Assist with the development of exempt hazardous waste management guidelines. (DEQ only)

Metro

- Develop guidelines to prevent and control illegal dumping.
- Prepare personal property recovery procedures.
- Assist with development of private cleanup effort procedures.
- Develop guidelines for coordination of debris clearing efforts.
- Develop strategies for debris removal that are consistent with the waste management hierarchy.
- Develop guidelines for the management and operation of temporary disposal sites.
- Assist with the creation of putrescible surge abatement strategies.
- Develop exempt hazardous waste management guidelines.
- Development of contingency procedures for debris removal and disposal.
- Obtain agreements with non-system disposal facilities for region's disaster debris in the event such facilities may need to be utilized.

Local Government

- Assist with the development of burning guidelines. Assist with preparation of personal property recovery procedures.
- Develop private cleanup effort process.
- Assist with development of guidelines for coordination of debris clearing efforts.
- Assist with planning for debris removal efforts consistent with the waste management hierarchy.
- Assist with the development of guidelines for the management and operation of temporary disposal sites.
- Prepare strategies for resumption of regular garbage and recycling service.
- Create putrescible surge abatement strategies.
- Assist with the development of exempt hazardous waste strategies.
- Assist with development of contingency procedures for debris removal and disposal.

Waste Haulers

- Assist with preparation of personal property recovery procedures.
- Assist with planning for debris removal efforts consistent with the waste management hierarchy.
- Assist with the development of guidelines for the management and operation of temporary disposal sites.
- Assist with preparation of strategies for resumption of regular garbage and recycling service.
- Assist with putrescible surge abatement strategies.
- Assist with development of contingency procedures for debris removal and disposal.

Private Sector

- Assist with preparation of personal property recovery procedures.
- Assist with planning for debris removal efforts consistent with the waste management hierarchy.
- Assist with preparation of strategies for resumption of regular garbage and recycling service.
- Assist with putrescible surge abatement strategies.
- Assist with development of contingency procedures for debris removal and disposal.

Recommended Practice 4 - 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 among jurisdictions and pertinent agencies is important to ensure that efforts are not duplicated and recordkeeping is accurate. These and other similar types of problems can strain resources, impair the ability to be reimbursed by FEMA, and potentially jeopardize other sources of funding.

Key Elements

- a) Create standard form contracts for facilities, contractors, and haulers that establish schedule of work, contract price and payment methods, obligations, etc.
- b) Develop a tracking system for disaster debris management expenses, including collection, hauling, and processing and/or disposal costs incurred.
- c) Develop a tracking system for disaster debris tons processed and/or disposed at each facility in the region.
- d) Estimate potential Metro and local government financial responsibilities, e.g., employee pay, debris cleanup activities.
- e) Develop contingency procedures for fee collection at Metro transfer stations.

Roles and Responsibilities

Federal Government

- Review and comment on fiscal/financial arrangements, as requested. (FEMA only)

State Government

- Review and comment on Disaster Debris Management Plan. (OEM only)

Metro

- Ensure that procedures are developed to meet FEMA requirements for reimbursement.

- Prepare and maintain standard form contracts, as needed.
- Maintain a tracking system for disaster debris management expenses.
- Develop and maintain a tracking system for disposal and processing tonnages associated with disaster debris.
- Provide technical assistance and information to local governments, as requested, to ensure proper, efficient, and accurate tracking of expenses. For example, hauler franchise information, maps, technical information on disaster debris management, etc. may be required.
- Estimate potential financial responsibilities.
- Develop contingency procedures for fee collection at Metro transfer stations.

Local Government

- Prepare and maintain standard form contracts, as needed.
- Ensure proper procedures to meet FEMA reimbursement requirements are developed.
- Maintain a tracking system for disaster debris management expenses.
- Provide information to Metro, as requested, to ensure proper, efficient, and accurate tracking of expenses.
- Estimate potential financial responsibilities.

Waste Haulers

- Assist with the monitoring and evaluation elements by documenting disposal amounts and operating costs associated with disaster debris to meet FEMA requirements.

Private Sector

- Assist with the monitoring and evaluation elements by documenting disposal amounts and operating costs associated with disaster debris to meet FEMA requirements.

Recommended Practice 5 - Coordination of Efforts

Develop intergovernmental agreements, including mutual aid and other agreements, as necessary to ensure the proper coordination of public agencies and the private sector.

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) Establish a regional Memorandum of Understanding for solid waste services after a disaster, which reflects an attempt to address intense disaster situations.
- b) Review current and future agreements between Metro and the private sector (e.g., transfer stations, landfills, processors) to ensure they address disaster debris issues.
- c) Prepare mutual aid agreements among local governments.

Roles and Responsibilities

Federal Government

- Assist Metro and the region in the implementation of the Disaster Debris Management Plan to the extent practicable and as authorized by current federal law.

State Government

- Assist Metro and the region in the implementation of the Disaster Debris Management Plan.

Regional Emergency Management Group

- Appoint Regional Memorandum of Understanding Administrator.
- Administer the Regional Memorandum of Understanding.

Metro

- Develop the Regional Memorandum of Understanding.
- Modify current agreements between Metro and private sector, as applicable, to ensure disaster debris issues are addressed.
- Ensure future agreements between Metro and the private sector address the handling of disaster debris, as applicable.

Local Governments

- Assist in the development of the regional Memorandum of Understanding.
- Prepare intergovernmental mutual aid agreements.

Waste Haulers

- Assist in the development of the regional Memorandum of Understanding.

Private Sector

- Assist in the development of the regional Memorandum of Understanding.
- Assist with the modification of government-private sector agreements, as applicable.

Part 3

Response Phase Strategies

Overview

The following strategies pertain to the response phase of a disaster. The response phase is generally defined as the first 72 hours after a disaster. During this time, the focus is on saving lives, preliminary damage assessment, and clearing roadways so that emergency vehicles can travel to critical facilities, such as hospitals, police stations, fire stations, etc.

Disaster debris management is particularly important in the recovery phase of disaster management, but there are many vital communication and coordination functions that can begin during the response phase. The focus of the response phase strategies is on identifying those functions, their accompanying tasks, and helping emergency responders, including recovery personnel, to mobilize for the recovery phase responsibilities.

Guidelines for a Response Phase Strategy

Pre-Disaster Activities

Multi-Jurisdictional

1. Metro designate a debris removal coordinator (MDRC) to provide liaison with local government debris removal coordinators (LDRC).
2. Local governments each designate a debris removal coordinator (LDRC) to provide liaison with their local government emergency operations center, their public information officer, their Regional Emergency Management Group representative, Metro, waste haulers, and facility operators.
3. LDRCs contact MDRC to:
 - identify themselves and their essential contact information, e.g., phone numbers (including cell, fax, and home) name(s) of alternate(s), etc.
 - identify solid waste contact people in their jurisdiction and the essential contact information, as above.
4. MDRC disseminates LDRC list to all LDRCs.
5. MDRC disseminates all information collected in Recommended Practice 1 to all LDRCs. Updates sent as necessary.

Cities and Counties

1. Develop basic flyers, brochures, and other printed materials for disaster debris disposal, recycling, and processing options for general public. (See "Guidelines for Creating Written Public Information for Disaster Debris Management," page 3-7.) Coordinate with Metro Recycling Information. Plan for translation capability for targeted non-English speaking groups.
2. Develop a system for establishing an informational phone bank in the event Metro Recycling Information Center is disabled by the disaster.

Metro

1. Develop basic flyers, brochures, and other printed materials for disaster debris disposal, recycling, and processing options for general public. (See "Guidelines for Creating Written Public Information for Disaster Debris Management," page 3-7.) Coordinate with local governments. Plan for translation capability for targeted non-English speaking groups.

Post-Disaster Activities

Multi-Jurisdictional

1. Schedule a meeting among all debris removal coordinators, and REMG regional Memorandum of Understanding administrator as soon as possible/practical.
 - a. Each debris removal coordinator provides information, as collected under Item 2, page 3-4, and an assessment is made of the following:
 - multi-jurisdictional effect
 - severity
 - affected jurisdictions' ability to respond
 - b. Using assessment from "a" above, determine:
 - extent and scope of need for regional effort; and
 - need to execute regional Memorandum of Understanding, or parts thereof;
 - need for a Regional Information Coordinator (REIC)
 - c. Appoint REIC, if warranted
2. REIC - appointment and responsibilities
 - a. Appointment criteria:
 - MDRC, if possible
 - If not possible, choose another from the designated LDRCs using the following criteria:
 1. Relative damage to LDRC's jurisdiction.
 2. Availability of adequate resources in the jurisdiction.
 3. Adequate staffing to perform required tasks.

b. Responsibilities of REIC:

- Provide round-the-clock access to appropriate information. Suggested: REIC shift of 10 - 12 hours per day, with assistant(s) covering balance.
- Designation of assistant(s) to ensure that at all times at least one person is available. Assistants should have complete and current knowledge of pertinent information.
- Ensuring that information of regional importance is updated, disseminated, and available on an ongoing basis including:
 1. local damage assessments
 2. mutual aid needs
 3. resource availability and needs
 4. any updates to information collected as a part of Recommended Practice 1 requirements
 5. status of regional disposal and recycling facilities
- Coordinate public information efforts, as needed.
- Any additional responsibilities, as needed.

Cities and Counties

1. Prioritize cleanup areas. According to FEMA, the following areas should receive top priority in the following order: (Consult any applicable local government disaster guidelines.)
 - a. Debris removal from public roads and streets, i.e., arterial and collector streets, to provide access for vehicles and facilities involved in emergency operations.
 - b. Access routes to essential public facilities.
First priority - hospitals, police and fire stations.
Second priority - other critical community facilities, e.g., municipal buildings, water treatment plants, sewerage treatment plants, power generation units and substations, airports.
 - c. Eliminate debris-related threat to public health and safety.

2. LDRCs gather information, keep current, and give updates to REIC:
 - damage assessment from local emergency operations center
 - possible mutual aid debris removal needs
 - debris removal resources to offer
 - additional important information
3. Determine status of local debris collection resources.
4. Determine status of local debris recycling/disposal facilities, if Metro is disabled. Coordinate with REIC.
5. Establish informational phone bank, if Metro Recycling Information Center is disabled.
6. Prepare to disseminate public information regarding disaster debris management. Coordinate with Metro and local public information personnel. (See "Strategies for Immediate and Long-Term Information Dissemination," page 3-10 and Figure 3.1.)
7. Prepare to disseminate procedures for personal property recovery. (See "Strategies for Immediate and Long-Term Information Dissemination," page 3-10.)
8. Make contact with and execute necessary contracts with haulers and contractors responsible for initial work. Contracts should be consistent with the regional Mutual Aid Agreement, if applicable.
9. Execute intergovernmental and mutual aid agreements, if necessary. Should include contingency agreements for employee sharing when the disaster results in geographic restrictions on employee's ability to report to regular work site. Agreements should be consistent with the regional Memorandum of Understanding, if applicable.
10. Execute disaster/emergency operations procedures particular to the jurisdiction for expense tracking, etc.
11. Prepare to implement strategies for putrescible surge abatement.

Metro

1. Organize and prepare any updates to information, as collected in Recommended Practice 1, for dissemination. Coordinate with REIC.
2. Begin research of disposal/recycling options for disaster-generated materials. Coordinate with REIC.
3. Determine status of disposal/recycling facilities as identified in Recommended Practice 1 inventories. Coordinate with REIC.
4. Determine status of transfer stations and routes to Arlington landfill. Authorize contingencies, if necessary. Coordinate with REIC.
5. Increase Metro Recycling Information Center staffing for increased call load.
6. Prepare to disseminate public information regarding disaster debris management. Coordinate with local governments. (See "Strategies for Immediate and Long-Term Information Dissemination," page 3-10 and Figure 3.1.)
7. Implement accounting tracking system(s) for disaster debris management expenses.
8. Implement tracking system(s) for disaster debris tons processed and/or disposed at each facility in the region.
9. Consider implementation of contingency procedures for fee collection at Metro transfer stations. Coordinate with REIC.
10. Prepare hazardous waste teams to implement exempt hazardous waste disaster management strategies. Coordinate with REIC.

Disaster Debris Management Communication Flowchart*

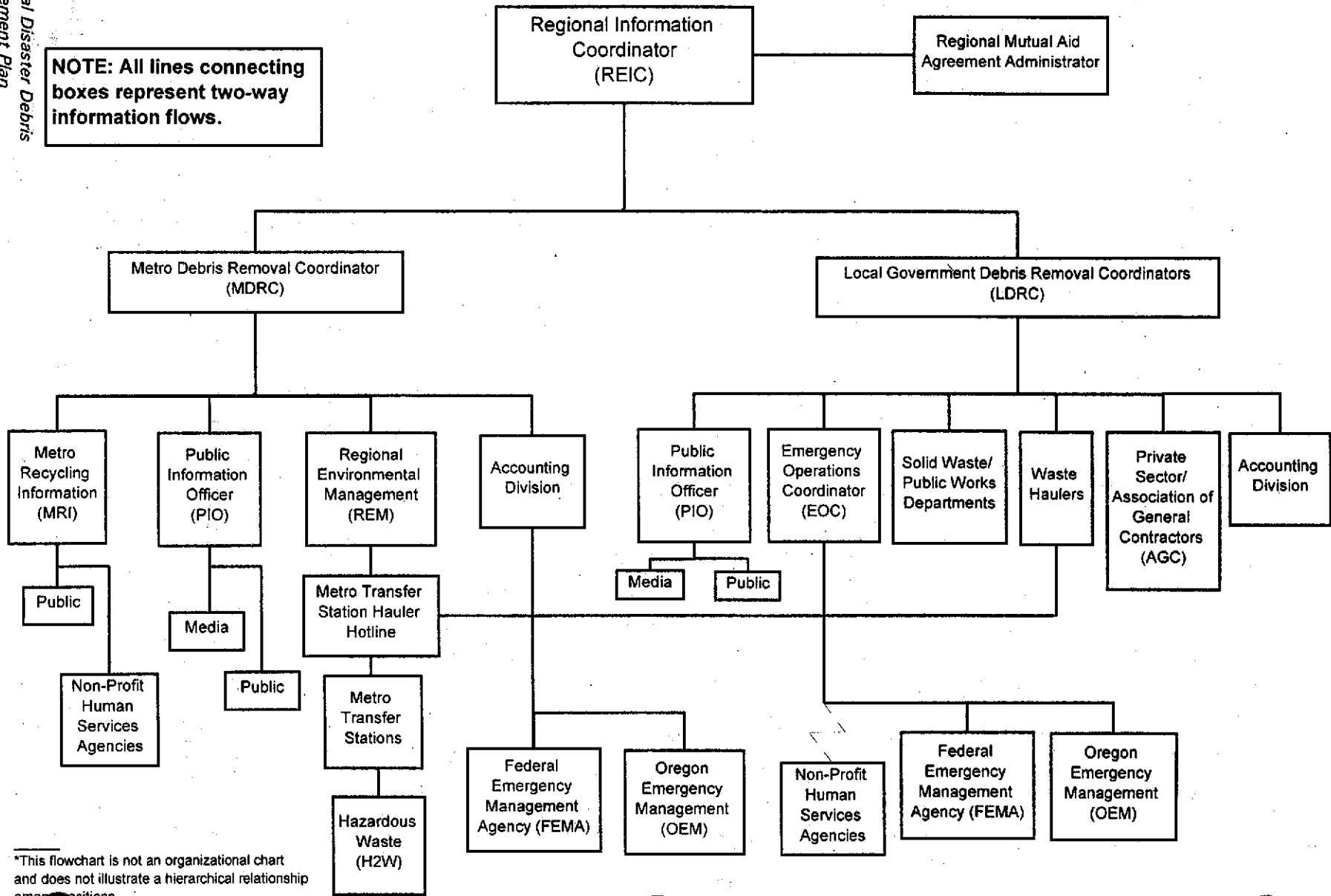


Figure 3-1

*This flowchart is not an organizational chart and does not illustrate a hierarchical relationship among positions.

Guidelines for Creating Written Public Information for Disaster Debris Management

Confusion is the universal common denominator of disasters. The havoc and destruction caused by a major disaster creates conditions which 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 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 provide special instructions for reporting and sorting disaster debris. Preparing templates for flyers and other informational materials in advance will help ensure the usefulness, completeness, and accuracy of these materials after a disaster occurs. Public information experts may need to assemble an emergency kit ahead of time to expedite response in a disaster situation. The supplies and equipment that may be required include:

- A portable computer or typewriter
- Pre-pasted labels for mailings to the affected area and to the media
- Road maps to answer public inquiries about getting to disposal facilities
- Camera/film/flash/batteries to document disaster for future evaluation

Following are important considerations that should be given by local authorities when preparing post-disaster, disaster debris management information:

- Include the following as a part of any written information:
 1. A telephone number the public can call for more information on solid waste concerns. Consider including alternate phone numbers for related relief agencies to avoid tying up solid waste phone lines with calls for other information or services.

2. The jurisdiction's logo and address.
 3. A simple map showing locations of recycling and/or disposal facilities.
- Translations, as necessary, for any large populations of non-English speaking people residing within the jurisdiction.
 - Providing information through an agency's Internet web page.
 - Written information for homeowners' management of residential waste including all of the following, when pertinent:
 1. Options for garbage disposal, including a list/locations of disposal facilities and types of waste accepted.
 2. Options for recycling materials, including a list of recyclable materials, location of recycling facilities and materials that will be accepted.
 3. Proper sorting and preparation of recyclable materials.
 4. Schedule of curbside pickups or sweeps for recyclables, if any.
 5. Schedule of household hazardous waste curbside pickups or sweeps, if any.

Please see page 3-9 for a sample of a public informational flyer, in the form of a door hanger, outlining how the citizens of Los Angeles were asked to manage their earthquake debris. It is imperative that public information personnel are kept updated on the latest emergency planning actions, problems and situations to brief the media and relay information to the public.

RECICLAMIENTO DE ESCOMBROS DEL TERREMOTO

La ciudad de Los Angeles tiene un programa de reciclamiento de escombros de propiedades particulares.

Por favor, sigue estos pasos sencillos.

Separe estos tipos de materiales y colóquelos en la banqueta:

1. Asfalto, cemento, cemento con hierro, bloques de cemento.
2. Madera y vegetación positivamente relacionada con los escombros. No se va a remover ninguna otra vegetación. Tampoco se puede incluir hiedra, ramas de palma o yuca.
3. Ladrillo colorado.
4. Tierra
5. Todos los demás materiales, tales como techos, paredes, stucco, y otros escombros mixtos.

Coloque sus escombros en montones separados en la banqueta en la vía pública, no sobre propiedad privada.

Para pedir servicio de recojimiento, llame al 1-800-498-CITY.

Si usted tiene una cantidad muy grande de escombros que puede causar problemas con el tráfico vehicular, por favor llámenos al 1-800-498-CITY.



Impreso en papel reciclado.

지진 피해 건물 쓰레기 수거

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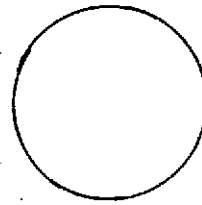
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수거요청시 1-800-498-CITY(2489)로 전화하십시오. 그리고 쌓아놓은 쓰레기가 교통에 위험을 줄때에도 1-800-498-CITY(2489)로 전화하십시오.



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RECYCLE EARTHQUAKE DEBRIS

The City of Los Angeles is recycling your earthquake debris. Just follow these easy steps:

Separate your debris as follows, and place it in piles

1. Asphalt, concrete, concrete with metal reinforcement and cinder blocks.
2. Wood and green material positively related to earthquake debris removal. No other vegetation will be picked up. No ivy, palm or yucca.
3. Red clay brick.
4. Dirt.
5. All other materials including roofing, wallboard and other mixed debris.

Place your debris in separated piles at the curb in the public right-of-way, not on private property.

For pickup call 1-800-498-CITY.

If placing your materials at the curb will cause a traffic hazard, please call us at 1-800-498-CITY



Printed on Post-Consumer recycled paper

Strategies for Immediate and Long-Term Information Dissemination

Depending upon the type and severity of the disaster, utility services such as electrical, phone, natural gas, and drinking water may be affected. Radio and television broadcasting, possibly even newspaper production, may be unavailable for a brief time. Prepare for more than one method of communication. Some possible avenues for disseminating information to the public include:

A. Target Group: Public (Citizens)

- Public service announcements on television and radio
- Television news coverage
- Cable television shows
- Newspaper announcements, articles, including forms that residents might use to request services (e.g., demolition services, cleanup services)
- Bulk mailings to households/businesses in targeted areas
- Doorhangers in targeted areas
- Post/leave information at public places - libraries, grocery stores, Red Cross centers, FEMA public outreach offices, government offices, e.g., permit centers, police and fire departments, schools, banks, etc.
- Central phone bank to provide information about how to manage disaster debris

B. Target Group: Waste Haulers

- Solid waste and recycling facilities establish hotline numbers for waste haulers to call and receive the latest information about hours, rates, materials taken, material specifications, etc.
- Local governments develop a means to quickly get information updates to haulers.

Part 4

Recovery Phase Strategies

Overview

The following strategies pertain to the recovery phase of a disaster. The recovery phase is generally defined as the period in which a community restores services and rebuilds after a disaster. The duration of the recovery phase varies depending on the disaster. It may take weeks or it may take years.

During the early part of the recovery phase disaster debris management activities move to the forefront of importance. 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 tools they may need to make better decisions.

Guidelines for the Removal of Debris from Residential, Commercial, and Government Properties

To the greatest extent practicable, debris should be handled according to the solid waste management hierarchy (Reduce, Reuse, Recycle, Recover, Landfill). Local governments should add language to all debris removal contracts (including disaster debris removal) that requires recycling.

Debris likely to be generated after a disaster can be classified in the following five categories:

Category 1 Putrescible Waste

- Food
- Regular Household waste
- Contaminated waste¹

Category 2 Woody Recyclable Material

- Yard waste
- Wood waste

Category 3 Miscellaneous Dry Waste

- Furniture
- Insulation
- Clothing
- Toys
- Fixtures

Category 4 Non-Woody Recyclable Material

- Scrap metal (including white goods)
- Bricks
- Regularly collected recyclable materials
- Film plastic
- Drywall
- Rubble²
- Tires

¹Contaminated wastes refer to those wastes that do not qualify as hazardous wastes, e.g., asbestos, solvents, etc., but may be contaminated with such things as sewage-contaminated flood waters.

²Defined as inert material such as concrete with and without rebar, asphalt, gravel, and bricks.

Category 5 Household Hazardous Waste

Priority for removal and disposition:

First priority	Category 1
	Category 5 ³
Second priority	Category 2
Third priority	Category 3
	Category 4
Fourth priority	Category 5 ⁴

Proper disposition of materials in waste categories:

- a. Transfer Stations Category 1
Category 5
- b. Limited Purpose Category 2
Landfills Category 3
- c. Temporary Category 2
Disposal/ Category 3
Processing Sites Category 4
Category 5
- d. Recycling Yards Category 2
Category 4
- e. Social Service Category 3⁵
Agencies

Cities, counties, and Metro will work with private debris processing and disposal facilities to ensure that debris management is facilitated through extended hours, increased capacities, and reasonable rates.

In order to facilitate smooth and efficient traffic flow, some facilities may be designated as commercial-load dropsites only. Self-haul loads may be directed to particular disposal and processing sites to ensure they do not interfere with the disposal activities of large, commercial vehicles.

Residential Properties: Debris Removal and Disposition

Residents should be educated about the five categories of disaster debris and the proper disposition of each debris

³Refers to household hazardous wastes posing an immediate threat.

⁴Refers to household hazardous wastes that are contaminated and not posing any immediate threat.

⁵Materials that are salvageable/usable taken to Goodwill, St. Vincent DePaul, etc.

category, as defined on page 4-2. This should include a clear identification of the materials included in each category, and the specific options for disposition of those materials, including names and locations of processing facilities, locations of temporary disposal/processing sites, etc.

Residents have three options for removal:

1. Self-Haul
2. Construction/Demolition Contractor
3. Garbage Hauler

Residents that self-haul and/or hire contractors to remove their debris are responsible for taking that debris to the appropriate facilities, as defined on page 4-2. Residents should be encouraged to handle their waste in the most environmentally responsible manner practicable.

If residents have a manageable amount of debris and choose to use their garbage hauler for collection and removal debris, they should be advised how to prepare and sort the material, and how to set it out for pickup. Residents should be told to leave materials at the curb for collection in source-separated piles, uncontaminated by other materials. For example, metal should be put in a pile separate from yard debris. Likewise, putrescibles should be kept separate from plastic sheeting and/or rubble.

Residents who choose to have their material collected curbside should also be notified about the general collection priorities and timetable. The following schedule is one example of how residential curbside service may be provided:

Category 1	Weekly
Category 2	Bi-weekly
Category 3	Monthly
Category 4	Monthly
Category 5	Periodic Removal, as needed

Resumption of regular garbage and recycling service is a priority and should occur as quickly as possible in the recovery phase of a disaster.

Putrescibles

Residents should be educated about ensuring that putrescibles are set out in a timely manner, well-sealed in plastic bags, with the plastic bags placed in a container with a tight-fitting lid. This will help to ensure pests do not become a problem.

If conditions permit, residents can be encouraged to do the following to help contain their putrescibles, decrease vector problems, and avoid overloading the solid waste collection system:

- Open freezers and refrigerators as seldom as possible.
- Store putrescibles awaiting collection in a freezer until they are ready to be set out.
- Set out only one extra bag of putrescibles per week for pickup, if possible.

Commercial Properties: Debris Removal and Disposition

Businesses With Small Amounts of Debris

Those businesses with a relatively small amount of damage can have the same debris management options as described above for residential properties.

Businesses With Large Amounts of Debris

Businesses with extensive damage will likely hire contractors to manage debris removal efforts. Both contractors and business owners should be encouraged to dispose of project waste in the most environmentally responsible manner practicable. Local governments should make available written information outlining the five categories of disaster debris and the proper disposition of each debris category, as defined on pages 4-1 and 4-2. This should include a clear identification of the materials included in each category, and the specific options for disposition of those materials, including names and locations of processing facilities, locations of temporary disposal/processing sites, etc.

Resumption of regular garbage and recycling service is a priority and should occur as quickly as possible in the recovery phase of a disaster.

Government Properties: Debris Removal and Disposition

Include in any government contracts with private construction/demolition contractors and with franchised garbage haulers that the category system for disaster debris disposition, as defined on pages 4-1 and 4-2, must be adhered to.

Contractors and franchised haulers should be required to salvage, recycle, and recover as much material as is practicable.

To facilitate this recycling in private construction/demolition contract situations, the following can be considered:

- Monetary incentives for recycling versus disposing of loads.
- Requiring a recycling plan.
- Employing field inspectors to monitor contractor's work.
- Performance criteria applied to contractor's work to rate them on their good faith efforts to recycle and their actual recycling rates. A point system can be implemented that gives a contractor points for dedicating trucks for recycling, training their field supervisor's on recycling requirements, and daily sweeps by contractor over their assigned area to scout for concentrations of recyclables. Recycling rates in the form of percentage of loads to recycling facilities can be tabulated through contractor's records and records kept at disposal and recycling facilities.

Contingency Procedures for Debris Removal

In the event that a jurisdiction's debris removal needs outstrip its resources, contingency procedures should be developed in advance. USACE resources will be available in connection with specific FEMA mission assignments in the event the disaster is declared as a major disaster by the President of the United States.⁶ Mutual aid agreements between jurisdictions should also be negotiated in advance. (See Recommended Practice 5, Key Element "c," page 2-13.) Local governments, haulers, materials processors and disposal facilities can also enter into mutual aid agreements as they see fit in order to facilitate the efficient and coordinated disposition of disaster debris.

⁶Note: Unless USACE activities are performed under full federal authority, the local government requesting assistance will pay a share of the USACE's costs. If the local government receives an approved mission number for the USACE's work, its share of the cost will be 25% under current regulation. If no state authorization is recorded, the local jurisdiction will be responsible for the total cost of services by the USACE.

Guidelines for Disaster Debris Disposal Contingencies

After a disaster, there is the likelihood that some of the regional disposal facilities will become temporarily or permanently damaged or inoperable. It may be necessary to investigate the use of other facilities outside of the region, or use regional facilities differently.

In general, the following guide should be used for determining disposal options after a disaster in which regional disposal facilities are affected:

Level 1: Redirect waste to existing licensed and/or franchised system facilities that are permitted to accept the type of waste being redirected. It is important for health and safety reasons that facilities permitted and equipped to handle certain kinds and volumes of waste are the first choice for redirection of waste.

Example - If Metro Central Transfer Station is inoperable, customers who would normally use that facility may be rerouted to Metro South Transfer Station or the Forest Grove Transfer Station.

Level 2: Redirect waste to non-system facilities that are permitted to accept the type of waste being redirected. These facilities should be prioritized for use. Prior to a disaster, Metro should negotiate post-disaster agreements with these non-system facilities.

Example - If the Forest Grove Transfer Station and Metro Central Transfer Station are both inoperable, customers who would normally use those facilities may be rerouted to the Newberg Transfer Station or to Riverbend Landfill.

Level 3: Redirect putrescible waste (Category 1 waste) to system facilities not permitted to take putrescible waste.

Example - Materials recovery facilities can be allowed to act as transfer stations and reload putrescible waste.

At every level, Metro will be responsible for providing a prioritized list of preferred disposal options. Local jurisdictions will direct their haulers based upon these preferred disposal options, as well as local conditions and route availability.

In deciding when to move to a higher level there are two important criteria: 1) the anticipated duration of facility closure; and 2) capacity of operable facilities. If only a couple of facilities are damaged, if they are thought to be operable within a short time, and if operable facilities have the capacity to take the redirected waste, then the system should not move from Level 1 to Level 2.

The decision to move to a higher level should also take into consideration any alternative interim measures that can be utilized. Some examples of short-term alternative interim measures are:

- Delay pickup of waste for customers the local government or hauler deems nonessential, especially non-putrescible waste.
- Store waste in garbage trucks after collection until there is a suitable place to dump.
- Store waste at operable facilities.

If facility closures and capacity shortages are expected to be of a longer duration, then suitable alternative interim measures should be considered, such as:

- Temporarily halting access by cash customers to transfer stations.
- Set up temporary disposal sites for dry waste and reroute waste to those sites. Some may be restricted to commercial haulers only. Others may be open for the public.

Guidelines for Multi-jurisdictional Coordination of Debris Clearing Efforts

The following functions may potentially benefit from interagency coordination and communication. The areas as listed are not exhaustive, and individual agencies and jurisdictions should look for opportunities to coordinate with other agencies and jurisdictions whenever possible.

1. Comparison and coordination of contractor/equipment lists.
 - Many local governments and other agencies keep lists of contractors and equipment. Coordinate lists to ensure resources will be used efficiently.
2. Local government temporary debris storage sites.
 - Request site selection assistance from USACE, if necessary.
 - Coordinate placement and usage of sites with neighboring local governments. Some large sites may be able to serve more than one jurisdiction.
3. Identification and control of disaster-generated debris.
 - Use caution when distributing disposal vouchers directly to citizens. Use whatever means practicable to ensure debris is truly disaster-related.
 - Work to develop a better understanding of the disaster debris disposition process with all interest groups, e.g., haulers, contractors, citizens, nonprofit agencies.
 - Develop materials to educate jurisdictions in the identification and disposition of disaster debris.
4. Pre-disaster education of citizens.
 - Ensure citizens understand that they are responsible for their own debris (private vs. public property issues).
 - Provide public education regarding what kinds of debris management programs and options might be expected after a disaster.
 - Ensure an understanding of possible program and policy differences between jurisdictions.
 - Continue educating citizens about preparedness.
5. Establish better communication between local and state governments and other agencies.

Guidelines for Management of Disaster-Generated Exempt Hazardous Waste

Exempt hazardous waste is defined as any unwanted hazardous products that are not subject to full regulation under Oregon and federal hazardous waste laws. This includes hazardous products disposed of by households and CEGs (Conditionally Exempt Generators), and Universal Wastes.

The following guidelines should be followed in the management of disaster-generated exempt hazardous waste.

- 1. Utilize the Resources of Metro's Hazardous Waste Program.** Metro is the agency responsible for household hazardous waste management in the region. Metro also conducts a CEG collection program in cooperation with DEQ, and will probably collect Universal Wastes with DEQ approval. Metro's program includes two permanent facilities, located adjacent to Metro's transfer stations, and operates satellite collection events around the region. Disaster-related exempt hazardous waste collection should utilize the program's facilities, equipment, trained staff, and standing disposal contracts. If necessary, program staff can quickly acquire additional vehicles, equipment, and trained workers to mount a larger-scale effort.
- 2. Coordinate with other agencies.** In the initial phases of a disaster response, Metro hazardous waste staff should confirm contacts and coordinate efforts with local, state and federal agencies involved with hazardous waste management. This may include fire departments and hazmat teams, DEQ, the US Environmental Protection Agency (EPA), and the Coast Guard, as well as city and county health, water and solid waste agencies. Communication should be maintained throughout the recovery phase with local government debris removal coordinators and the REIC.
- 3. Work closely with solid waste debris collection efforts.** Hazardous waste program staff should be involved with the development of solid waste collection options for each disaster. Exempt hazardous waste collection is most practically provided alongside solid waste

collection, although it may not be practical or necessary to provide hazardous waste collection at all solid waste collection points. Data from solid waste debris collection sites should be monitored as the recovery progresses, and adjustments made with consultation from local government debris removal coordinators.

4. **Determine type of services to offer.** A variety of service options may be developed in response to a disaster. Services can range from simply promoting the availability of the permanent facilities, to door-to-door hazardous waste collection. Intermediate options include providing staffing at collection sites near affected areas, and doing "milk runs" as needed to collect materials at approved locations. The most appropriate type of service to provide will vary depending on the nature and severity of the disaster. As recovery needs evolve, it will be prudent to monitor the demand for collection services and adjust as necessary. It is probably safer to mobilize resources to handle the maximum expected demand and adjust downward, rather than to get overwhelmed with waste and have potentially very hazardous situations.
5. **Determine whether waste is exempt.** Whatever collection services are offered, it is important to ensure that all wastes collected are properly classified as exempt. Some sort of screening criteria should be provided to the staff receiving wastes, in order to ensure that loads are household, CEG or Universal Waste.
6. **Determine whether waste is disaster-generated.** When hazardous waste collection services are provided in response to a disaster, it is likely that inquiries will be received from residents or businesses that have hazardous waste that is not a result of the disaster. In order to receive disaster relief funds, it is important to ensure that wastes are disaster-related. Publicity about collection services should specify that only disaster-related waste is to be accepted. Prior to mobilizing collection services, collection staff should have a plan for handling non disaster-generated waste that is received in spite of the publicity. This may include referring the generator to other services, or accepting the material and tracking it separately.

7. **Load checking.** After a disaster, it is possible that some generators may improperly throw hazardous wastes into the trash, even if separate hazardous waste services are available. It may be useful to provide enhanced inspection of incoming trash loads at transfer stations, MRFs, and landfills in the region.

8. **Be prepared to collect detailed data from the beginning.** Hazardous waste collection services may be mobilized very quickly in a disaster. It is important for a variety of reasons to track all expenditures, participation levels and waste volumes from the start. Forms and documentation procedures should be developed prior to a disaster. Please see standard form for this purpose, page 4-12.

Debris Collection Site Daily Hazardous Waste Inventory

Date _____

Site Location _____

Technician Name _____

Waste type	Quantity
Latex paint	
"G-waste" (water-based glues, etc.)	
Oil-based paint and other flammables	
Pesticides, Acids, Bases, and Oxidizers	
Aerosols	
Cleaners	
Oil	
Antifreeze	
Other:	

Total flood-related HHW customers: _____

Total non-flood HHW customers: _____

CEG customers: _____

Guidelines for the Management and Operation of Temporary Disposal Sites

Site Selection Guidelines

1. Pre-selection of sites is encouraged. Site list with pertinent information should be submitted to both Metro and USACE. The USACE will assist with any pre-selection of sites, if requested.
2. Coordinate placement and usage of sites with neighboring local governments. Some large sites may be able to serve more than one jurisdiction.
3. Publicly-owned land should be the first choice.
4. Size - Site should be large enough to accommodate at least four drop boxes for garbage and recycling, as well as an area for exempt hazardous waste drop off. Some large sites should be identified that will accommodate a shredder and/or tub grinder, and storage capacity of non-putrescible material.
5. Access
 - To site - The site should be located along one or more major arterials or have good access both to and from nearby arterials. If possible, identify sites along emergency transportation routes. Regional routes have been identified by the Regional Emergency Management Group, and others can be identified at the local level, as required.
 - Site Ingress and Egress - The site should be large enough and laid out in such a way the flow of vehicles into and out of the site is not hampered.
6. Duration of use - After a major disaster, the site could be used for up to two years, especially if processing activities will be occurring at the site.
7. Terrain - Sites should be as level as possible, with no possible contamination of groundwater, rivers, lakes, streams, etc.

8. Site Amenities

- Capability of being locked or secured after hours.
 - Paved or at least graveled areas of use.
 - Access to water or a fire hydrant in case of fire.
9. Consider flow of water runoff, including storm water and any leachate that accumulates. Where will it go? Is there a storm sewer nearby? Is it suitable for the runoff?

Post-Site Selection Activities

1. Where private property is involved, execute right-of-entry and any other applicable contracts, e.g., usage agreements, leases, in advance.
2. Photograph, survey, document environmental conditions.
3. Determine what permits, if any, might be needed to use the property as a temporary disposal site after a disaster. Determine what pre-disaster actions can be taken to expedite the process.
4. Develop a scope of work and execute contracts with professional firms for operation of temporary sites.
5. Develop maps showing identified sites and emergency transportation routes. File with the Metro coordinator of the central disaster debris management information system.

Post-Disaster Site Operation

1. Material received at temporary sites should be restricted to only dry waste, if possible.
2. If a site will handle putrescibles as well as dry waste, consider waiting a week or two until after the putrescible surge before attempting to sort and recycle incoming loads. Even at dry-waste-only sites, it may be helpful to delay active recovery/recycling efforts until after the putrescible surge has ended.

3. Consider an area on-site where demolition loads identified by specific addresses can be dumped so home/business owners can look through debris for personal items.
4. Don't allow fire hazards to accumulate, e.g., piles of wood waste and yard debris.
5. Consider leasing a shredder and/or tub grinder for specific sites to help keep wood waste and yard debris piles manageable.
6. Inspect incoming loads for hazardous waste.
7. Have welders/mechanics on-site or on-call to minimize equipment down time.
8. Equipment used to load or move debris material should have hydraulic claw buckets.
9. Set up recycling containers on-site - especially for water jugs, which tend to accumulate in the first few weeks.
10. Hours of operation should be extended, especially in the early stages of debris removal efforts.
11. Adequate signage should be posted explaining what the site is for, what kinds of materials it accepts, and its hours of operation. Be explicit about incoming material being disaster-related only.
12. Employ adequate personnel for traffic control, driver survey, and load assistance.

Guidelines for the Use of Burning as a Disposal Option

General Policies and Guidance

The Oregon state statutes do not give specific guidelines for burning as a method to handle disaster debris. However, burning of disaster debris is discouraged unless absolutely necessary. If allowed, this type of burning would be classified as "commercial" open burning which is prohibited in all areas in or within three miles of the incorporated city limit of all cities with a population of 4,000 or more. State statutes stress that efforts should be made to maintain the quality of the air resources of the state in a condition as free from air pollution as is practicable.

Following are important considerations that should be given by local authorities when determining if burning is an appropriate method to handle debris.

- **Backyard Burning.** Backyard burning is generally prohibited in much of the region. (See Appendix A - "Open Burning Prohibitions" OAR 340-23-065 through 340-23-080.) If burning of household waste for vector control is considered an option, a number of issues should be considered.
 1. Debris should be segregated in ensure that household hazardous waste, metals, and plastics are not burned.
 2. While there are areas within the region that allow backyard burning, high levels of air pollution, local nuisance conditions, and health impacts on the very young and elderly could result if extensive burning occurs in these areas. Consideration may need to be given to limiting burning in the permitted areas. Allowing burning in unpermitted areas could also result in increased pollution levels and citizen complaints. If considered, it should be employed only as a short term solution.
 3. The permitting agency must assure that fire protection services are available and that water resources required for fire protection are available.

- **Controlled Burning.** Collecting disaster debris and transporting it to a central location for recycling, disposal or burning allows for more control over fire concerns, and provides the ability to prevent the open burning of hazardous materials. Considerations should include the following.

1. The level of material in a disaster area would be much greater than would typically be burned, and extensive use of burning in those areas could impact the air quality of the region.
2. Composition of material is of prime concern. Indiscriminate burning can result in increased levels of contaminants in the air. Be prepared to sort out and properly store hazardous materials. Metals, plastics, and tire should also be removed from the wastestream.
3. Ash resulting from controlled burns will need to be disposed in a permitted landfill unless testing shows significant amounts of hazardous contaminants. In that case, the ash will need to be disposed of in a permitted hazardous waste facility.
4. There must be fire fighting services to provide fire protection.
5. There must be water sources for fire protection.
6. Control of water runoff from fire control is important.
7. There should be a means for dry and safe storage for hazardous waste.
8. There must be adequate security and staff to handle materials.
9. Nuisance control for smoke and odor must be considered.

- **Materials Prohibited from Burning.** OAR 340-23-42 (2) prohibits the following materials from being burned: wet garbage, plastic, wire insulation,

automobile parts, asphalt, petroleum products, petroleum treated materials, rubber products, animal remains, or animal or vegetable matter resulting from the handling, preparation, cooking or service of food or of any other material which normally emits dense smoke or noxious odors.

Contact DEQ regarding any exceptions to these materials.

- **Statewide Exemptions.** According to OAR 340-23-035 (3), the following exceptions apply when fires are set or permitted by any public agency when the fire is set or permitted in the performance of its official duty for the purpose of: weed abatement, prevention or elimination of a fire hazard, or a hazard to public health or safety or instruction of employees in the methods of fire fighting, which in the opinion of the agency is necessary.

Process for Gaining Permission to Burn

Prior to authorizing any disaster burning, local governments should contact their local fire officials and DEQ.

Phone Numbers for Key Contacts

Department of Environmental Quality
Pollution Complaint/Burning Hotline (503) 229-5393

State Fire Marshall (503) 378-3437

Local Fire Jurisdictions or Fire Districts

West Linn	657-5407
Lake Oswego	635-0378
Gladstone	656-4253
Oak Lodge	653-2432
Gresham	669-2505
Tualatin Valley	526-2469
South Metro	655-8537
Boring	663-8537
Hillsboro	681-6166
Forest Grove	359-3240

Guidelines to Prevent and Control Illegal Dumping

Prevention

1. Provide convenient disposal and recycling alternatives, e.g., temporary debris disposal sites.
2. Educate citizens about their disposal and recycling alternatives. (See "Response Phase Strategies - Strategies for Immediate and Long-Term Information Dissemination," page 3-10.)
3. Educate citizens about their liability for any illegally dumped loads of their debris. Encourage them to use franchised haulers and to self-haul to approved sites. If they choose to use a contractor or independent hauler, encourage them to receive proof of proper disposal before remitting payment.
4. In government contracts, require proof of proper disposal for all loads.
5. In any post-disaster demolition permit system, require proof of proper disposal.

Control

1. After initial health and safety priorities have been addressed after a disaster, begin increasing efforts to monitor potential illegal dumpsites and illegal dumpers. As the recovery effort progresses and construction and demolition efforts begin in earnest, the potential for illegal dumping increases. Efforts aimed at deterring illegal dumping, including enforcement, should increase proportionately, if possible.

Guidelines for Personal Property Recovery

Planning for personal property recovery is best handled through a jurisdiction's building inspector and fire officials. It is recommended, however, that all jurisdictions recognize that disaster victims will want to recover personal property from damaged structures and options should be considered to help them do so. However, health and safety is the first priority when considering the implementation of any of these options.

Process for Private Cleanup Efforts

The process for ensuring safe and satisfactory private cleanup efforts after a disaster can be essentially the same general process used by a jurisdiction for standard demolition efforts. Usually, this entails the issuing of a permit to demolish a structure and includes a number of restrictions and guidelines the permittee must adhere to.

Post-disaster cleanup considerations can differ somewhat from cleanups that are not disaster-related. For example, illegal dumping of debris will likely be a bigger problem after a disaster than in other circumstances because of the volume of debris generated and the number of people affected. The process implemented for proper post-disaster cleanup will need to take into account the special circumstances of disasters.

It is recommended that a permit system be implemented for post-disaster private cleanup efforts. The following elements should be considered for that system:

- **Permit Fees.** Each jurisdiction should decide whether or not a fee will be charged for post-disaster cleanup permits. If the permits will be free or at a reduced rate from regular demolition permits, determine what pre-disaster steps will need to be taken to accommodate the change. This may include changes to the jurisdictional codes and/or ordinances, or some other kind of council action.
- **Cleanup Deadline.** A deadline should be set by which the work must be completed. In the event the work is not completed by that deadline, the jurisdiction should reserve the right to assess penalties and/or fines, or clean up the property using public resources and assess the costs to the owner. An authorized building inspector from the jurisdiction should inspect each site before the cleanup work is accepted by the jurisdiction. The deadline set for completion of the cleanup process will depend on a number of factors, including the season in which the disaster occurs, the type of disaster, etc.

- Adherence to all applicable local, state, and federal regulatory guidelines. Permittees should receive information outlining the regulatory guidelines which apply to the cleanup work. Especially important are Occupational Safety and Health Agency (OSHA) requirements and requirements issued by the Fire Marshall's office. These should be made clear to the permittee. It is recommended that the jurisdiction assemble a handout for the permittee and release it with the permit. (See Appendix B for samples of handouts from the City of Oakland.)
- Cleanup requirements and standards. Certain uniform standards must be established to ensure that minimum acceptable levels of cleanup are met because of potential for soil erosion, landslides, falling trees, falling structures, release of raw sewage, the release of asbestos and other contaminants into the air, and the presence of other possible toxic materials. In the event the work completed by the permittee does not meet the established uniform standards, the jurisdiction should reserve the right to assess penalties and/or fines, or clean up the property using public resources and assess the costs to the owner.

The established uniform standards should include:

1. removal of all debris from site, including ash, concrete, broken glass, etc.;
2. filling of all holes; and
3. final grading of the demolished area.

The following environmental controls at the site should also be included:

1. requirement of an erosion control plan;
2. reduction of dust and contaminants at site, including periodic spraying of debris with water (if necessary);
3. adherence to noise ordinances;
4. vector control;
5. proper closure and reconnection of utilities on-site, including water, gas, electricity, and sanitary and storm sewers; and
6. controls to keep immediate street area free from dirt and debris from site cleanup activities.

- **Debris disposal and recycling.** Because of the increased likelihood of illegal dumping after a disaster, a debris disposal and recycling element should be included in the private cleanup permit process. Proof of proper disposal of debris, including hazardous waste, should be a requirement of the permit. The permittee should be educated about the five categories of waste and the proper disposition of each debris category, as defined in the "Guidelines for the Removal of Debris from Residential and Commercial Properties," page 4-1. Clear identification of the materials should be included in each category. Specific options for disposition of those materials should be provided, including names and locations of processing facilities, locations of temporary disposal/processing sites, etc.

Part 5

Appendices

Appendix A

OAR Rules - Open Burning Prohibitions

OREGON ADMINISTRATIVE RULES
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Open Burning Prohibitions

Baker, Clatsop, Crook, Curry, Deschutes, Gallium, Grant, Hamey, Hood River, Jefferson, Klamath, Lake, Lincoln, Malheur, Morrow, Sherman, Tillamook, Umatilla, Union, Wallowa, Wasco and Wheeler Counties

340-23-055 Open burning prohibitions for the counties of Baker, Clatsop, Crook, Curry, Deschutes, Gallium, Grant, Hamey, Hood River, Jefferson, Klamath, Lake, Lincoln, Malheur, Morrow, Sherman, Tillamook, Umatilla, Union, Wallowa, Wasco and Wheeler:

- (1) Industrial open burning is prohibited except as provided in OAR 340-23-100.
- (2) Agricultural open burning:
 - (a) In Baker, Crook, Deschutes, Gallium, Grant, Hamey, Hood River, Jefferson, Klamath, Lake, Malheur, Morrow, Sherman, Umatilla, Union, Wallowa, Wasco and Wheeler Counties, agricultural open burning is allowed under this Division subject to OAR 340-23-040(5).
 - (b) In Clatsop, Curry, Lincoln and Tillamook Counties agricultural open burning is allowed subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.
- (3) Commercial open burning is allowed subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal, except that, unless authorized pursuant to OAR 340-23-100, all commercial open burning is prohibited in or within three (3) miles of the corporate city limits of the following cities:
 - (a) In Baker County, the City of Baker.
 - (b) In Clatsop County, the Cities of Astoria and Seaside.
 - (c) In Crook County, the City of Prineville.
 - (d) In Curry County, the City of Brookings.
 - (e) In Deschutes County, the Cities of Bend and Redmond.
 - (f) In Hood River County, the City of Hood River.
 - (g) In Klamath County, the City of Klamath Falls.
 - (h) In Lincoln County, the Cities of Lincoln City and Newport.
 - (i) In Malheur County, the City of Ontario.
 - (j) In Umatilla County, the Cities of Hermiston, Milton-Freewater and Pendleton.
 - (k) In Union County, the City of La Grande.
- (4) Construction and Demolition open burning is allowed subject to the requirements and prohibitions of local jurisdictions, the State Fire

Marshal, OAR 340-23-040, 340-23-042 and 340-23-043, except that, unless authorized pursuant to OAR 340-23-100, Construction and Demolition open burning is prohibited in or within three (3) miles of the corporate city limits of the following cities:

- (a) In Baker County, the City of Baker.
 - (b) In Clatsop County, the City of Astoria.
 - (c) In Crook County, the City of Prineville.
 - (d) In Curry County, the City of Brookings.
 - (e) In Deschutes County, the Cities of Bend and Redmond.
 - (f) In Hood River County, the City of Hood River.
 - (g) In Klamath County, the City of Klamath Falls.
 - (h) In Malheur County, the City of Ontario.
 - (i) In Umatilla County, the Cities of Hermiston, Milton-Freewater and Pendleton.
 - (j) In Union County, the City of La Grande.
 - (k) In Wasco County, the City of The Dalles.
- (5) Domestic open burning is allowed subject to the requirements and prohibitions of local jurisdictions, the State Fire Marshal, and OAR 340-23-040, 340-23-042 and 340-23-043.

(NOTE: This rule is included in the State of Oregon Clean Air Act Implementation Plan as adopted by the Environmental Quality Commission under OAR 340-20-047.)

Stat. Auth.: ORS Ch. 468 & 468A

Hist.: DEQ 27-1981, f. & ef. 9-8-81; AQ 18-1992, f. & ef. 3-11-92; AQ 1-1993, f. & ef. 3-9-93

Benton, Linn, Marion, Polk, and Yamhill Counties

340-23-060 Open burning prohibitions for Benton, Linn, Marion, Polk, and Yamhill Counties which form a part of the Willamette Valley open burning control area described in OAR 340-23-115:

- (1) Industrial open burning is prohibited except as provided in OAR 340-23-100.
- (2) Agricultural open burning is allowed subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal:
 - (a) Agricultural open burning within the purview of this rule will be prohibited between July 15 and September 15 unless specifically authorized by the Department on a particular day.
 - (b) Burning hours are during daylight hours unless otherwise set by the Department. Large piles of land clearing debris or stumps shall be handled in accordance with OAR 340-23-040(4)(c) and may be a low burn after hours and into prohibition condition days.

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- (3) Commercial open burning is prohibited except as provided in OAR 340-23-100.
- (4) Construction and Demolition open burning is allowed outside of special control areas subject to the requirements and prohibitions of local jurisdictions, the State Fire Marshal, OAR 340-23-040, 340-23-042 and 340-23-043. Unless authorized pursuant to OAR 340-23-100, Construction and Demolition open burning is prohibited within special control areas including the following:
- (a) Areas in or within six (6) miles of the corporate city limit of:
 - (A) in Marion County, the cities of Salem and Keiser.
 - (B) in Polk County, the city of Salem.
 - (b) Areas in or within three (3) miles of the corporate city limit of:
 - (A) In Benton County, the Cities of Albany, Corvallis and Philomath.
 - (B) In Linn County, the Cities of Albany, Brownsville, Harrisburg, Lebanon, Mill City and Sweet Home.
 - (C) In Marion County the Cities of Aumsville, Gervais, Hubbard, Jefferson, Mill City, Mt. Angel, Silverton, Stayton, Sublimity, Turner and Woodburn.
 - (D) In Polk County, the Cities of Dalles Independence, Monmouth and Willamina.
 - (E) In Yamhill County, the cities of Amity, Carlton, Dayton, Dundee, Lafayette, McMinnville, Newberg, Sheridan and Willamina.
- (5) Domestic open burning:
- (a) As generally depicted in Figure 1 of OAR 340-23-115, domestic open burning is prohibited in the special control areas named in section (4) of this rule except that open burning of yard debris is allowed beginning March first and ending June fifteenth inclusive, and beginning October first and ending December fifteenth, inclusive, subject to OAR 340-23-040 and 340-23-042 and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.
 - (b) Domestic open burning is allowed outside of special control areas named in section (4) of this rule subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.
 - (c) No person shall cause or allow to be initiated maintained any domestic open burning other than during daylight hours between 7:30 a.m. and two hours before sunset unless

otherwise specified by the Department pursuant to OAR 340-23-043.

(NOTE: This rule is included in the State of Oregon Clean Air Act Implementation Plan as adopted by the Environmental Quality Commission under OAR 340-20-047.1

Stat. Auth.: ORS Ch. 468 & 468A

Hist.: DEQ 27-1981, f. & ef. 9-8-81; DEQ 10-1984, f. 5-29-84, ef. 6-16-84; AQ 18-1992, f. & cf. 3-11-92, AQ 1-1993, F. & ef. 3-9-93; DEQ 14-1995, f. & ef. 5-25-95

Clackamas County

340-23-065 Open burning prohibitions for

Clackamas County:

- (1) Industrial open burning is prohibited except as provided in OAR 340-23-100.
- (2) Agricultural open burning is allowed subject to OAR 34b-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal:
 - (a) Agricultural open burning within the purview of this rule will be prohibited between July 15 and September 15 unless specifically authorized by the Department on a particular day.
 - (b) Burning hours are during daylight hours unless otherwise set by the Department. Large piles of land clearing debris or stumps shall be handled in accordance with OAR 340-23-040(4)(c) and may be allowed, without addition of new waste material, to burn after hours and into prohibition condition days.
- (3) Commercial open burning is prohibited except as may be provided by OAR 340-23-100.
- (4) Construction and Demolition open burning is allowed outside of special control areas subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal. Unless authorized pursuant to OAR 340-23-100, Construction and Demolition open burning is prohibited within special control areas including the following:
 - (a) Areas in or within six (6) miles of the corporate city limits of Gladstone, Happy Valley, Lake Oswego, Milwaukie, Oregon City, Portland, Rivergrove, Tualatin, West Linn and Wilsonville.
 - (b) Areas in or within three (3) miles of the corporate city limits of Canby, Estacada, Gresham, Molalla and Sandy.
- (5) Domestic open burning:
 - (a) Those areas where domestic burning is always prohibited:
(unless authorized under 340-23-100):
Beginning at the trisection of the Clackamas-Multnomah- Washington County Line; thence east

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and then northerly and then east following the Clackamas-Multnomah County Line to the intersection with the northwest corner of Section 27, T1S, R2E; thence south to the midpoint of the western boundary of Section 3, T2S, R2E; thence on a line east approximately 1/4 of a mile; thence south to the southern boundary of Section 3, T2S, R2E and the corner of Camp Withycombe (Oregon National Guard); thence west approximately 1/4 mile to the midpoint of the southern boundary of Section 3, T2S, R2E; thence on a line south to the Clackamas River and the Metropolitan Service District (METRO) Boundary as defined in Oregon Revised Statutes (ORS) Chapter 268.125; thence following the METRO Boundary first southerly and then westerly to the intersection with the Willamette River, excepting that portion listed in subsection (b)(2); thence northeasterly along the Willamette River to the confluence with the Tualatin River; thence northwesterly along the Tualatin River to the intersection with U.S. Interstate Highway 205 (I-205); thence westerly along I-205 to the intersection with the Clackamas-Washington County Line; thence north along the Clackamas-Washington County Line to the trisection of the Clackamas-Multnomah-Washington County Line, the point of beginning.

(b) Those areas where domestic open burning is prohibited except for the burning of yard debris between March 1 and June 15, and between October 1 and December 15, subject to OAR 340-23-040, -042, and -043 and the requirements and prohibitions of local jurisdictions and the State Fire Marshal, are the areas that lie within both Clackamas County and the METRO Boundary and are not included in OAR 340-23-065(a). Specifically, those areas are listed as follows:

(A) The area beginning at the point on the Clackamas-Washington County Line where it is intersected by I-205; thence easterly along I-205 to the intersection with the Tualatin River; thence southeasterly along the Tualatin River to the confluence with the Willamette River; thence southerly along the Willamette River to the intersection with the northern boundary of Section 15, T3S, R1E; thence west to the northwest corner of Section 15, T3S, R1E; thence north to the northwest corner of Section 10, T3S, R1E; thence west to the northwest corner of Section 9, T3S, R1E; thence north to the northwest corner of Section 4, T3S, R1E; thence west to the intersection with the Clackamas-Washington County Line; thence north to the intersection with I-205, the point of beginning.

(B) The area bounded by Henrici Road on the south; Highway 213 on the west; Beaver Creek Road on the east; and the southern

boundary of Clackamas Community College on the north.

(C) The area beginning at the point where the Clackamas-Multnomah County Line intersects the northwest corner of Section 27, T1S, R2E; thence south to the midpoint of the western boundary of Section 3, T2S, R2E; thence on a line east approximately 1/4 of a mile; thence south to the southern boundary of Section 3, T2S, R2E and the corner of Camp Withycombe; thence west 1/4 mile to the midpoint of the southern boundary of Section 3, T2S, R2E; thence on a line south to the Clackamas River; thence easterly along the Clackamas River to the intersection with the western boundary of Section 18, T2S, R3E; thence north to the northwest corner of Section 18, T2S, R3E; thence east to the northwest corner of Section 14, T2S, R3E; thence north to the northwest corner of Section 11, T2S, R3E; thence east to the intersection with Epperson Road; thence north-northwesterly along Epperson Road to the intersection with the Clackamas-Multnomah County Line at the northern boundary of Section 29, T1S, R2E; thence west along the county line to the northwest corner of Section 27, T1S, R2E, the point of beginning.

(c) Domestic open burning is allowed in all other areas of Clackamas County subject to OAR 340-23-040 and 340-23-042 and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.

(d) No person shall cause or allow to be initiated or maintained any domestic open burning other than during daylight hours between 7:30 a.m. and two hours before sunset unless otherwise specified by Department pursuant to OAR 340-23-043.

[NOTE: This rule is included in the State of Oregon Clean Air Act Implementation Plan as adopted by the Environmental Quality Commission under OAR 340-20-047.1

Stat. Auth.: ORS Ch. 468 & 468A
Hist.: DEQ 27-1981, f. & ef. 9-8-81; DEQ 10-1984, f. 5-29-84, ef. 6-16-84; AQ 18-1992, f. & ef. 3-1-92, AQ 1-1993, f. & ef. 3-9-93; DEQ 14-1995, f. & ef. 5-25-95

Multnomah County

340-23-070 Open burning prohibitions for Multnomah County:

- (1) Industrial open burning is prohibited except as provided in OAR 340-23-100.
- (2) Agricultural open burning is allowed subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal:
 - (a) Agricultural open burning within the purview of this rule will be prohibited between July

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15 and September 15 unless specifically authorized by the Department on a particular day.

- (b) Burning hours are during daylight hours unless otherwise set by the Department. Large piles of land clearing debris or stumps shall be handled in accordance with OAR 340-23-040(4)(c) and may be allowed, without addition of new waste material, to burn after hours and into prohibition condition days.
- (3) Commercial open burning is prohibited except provided in OAR 340-23-100.
- (4) Construction and Demolition open burning, unless authorized pursuant to OAR 340-23-100, is prohibited west of the Sandy River but is allowed east of the Sandy River subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.
- (5) Domestic open burning:
 - (a) Those areas where open burning is always prohibited (unless authorized by 340-23-100):
 - (A) The area encompassed by the line beginning at the point where the Multnomah, Clackamas, and Washington County lines meet at a trisection; thence east and then north and then east along the Multnomah-Clackamas County Line to the intersection with SE 172nd Avenue; thence north along SE 172nd Avenue to the intersection with SE Foster Road; thence southeasterly along SE Foster Road to the intersection with Jenne Road; thence northeasterly along Jenne Road to the intersection with SE 17th Avenue; thence north along SE 17th Avenue to the intersection with SE Marie Street; thence east along SE Marie Street to the intersection with SE 182nd Avenue; thence north along SE 182nd Avenue and continuing north as SE 182nd Avenue merges into SE 181st Avenue and then turns into NE 181st Avenue to the intersection with NE Sandy Boulevard; thence easterly along NE Sandy Boulevard to the intersection with NE 185th Drive; thence north along NE 185th Drive to the intersection with Marine Drive; thence continuing on a line due north to the Columbia River and the state line, thence following the Columbia River and the state line to the confluence of the Columbia and Willamette Rivers; thence along the Willamette River to the confluence with the Multnomah Channel and the Portland City Limits; thence following the Portland City Limits generally southerly to the intersection with Section 27, TIN, RIW

and the Multnomah-Washington County Line thence following the Multnomah-Washington County Line southwest and then south to the trisection of the Multnomah-Clackamas-Washington County Line, the point of beginning.

(B) All areas in northwest Multnomah County that are not contained within a known Fire Protection District.

(C) The Burlington Water District.

- (b) Those areas where domestic open burning is prohibited except for the burning of yard debris between March 1 and June 15, and between October 1 and December 15, subject to OAR 340-23-040, -042, and -043 and the requirements and prohibitions of local jurisdictions and the State Fire Marshal, are the areas within Multnomah County that lie west of the Sandy River and are not included in OAR 340-23-070(a).
- (c) Domestic open burning is allowed east of the Sandy River subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.
- (d) No person shall cause or allow to be initiated or maintained any domestic open burning other than during daylight hours between 7:30 a.m. and two hours before sunset unless otherwise specified by Department pursuant to OAR 340-23-043.

(NOTE: This rule is included in the State of Oregon Clean Air Act Implementation Plan as adopted by the Environmental Quality Commission under OAR 340-20-047.)

Stat. Auth.: ORS Ch. 468 & 468A

Hist.: DEQ 27-1981, f. & ef. 9-8-81; DEQ 10-1984, f. 5-29-84, ef. 6-16-84; AQ 18-1992, f. & ef. 3-11-92; AQ 1-1993, f. & ef. 3-9-93. DEQ 14-1995, f. & ef. 5-25-95

Washington County

340-23-075 Open burning prohibitions for Washington County:

- (1) Industrial open burning is prohibited except as provided in OAR 340-23-100.
- (2) Agricultural open burning is allowed subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal:
 - (a) Agricultural open burning within the purview of this rule will be prohibited between July 15 and September 15 unless specifically authorized by the Department on a particular day.
 - (b) Burning hours are during daylight hours, unless otherwise set by the Department. Large piles of land clearing debris or stumps shall be handled in accordance with OAR 340-23-040(4)(c) and may be allowed, without addition of new waste material, to

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burn after hours into prohibition condition days.

- 3) Commercial open burning is prohibited except as may be provided by OAR 340-23-100.
- 4) Construction and Demolition open burning, unless authorized pursuant to OAR 340-23-100, is prohibited in all incorporated areas and areas within rural fire protection districts. Construction and demolition open burning is allowed in all other areas subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.
- 5) Domestic open burning:
 - (a) The area where open burning is always prohibited (unless authorized by 340-23-100): Beginning at the point where U.S. Interstate Highway 205 (I-205) intersects the Washington-Clackamas County Line; thence west along I-205 to the Tualatin City Limits; thence following along the Tualatin City Limits westerly, southerly, westerly and northerly to the intersection with U.S. Highway 99; thence northerly along U.S. Highway 99 to the intersection with the Metropolitan Service District (METRO) Boundary as defined in Oregon Revised Statutes (ORS) Chapter 268.125; thence following the METRO Boundary generally northerly and westerly to the intersection with the Tualatin Valley Highway; thence westerly along the Tualatin Valley Highway to the intersection with the western boundary of Section 1 1, T 1S, R2W; thence north to the northwest corner Section 2, T1S, R2W; thence east to the northwest corner of Section 1, T1S, R2W; thence north to the intersection with U.S. Highway 26; thence northwesterly along U.S. Highway 26 to the intersection with Cornelius Pass Road; thence northeasterly along Cornelius Pass Road to the intersection with the northern boundary of Section 23, T1N, R2W; thence east approximately 115 miles along the northern boundary of Section 23, T1N, R2W to the southernmost point of the Orchard; thence north following the eastern boundary of the Orchard to the intersection with West Union Road; thence southeasterly and then easterly along West Union Road approximately 1.1 miles to a point approximately 1/4 mile west of the eastern boundary of Section 24, T1N, R2W; thence north on a line approximately 1000 feet; thence northeasterly on a line approximately 1/4 mile to the intersection of NW 185th Avenue and NW Springville Road; thence northeasterly along NW Springville Road approximately 1/4 mile to the one-quarter point of the northern boundary of Section 19, T1N, R1W; thence north approximately 400 feet; thence east to the intersection with NW 185th

Avenue; thence north along 185th Avenue approximately 800 feet to the one-quarter point of the western boundary of Section 18, T1N, R1W; thence gradually northeasterly such that the Rock Creek Campus of Portland Community College is within the boundary approximately 1/2 mile to the midpoint of Section 18, T1N, R1W; thence south following the eastern boundary of the Rock Creek Campus of Portland Community college and continuing on a line due south to the intersection with NW Springville Road and the southern boundary of Section 18, T1N, R1W; thence northeasterly along NW Springville Road to the intersection with the Washington-Multnomah County line; thence following the Washington County line southeasterly and then southerly to the point where the Washington-Clackamas County Line intersects I-205, the point of beginning.

- (b) Those areas where domestic open burning is prohibited except for the burning of yard debris between March 1 and June 15, and between October 1 and December 15, subject to OAR 340-23-040, -042, and -043 and the requirements and prohibitions of local jurisdictions and the State Fire Marshall:
 - (A) All incorporated areas in Washington County not listed in OAR 340-23-075(a) or OAR 340-23-075(c).
 - (B) All unincorporated areas within known municipal or rural fire districts.
- (c) Those areas where domestic burning is allowed, subject to OAR 340-23-040, and -042 and the requirements and prohibitions of local jurisdictions and the State Fire Marshall:
 - (A) The area enclosed by a line beginning at the point where Highway 26 intersects the western boundary of Section 24, T2N, R4W; thence north to the northwest corner of Section 13, T2N, R4W; thence east to the midpoint of the northern boundary of Section 16, T2N, R3W; thence on a line south to the middle of Section 21, T2N, R3W; thence east to the intersection with the midpoint of the western boundary of Section 22, T2N, R3W; thence south to the southwest corner of Section 22, T2N, R3W; thence continuing south to the northern boundary of Washington County Donation Land Claim (DLC) #44; thence east south and east following the northern boundary of Washington County DLC #44 to the eastern boundary of Washington County DLC #44; thence southwesterly along the eastern boundary of DLC #44 to the intersection with DLC Plot #76; thence continuing southwesterly along the eastern boundary of DLC #76 to the intersection with the Burlington Northern Railroad Line; thence northwesterly along the Burlington Northern

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Railroad Line to the intersection with the southern boundary of Section 32, T2N, R4W; thence west to the southwest corner of Section 36, T2N, R4W; thence north to the point where Highway 26 intersects the western boundary of Section 24, T2N, R4W, the point of beginning.

- (B) All unincorporated areas of Washington County outside of municipal or rural fire districts.
- (d) No person shall cause or allow to be initiated or maintained any domestic open burning other than during daylight hours between 7:30 a.m. and two hours before sunset unless otherwise specified by Department pursuant to OAR 340-23-043.

[NOTE: This rule is included in the State of Oregon Clean Air Act Implementation Plan as adopted by the Environmental Quality Commission under OAR 340-20-047.]

Stat. Auth.: ORS Ch. 468 & 468A
Hist.: DEQ 27-1981, f. & ef. 9-8-81; DEQ 10-1984, f. 5-29-84, ef. 6-16-84; AQ 18-1992, f. & ef. 3-11-92; AQ 1-1993, f. & ef. 3-9-93; DEQ 14-1995, f. & ef. 5-25-95

Columbia County

340-23-080 Open burning prohibitions for Columbia County:

- (1) Industrial open burning is prohibited unless authorized pursuant to OAR 340-23-100.
- (2) Agricultural open burning is allowed subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshall.
- (3) Commercial open burning is prohibited unless authorized pursuant to OAR 340-23-100.
- (4) Construction and demolition open burning:
 - (a) Unless authorized pursuant to OAR 340-23-100, Construction and Demolition open burning is prohibited in and within three (3) miles of the city limits of Clatskanie, Rainier, St. Helens, Scappos and Vernonia.
 - (b) Construction and Demolition open burning is allowed in all other parts of Columbia County subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.
- (5) Domestic open burning is allowed subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.

[NOTE: This rule is included in the State of Oregon Clean Air Act Implementation Plan as adopted by the Environmental Quality Commission under OAR 340-20-047.]

Stat. Auth.: ORS Ch. 468 & 468A
Hist.: DEQ 27-1981, f. & ef. 9-8-81; AQ 1-1993, f. & ef. 3-9-93

Lane County

340-23-085 Open burning prohibitions for Lane County. That portion of Lane County east of Range West, Willamette Meridian, forms a part of the Willamett Valley open burning control area as generally described in OAR 340-23-115(5) and depicted in Figure 2:

- (1) The rules and regulations of the Lane Regional Air Pollution Authority shall apply to all open burning in Lane County provided such rules are no less stringent than the provisions of this Division except that the Lane Regional Air Pollution Authority may not regulate agricultural open burning.
- (2) Industrial open burning is prohibited unless authorized pursuant to OAR 340-23-100.
- (3) Agricultural open burning is allowed subject to OAR 340-23-040, 340-23-042 and 340-23-043 and the requirements and prohibitions of local jurisdictions and the State Fire Marshal:
 - (a) Agricultural open burning within the purview of this rule will be prohibited between July 15 and September 15 unless specifically authorized by the Department on a particular day.
 - (b) Burning hours are during daylight hours unless otherwise set by the Department. Large piles of land clearing debris or stumps shall be handled in accordance with OAR 340-23-040(4)(c) and may be allowed without addition of new waste material to burn after hours and into prohibited condition days.
- (4) Commercial open burning, unless authorized pursuant to OAR 340-23-100, is prohibited in Lane County east of Range 7 West Willamett Meridian and in or within three (3) miles of the city limit of Florence on the coast. Commercial open burning is allowed in the remaining areas of Lane County subject to OAR 340-23-040 and 340-23-042 and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.
- (5) Construction and Demolition open burning, unless authorized pursuant to OAR 340-23-100, is prohibited within all fire districts and other areas specified in this section but is allowed elsewhere in Lane County subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal. Areas where open burning of construction and demolition waste is prohibited include:
 - (a) Bailey-Spencer RFPD;
 - (b) Coburg RFPD;
 - (c) Cottage Grove;
 - (d) Creswell RFPD;
 - (e) Crow Valley RFPD;
 - (f) Dexter RFPD except that portion east of Willamette Meridian;

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CHAPTER 340, DIVISION 23 - DEPARTMENT OF ENVIRONMENTAL QUALITY

- (g) Elmira-Noti RFPD except that portion west of the line between Range 6 West and Range 7 West;
 - (h) Eugene Fire District;
 - (i) Eugene RFPD No. 1;
 - (j) Goshen RFPD;
 - (k) Junction City Fire District;
 - (l) Junction City RFPD;
 - (m) Lane RFPD No. 1;
 - (n) Lowell RFPD;
 - (o) Marcola RFPD;
 - (p) McKenzie RFPD except that portion east of the Willamette Meridian;
 - (q) Monroe RFPD that portion within Lane County;
 - (r) Oakridge RFPD;
 - (s) Pleasant Hill RFPD;
 - (t) South Lane RFPD;
 - (u) Springfield Fire Department and those areas protected by the Springfield Fire Department;
 - (v) That portion of Western Lane Forest Protection District north of Section 1 1, T19S, R4W and bordering the City of Eugene and/or Crow Valley, Eugene #1, Goshen and Creswell RFPDS;
 - (w) Willakenzie RFPD;
 - (x) Zumwalt RFPD;
 - (y) Those unprotected areas which are surrounded by or are bordered on all sides by any of the above listed fire protection districts or by Eastern Lane Forest Protection District.
- (6) Domestic open burning:
- (a) Domestic open burning outside the fire districts listed in section (5) of this rule is allowed subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.
 - (b) Domestic open burning is prohibited within all fire districts listed in section (5) of this rule except that open burning of yard debris is allowed subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.
 - (c) Refer to Lane Regional Air Pollution Authority open burning rules for specific seasons and hours for domestic open burning.

Coos, Douglas, Jackson and Josephine Counties

- 340-23-090 Open burning prohibitions for Coos, Douglas, Jackson and Josephine Counties:**
- (1) Open burning control areas:
 - (a) The Coos Bay open burning control area as generally described in OAR 340-23-115 and depicted in Figure 3 is located in Coos County.
 - (b) The Umpqua Basin open burning control area as generally described in OAR 340-23-115, and depicted in Figure 5, is located in Douglas County.
 - (c) The Rogue Basin open burning control area as generally described in OAR 340-23-115 and depicted in Figure 4, is located in Jackson and Josephine Counties.
 - (2) Industrial open burning is prohibited unless authorized pursuant to OAR 340-23-100.
 - (3) Agricultural open burning is allowed subject to OAR 340-23-040, 340-23-042, 340-23-043 and 340-23-090(7), and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.
 - (4) Commercial open burning is prohibited within the Coos Bay, Umpqua Basin and Rogue Basin open burning control areas and in or within three (3) miles of the corporate city limits of Coquille and Reedsport unless authorized pursuant to OAR 340-23-100. Commercial open burning is allowed in all other areas of these counties subject to OAR 340-23-040, 340-23-042 and 340-23-043 and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.
 - (5) Construction and Demolition open burning is prohibited within the Coos Bay, Umpqua Basin and Rogue Basin open burning control areas unless authorized pursuant to OAR 340-23-100. Construction and Demolition open burning is allowed in other areas of these counties subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.
 - (6) Domestic open burning is allowed subject to OAR 340-23-040, 340-23-042, 340-23-043 and 340-23-090(7), and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.
 - (7) Upon publication by EPA of notice in the Federal Register that the Medford-Ashland Air Quality Maintenance Area or the Grants Pass Urban Growth Area or the Grants Pass Urban Growth Area has failed to attain the National Ambient Air Quality Standard for PM₁₀ by the attainment date required in the Clean Air Act, all open burning is prohibited within the Rogue Basin open burning control area during November, December, January, and February unless authorized pursuant to 340-23-100.

(NOTE: This rule is included in the State of Oregon Clean Air Act Implementation Plan as adopted by the Environmental Quality Commission under OAR 340-20-047.)

Stat. Auth.: ORS Ch. 468 & 468A
Hist.: DEQ 27-1981, f. & ef. 9-8-81; DEQ 10-1984, f. 5-29-84, ef. 6-16-84; AQ 18-1992, f. & ef. 3-11-92; AQ 1-1993, f. & ef. 3-9-93

OREGON ADMINISTRATIVE RULES
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(NOTE: This rule is included in the State of Oregon Clean Air Act Implementation Plan as adopted by the Environmental Quality Commission under OAR 340-20-047.)

Stat. Auth.: ORS Ch. 468 & 468A
Hist.: DEQ 27-1981, f. & ef. 9-8-81; AQ 3-1992, f. & ef. 11-13-91
AQ 1-1993, f. & ef. 3-9-93

Letter Permits

340-23-100

- (1) Open Burning of commercial, industrial, construction or demolition waste on a singly occurring or infrequent basis or the open burning of yard debris which is otherwise prohibited, may be permitted by a letter permit issued by the Department in accordance with this rule and subject to OAR 340-23-040, 340-23-042 and 340-23-043, and the requirements and prohibitions of local jurisdictions and the State Fire Marshal. OAR 340-14-025, 340-20-140, and 340-20-150 through 340-20-185 shall not apply.
- (2) A letter permit may only be issued on the basis of a written application for disposal of material by burning which has been approved by the Department. Each application for a letter permit shall contain the following items:
 - (a) The quantity and type of material proposed to be burned;
 - (b) A listing of all alternative disposal methods and potential costs which have been identified or investigated;

Appendix B
City of Oakland
Debris Removal
Permit Information

**CITY OF OAKLAND
DEBRIS REMOVAL PERMIT INFORMATION
FOR OWNERS AND CONTRACTORS ACTING INDEPENDENTLY OF THE
CITY IN THE FIRE-DAMAGED HILL AREA**

1. Starting Tuesday, November 19, 1991, owners and their contractors will be required to obtain a DEBRIS REMOVAL PERMIT to clean privately-owned property in the Oakland Hills Fire-damaged Area. This also includes work underway. **There will be no fee for this permit.**
2. DEBRIS REMOVAL PERMITS will be issued from the Community Assistance Center, 5354 Claremont Avenue, Oakland at the Public Works table.
3. Permits will be issued to the property owner or the property owner's representative, such as a contractor, subject to the owner's authorization and permission to enter the subject property.
4. Contractors representing owners must show proof of a Business Tax Certificate that authorizes the company or individual to do business in the City of Oakland.
5. A State contractor's license is not required to do general fire cleanup work.
6. An employer must show proof of Workers' Compensation Certificate.
7. No bonding requirements will be set by the City, but the owner takes responsibility for all work related to such cleanup performed privately and should obtain prudent assurance from a contractor or other workers that **all work will be performed up to City, state, and federal standards** and the amended emergency order number 3.
8. Failure to abide by the debris removal standards may result in the owner or contractor being cited and/or a \$1000 penalty being levied: plus withholding of any other cleanup or property development permits to the permittee until all penalties are paid.
9. Debris must be sprayed with water and kept wet to prevent possible health hazards from airborne dust and contaminants. If the particular lot being cleaned does not have an operating water connection, permittee must bring water to the property. Connection to a nearby East Bay Municipal Utility District (EBMUD) hydrant may be accessed by signing out for a hydrant meter from the EBMUD business office at 395 - 11th St. in downtown Oakland (ph: 451-3440). A deposit is required for a 1" or 3" meter and billing is based on a rental and usage fee.
10. Non-hazardous debris may be disposed of properly by calling the Oakland Scavenger Company at 562-1673 for a debris box or by delivering the material safely to the Davis Street Transfer Station, 2615 Davis Street, San Leandro. The Transfer Station is open 7 days a week, except holidays, 8:00 a.m. to 5:00 p.m. Call 638-2303 for information, including information about payment and accounting.

Contractors are required to certify in writing at the landfill that **"NO HAZARDOUS WASTE, NO HOUSEHOLD HAZARDOUS WASTE, AND NO LIQUIDS ARE CONTAINED IN ANY LOAD OF DEBRIS."**

Salvageable metals, bricks, and wood should be separated and recycled.

11. All owners or contractors performing debris removal must bring a certificate to the Public Works Permit representative at the Community Assistance Center with a statement from the garbage disposal operator acknowledging receipt of the fire damaged debris, with date, times, amount (truck loads) received.
12. After clean up, covering of the disturbed areas using erosion control blankets or jute netting is required by the City of Oakland. Other erosion control protection measures are the responsibility of the property owner.
13. A City inspector will verify that all work has been completed properly. Owners or contractors can schedule an inspection at the Community Assistance Center or by calling (510) 273-3055 for inspection.
14. In no case can foundations be removed as part of the cleanup without a supplemental permit for foundation removal. Information on this permit can be obtained at the Community Assistance Center.
15. Upon verification that the cleanup was completed, that appropriate soil erosion measures have been implemented, and that the debris has been disposed of properly, the permit work will be deemed complete by the City.
16. If the lot has been cleaned, call (510) 273-3055 for a City inspector to verify that the lot has been cleaned according to the City standards.
17. Individuals with vacant lots and no debris removal needs should call (510) 273-3055 to confirm that the lot is free from debris.

If you have questions on the cleanup requirements or discover any hazardous materials on your property during the debris removal, please call the Cleanup Hotline at (510) 419-6800.

updated 11/20/91

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**CITY OF OAKLAND
DEBRIS REMOVAL REQUIREMENTS
FOR PARCEL OWNERS AND CONTRACTORS ACTING INDEPENDENTLY**

This brief statement of requirements for debris removal is intended for those homeowners who choose to act independently of the City of Oakland cleanup program.

Those individuals or corporations and the contractors in their employ must obtain a Debris Removal Permit. Conditions of the Permit require the following:

1. Meet all regulatory guidelines, including but not limited to:
 - a) California Occupational Health and Safety Administration (Cal-OSHA) and all federal OSHA regulations;
 - b) state and federal Environmental Protection Agency (Cal-EPA and EPA) requirements and regulations regarding waste materials handling; and
 - c) federal Resource Conservation and Recovery Act (RCRA) requirements and regulations regarding disposal of hazardous waste.
2. Remove all debris and ash including broken concrete, loose bricks, and broken glass.
3. Demolish and remove chimneys and unrepairable structures to the foundation level. Foundations, retaining walls, on-grade concrete slabs, and patios must be left in place to help prevent soil erosion and landslides unless deemed unsafe by City engineers. Foundation removal must be in accordance with requirements of the Foundation Removal Permit.
4. Demolish and remove all above-grade building stairways to foundation height.
5. During debris removal and cleanup, all material must be sprayed with water and kept wet to reduce airborne dust and contaminants.
6. Rake clean all dirt areas and sweep improved surfaces.
7. Remove all debris from site and transport it to a legal disposal site willing to accept the debris. Provide satisfactory evidence/receipt to the City that the debris was properly disposed.
8. Maintain existing retaining walls on the property in a safe condition.
9. Protect public facilities and adjacent properties from harm.
10. If debris box is ordered for the debris removal, it must be placed on private property or off the public street travel way.
11. Contact USA Underground Alert to mark all utilities. Property owners should not interfere with such utilities.
12. After cleanup, covering of the disturbed areas using erosion control blankets or jute netting is required by the City of Oakland within five (5) days of debris clearance.
13. Any City installed erosion control measures disturbed by the cleanup must be replaced in kind.
14. Prevent disturbance or destruction of remaining wildlife resources.
15. Protect existing survey monuments and property corners.
16. Comply with all other regulations or laws, of local, state, and federal agencies.

For additional information concerning the cleanup standards, please call 273-3055.
Property owners should contact their insurers prior to contracting with individual contractors.

CAL-OSHA CONCERNS AND REQUIREMENTS FOR DEBRIS CLEARING OPERATIONS

HOMEOWNERS OR THEIR CONTRACTORS WHO HAVE EMPLOYEES, EVEN IF ONLY TEMPORARY OR PART-TIME, NEED TO KNOW THAT CAL / OSHA HAS JURISDICTION OVER THE SAFETY AND HEALTH ASPECTS OF EMPLOYEE WORKING CONDITIONS. SOME GUIDELINES ARE NOTED BELOW:

- Before work commences, carefully survey the work site to identify possible hazards and to determine safe work procedures. Look for possible toxic materials, unsafe working surfaces and holes which may cause falls and slips, impalement hazards, unstable elevated structures like chimneys and partially damaged buildings, unsupported soil or cave-in hazards, and the capability to keep debris wet during removal.
- For contractors conducting debris clearing operations the Construction Safety Orders apply.
- If destroyed homes were built or modified between 1920 through the late 1970s, they likely contain asbestos in one or more of the following: heating system insulation, transite siding, roofing felts, drywall joint compounds, floor tiles and floor tile mastic. Although significant portions of the asbestos containing materials were destroyed by the intense heat, some asbestos remains in the debris.
- Keep debris wet during clearing operations. This keeps asbestos fibers and dust out of the air and out of the breathing zones of workers.
- If you suspect that your home incorporated asbestos containing material and that asbestos containing material still exists in the debris, you can have the suspected material tested by a certified laboratory. If the tests are positive, beyond keeping all the debris wet during removal, you can take the added precaution for yourself and your workers by using an approved, rated dust respirator.
- If unknown or partially destroyed chemicals are encountered, leave the area and call a certified toxic waste handler.
- Know how to summon emergency assistance for workers.
- Provide debris clearing workers with hard hats, safety goggles, approved dust respirators, if necessary, work gloves, preferably canvas and leather, work boots with good ankle protection and protection from protruding nails. Provide drinking water, portable toilets, and hand washing facilities.
- Provide other personal protective equipment, if needed, for specific tools.
- Provide training and orientation to workers in a language they understand concerning work procedures, potential hazards, and correct work procedures and tool use.
- California employers are required to have an Injury and Illness Prevention Program.
- Provide close supervision.

For additional information, contact CAL / OSHA at (510) 568-8602

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Appendix C
Regional Disaster
Debris Management
Plan - Task Matrix
and Timeline

**Regional Disaster Debris Management Plan
Task Matrix and Timeline**

Recommended Practice and Key Elements	Responsible	Assist	Key Dates / Timeline ¹	Location of Information		
				RDDML	RDDMP	Agency
Recommended Practice 1 - Information						
• Inventory of regional solid waste disposal, recycling and processing facilities	M		Completed: TBA Update schedule: Every 2 years	X	X	
• Inventory of regional debris removal resources	ODOT, LG	AC, H, PS	Completed: 1/97 Update schedule: Every 3 years	X	X	X
• Regional market capacity assessment	M		Completed: TBA Update schedule: TBA	X	X	
• Debris tonnage predictions	M	AC, LG	Completed: 3/97 Update schedule: Every 5 years	X	X	
• Inventory of potential temporary debris disposal sites	ODOT, LG	AC, M	Completed: 6/97 Update schedule: Annually	X	X	X
• Prediction of need for Metro hazardous waste services	M	DEQ	Completed: 3/97 Update schedule: Every 5 years	X	X	
• Real-time assessment of system capacity for debris removal	M	LG, H, PS	Completed: 9/96 Update schedule: Every 2 years	X	X	
• Disaster debris management information collection and dissemination	M		Ongoing task	N/A	N/A	N/A

Legend:

F = Federal Emergency Management Agency
 AC = U.S. Army Corps of Engineers
 ODOT = Oregon Department of Transportation
 DEQ = Oregon Department of Environmental Quality
 REMG = Regional Emergency Management Group

M = Metro
 LG = Local Government
 H = Hauler
 PS = Private Sector

 RDDML - This information or document is available in the Regional Disaster Debris Management Library, Metro
 RDDMP - This information or document is available as an appendix to the Regional Disaster Debris Management Plan
 Agency - This information or document is on-file at applicable agencies or jurisdictions

¹The schedule for element updates should be followed barring any circumstances that make it necessary to update, such as a disaster or fundamental change in the solid waste system.

Recommended Practice and Key Elements	Responsible	Assist	Key Dates / Timeline	Location of Information		
				RDDML	RDDMP	Agency
Recommended Practice 2 - Response Phase						
• Response phase strategies development	M	DEQ, ODOT, LG, H, PS	Completed: 10/96 Update schedule: Every 5 years		X	
• Information/communication system guidelines	M	F, AC, DEQ, ODOT, LG, H, PS	Completed: 10/96 Update schedule: Every 5 years		X	
• Designate debris removal coordinators	M, LG		Completed: 1/97 Update schedule: As needed	X		X

Recommended Practice and Key Elements	Responsible	Assist	Key Dates / Timeline	Location of Information		
				RDDML	RDDMP	Agency
Recommended Practice 3 - Recovery Phase						
• Development of guidelines for recovery phase disaster debris management efforts.	DEQ, M, LG	F, AC, ODOT, H, PS	Completed: 10/96 Update schedule: Every 5 years		X	
• Development of guidelines for recovery phase disaster debris collection, processing, and disposal.	M, LG	F, AC, DEQ, ODOT, H, PS	Completed: 10/96 Update schedule: Every 5 years		X	
• Obtain agreements with non-system facilities.	M		Completed: 12/96 Update schedule: Every 2 years			X

Recommended Practice and Key Elements	Responsible	Assist	Key Dates / Timeline	Location of Information		
				RDDML	RDDMP	Agency
Recommended Practice 4 - Fiscal/Financial Arrangements						
• Develop and maintain standard form contracts.	M, LG		Discretionary			X
• Develop and maintain tracking system for disaster debris management expenses.	M, LG		LG - Discretionary M - Completed: 11/96 Update schedule: As needed	X		X
• Develop and maintain tracking system for disaster debris tons.	M		Completed: 3/97 Update schedule: As needed	X		X
• Estimate potential financial responsibilities.	M, LG		LG - Discretionary M - Completed: 9/96 Update schedule: Every 2 years			X
• Develop contingencies for financial arrangements and tipping fees at Metro transfer stations.	M		Completed: TBA Update schedule: Ongoing			X

Recommended Practice and Key Elements	Responsible	Assist	Key Dates / Timeline	Location of Information		
				RDDML	RDDMP	Agency
Recommended Practice 5 - Coordination of Efforts						
<ul style="list-style-type: none"> Establish a regional Memorandum of Understanding for solid waste services after a disaster. 	M	LG, H, PS	Completed: 3/97 Update schedule: As needed	X	X	X
<ul style="list-style-type: none"> Designate administrator for Regional Memorandum of Understanding 	REMG		Completed: 12/96 Update Schedule: As needed	X		
<ul style="list-style-type: none"> Review of Metro agreements with private sector. 	M		Ongoing and as needed			X
<ul style="list-style-type: none"> Prepare mutual aid agreements between local governments. 	LG		Discretionary			X

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Appendix D
Inventory of Regional
Solid Waste Disposal,
Recycling, and
Processing Facilities*

*To be added when completed

Appendix E
Inventory of Regional
Debris Removal
Resources*

*To be added when completed

Appendix F
Regional Recycling
Market Capacity
Assessment*

*To be added when completed

Appendix G

Debris Tonnage Predictions*

*To be added when completed

Appendix H
Inventory of Potential
Temporary Debris
Storage Sites*

*To be added when completed

Appendix I
Prediction of Need
for Metro Hazardous
Waste Services*

*To be added when completed

Appendix J

Waste Storage and Handling Capacity Analysis for Disaster Debris Management Planning

Waste Storage and Handling Capacity Analysis for Disaster Debris Management Planning

Dawit Solomon, Associate Engineer
Metro
July 29, 1996

Objective

The main objective of this analysis is to evaluate the capability of Metro South Station (MSS), Metro Central Station (MCS), and the Forest Grove Transfer Station (FGS) to store waste on site. The analysis evaluates the available floor space and storage space that can be used on site, including all available drop boxes and transfer trailers. In addition, the haulers' capacity is computed.

Two scenarios are used:

Scenario-I: The facility is unable to transport waste out from the transfer station due to a disaster, such as a fire, explosion, earthquake, or flood. Waste is still accepted from haulers and the compactors are functional and in operation.

Scenario-II: The facility is unable to transport waste outside the transfer station due to a disaster, such as a fire, explosion, earthquake, or flood. Waste is still accepted from haulers. All the compactors are down due to power failure or some other major equipment damage.

Assumptions

In order to quantify the evaluation methodology, several assumptions were made to provide a more definitive problem statement and analysis approach. The following assumptions were made:

- Jack Gray trailers are available for storage whenever the compactors are in operation (50 trailers with 25 of the trailers full at any given time)
- There is no yard debris stored
- There are no recycled materials being accepted
- All recyclable material drop boxes at the MSS and MCS are emptied to provide storage space
- All conditions are regular operating conditions, i.e., no increase in hours open or personnel, etc.
- All incoming waste density is 300 lbs/Cu. Yd. (Non-compacted waste density)
- Incoming waste is at a rate comparable to FY 95-96 rates and no waste is going out of the facilities
- Self-haulers are not allowed to use the facilities

The following assumptions were made in the analysis of each facility's capacity:

Metro South Transfer Station:

- Pit area available for use: 40 ft. x 110 ft.
- Height of the maximum waste pile above the pit rim: 14 ft.
- Public side of the pit is used as stock piling area: 2/3 of the area with 14 ft high piles.
- Commercial side of the pit is used to stock pile waste: 1/2 of the area at 14 ft high piles.

Metro Central Transfer Station:

- Storage piles are 15 ft high since there is equipment available that allows the greater height.
- Wood lines and all tipping floors (Bay-1, Bay-2, Bay-3) are all used as storage areas.

Forest Grove Transfer Station:

- All transfer trucks and drop boxes are used for storage.
- Each transfer trailer has a 22 tons capacity.

Jack Gray Trucking:

- Half the transfer trailers owned by Jack Gray are used as storage units (100 trailers with 50 trailers at each transfer station with 25 of the trailers full at any given time).
- Each transfer trailers capacity is 29 tons.

Haulers:

- All commercial trucks that deliver waste to Metro facilities are used as storage.
- Data made available from Jeff Stone is definitive.
- Each of Metro registered hauler's vehicle capacity is the maximum load delivered on a single visit.
- Total haulers' capacity is equivalent to the total sum of the maximum load of each commercial vehicle that utilizes MSS and MCS.
- During a disaster, haulers are diverted from the transfer stations that are full to the next closest transfer stations until all the transfer stations are full, at which point haulers collect waste and store the waste in their trucks.

Approach

In the evaluation of the waste storage and handling capability, two stages were noted where waste can be stored.

A) Transfer Stations: Pit, tipping floor, transfer trailers, and drop boxes

Waste can be stored inside the transfer stations (MSS, MCS, FGS). Each facility has a different layout and waste processing methodology. Storage capacity was determined at each facility by determining the available space for storage. This involved measuring floor areas and average waste pile height, inventorying available drop boxes and available transfer trailers, and asking facility operators for information on average drop box tonnage, available storage space, and maximum trailer capacity - specifically in regard to FGS.

B) Haulers: Trucks, transfer trailers, flat beds, drop boxes, and loaders

Metro maintains a record of commercial hauler vehicle trips, including the day and time the vehicle utilized one of Metro's facilities and the tonnage disposed at the sites. The data gathered during FY 95-96 was used for this analysis since it reflects the latest information. The capacity of each individual recorded vehicle is determined by the maximum load that specific vehicle delivered at any one time to one of Metro's facilities during FY 95-96. As a result, hauler capacity is determined by adding the maximum load each specific vehicle delivered to Metro.

Results

Utilizing the parameters set forth in the assumptions and following the analysis approach indicated above, the following results were obtained. Within the waste stream there is a capability of storing 12,500 -14,000 tons of waste, depending on whether the compactors are operational or not.

Haulers: There is a realized storage capacity of 2 day's of waste in the trucks and trailers of haulers. Individual hauler capacity will vary as some hauling companies have few trucks, translating to a relatively small storage capability, while larger companies have a greater number of trucks and trailers available. Larger hauling companies may also have extra trucks that can be mobilized during a disaster.

Haulers Capacity: Includes Metro South & Metro Central				
Site	Storage Means	Tonnage	Avg. Daily Waste Delivered	Equiv. Amt. in Days
Haulers Capacity	Trailers/ Hauler Trucks	3,314	1,641	2.0

Scenario-I: Under the working conditions set forth in Scenario-I, the operating period of the waste system would be 6 days of normal weekday delivery of waste. The collection and acceptance of waste would result in FGS reaching its capacity in 1-1/3 day, MSS reaching its capacity in 2-3/4 days and MCS reaching its capacity in 4 days of operation.

Scenario-I: Haulers are diverted from other transfer stations & compactors are functional				
Site	Storage Means	Tonnage	Avg. Daily Waste Delivered	Equiv. Amt. in Days
Forest Grove	Tipping Floor Space	125	204	1.3
	Trailers/Boxes	132	0	
Metro South Jack Grey	Pit + Floor Space	2,497	897	2.75
	Drop Boxes 20 yd. +	270	362	
	Transfer Trailers	870		
Metro Central Jack Grey	Tipping Floor Space	6,077	907	4
	Drop Boxes 20 yd. +	100	385	
	Transfer Trailers	870		
Total		10,900	2,800	N/A

Scenario-II: Under the working conditions set forth in Scenario-II, the operating period of the waste system would be 5-1/3 days of normal weekday collection of garbage when the compactors are operational and functioning. The collection and acceptance of waste would result in the FGS reaching its capacity in 1-1/3 days, MSS reaching its capacity in 2 days, and MCS reaching its capacity in 3-1/3 days of operation.

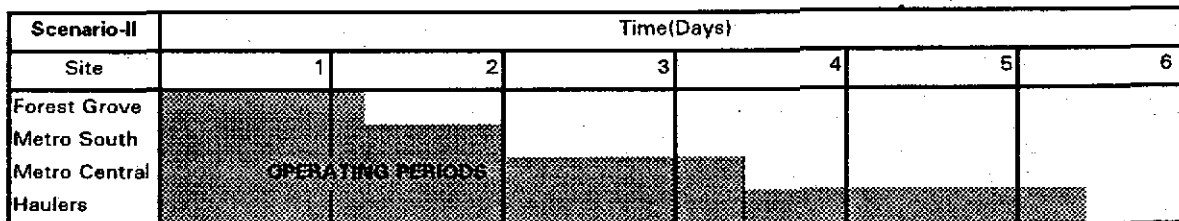
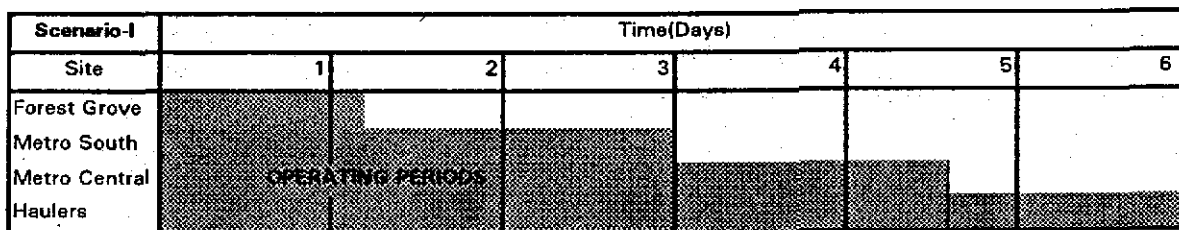
Scenario-II: Haulers are diverted from other transfer stations & compactors are down				
Site	Storage Means	Tonnage	Avg. Daily Waste Delivered	Equiv. Amt. in Days
Forest Grove	Tipping Floor Space	125	204	1.3
	Trailers/Boxes	132	0	
Metro South Jack Grey	Pit + Floor Space	2,497	897	2
	Drop Boxes 20 yd. +	270	362	
	Transfer Trailers	0		
Metro Central Jack Grey	Tipping Floor Space	6,077	907	3.3
	Drop Boxes 20 yd. +	100	385	
	Transfer Trailers	0		
Total		9,200	2,800	N/A

Conclusion

In conclusion, there are certain factors that should be noted but were not taken into consideration in this analysis due to the complexity of their interaction with the system's capacity. They are as follows:

- Compacted waste density - all stock-piled waste was assumed as loose packed waste
- Additional compaction capability of haulers
- Operational change implementations - operation changes whereby the incoming waste would be compacted and then stock-piled
- Neglected floor space - areas that would normally be occupied by disposed appliances, scrap metal, etc.
- Extra trucks and drop boxes owned by hauler (Over 90% of the hauler drop boxes have been taken into consideration in this analysis.)

Consideration of these factors will increase the storage capacity of the waste system.



The effect of the compactors being incapacitated reduces the overall operating period during a disaster down by 1 whole day.

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Appendix K
Documenting and
Tracking Disaster
Debris

Documenting and Tracking Disaster Debris

Vouchers

Tracking disaster debris tonnages and controlling fraud are two concerns after a disaster. One way to help accomplish both is through the implementation of a voucher system. A voucher is a certificate issued by a jurisdiction and given to waste haulers, contractors, and/or citizens (if desired) so that they can deliver disaster-related material to authorized facilities and have that material charged to the jurisdiction's pre-authorized disaster debris account at those facilities. After a disaster, jurisdictions should contact those facilities they wish to authorize for use and make arrangements for a special disaster account to be established for that jurisdiction. (See Attachment K-1 for a sample copy of a voucher)

To help control voucher fraud, the following should be considered:

- Each voucher should be pre-numbered with a unique number and a record made of who each voucher was issued to.
- Vouchers should have the jurisdiction name and logo printed on them.
- Each facility authorized to receive a jurisdiction's vouchers should receive a sample copy of the voucher.
- Measures should be taken to ensure that any pre-made vouchers are kept in a secure place.

Disaster Debris Tickets

Vouchers may not be suitable for all types of disaster debris tracking. If temporary disposal sites are established for citizens, for example, vouchers would not be necessary nor particularly useful. A better choice would be a system whereby a disaster debris ticket with information such as driver name, address from which the load came, and type of waste is filled out for each load brought to the temporary disposal site. A space should also be provided for the driver's signature verifying the load as disaster debris. (See Attachment K-2 for a sample disaster debris ticket)

Disaster debris tickets can also be used at facilities to record information about incoming loads and verify them as disaster debris. For example, after the February 1996 flood that occurred in northwestern Oregon, the two Metro-owned transfer stations offered a special disposal rate to customers self-hauling their own flood debris to the stations. In order to keep a record of the individual loads brought in, debris tickets were filled out for each load.

*Documentation and Tracking of Disaster Debris After the February 1996
Northwestern Oregon Flood*

1. Temporary Disposal Sites

After the flood, some jurisdictions chose to designate temporary disposal sites and provide free disposal of flood debris to their residents. At each temporary disposal site, a flood debris ticket was filled out for each vehicle that brought debris. The ticket included information about where the load came from, who brought it in, and what it contained, as well as the signature of the driver verifying that the load was flood debris. Each ticket also identified the drop box at the disposal site that the load was dumped into.

Drop boxes from temporary disposal sites were brought to disposal facilities with an official voucher verifying that the contents were flood debris and that the load could be debited to the corresponding jurisdiction's special flood debris account.

Vouchers were stapled to their applicable load receipts. Each jurisdiction with a flood debris account was responsible for applying to FEMA for reimbursement of the charges. At some facilities, arrangements were made to delay payment on the accounts until FEMA reimbursement.

Local governments were given record sheets for drop box drivers to record flood debris loads they hauled that would be charged to the jurisdiction's flood debris account. (See Attachment K-3)

2. Other Local Government-Sponsored Services

Some jurisdictions paid for drop box loads of flood debris taken directly from a resident's house to a disposal facility. This service was pre-arranged and a voucher given to the drop box driver for disposal. Information about these loads was obtained by the local government.

3. Self-Haul Loads to Metro Transfer Stations

Self-haul customers with flood debris from their residences or small businesses were allowed to dump at the Metro transfer stations for a reduced fee. (Five dollars for a car or pick-up load and ten dollars with a trailer.) Flood debris tickets were filled out by the scalehouse technicians for each load that came in. The information gathered was essentially the same as that for the temporary disposal sites. Flood debris tickets were attached to the applicable load receipt and charges debited to a special flood account.

4. Flood Debris Loads Dumped at Non-Metro-Owned Facilities

For flexibility and convenience, some local governments made arrangements for flood debris disposal with non-Metro-owned facilities. Some of those arrangements were similar to those that were offered by the Metro transfer stations. Other arrangements were at the discretion of the local government and the disposal facility.

5. Hazardous Waste at Temporary Disposal Sites

Drop off for flood-related household hazardous waste was available at the temporary disposal sites. The hazardous waste technicians kept a daily inventory of material brought to each site each day. As some residents brought non-flood-related household hazardous waste to the sites, hazardous waste technicians recorded whether the material was flood-related or non-flood-related when they were at sites to receive the material. When the material was simply dropped off with no technician to receive it, it was not possible to tell what was flood-related and what was not.

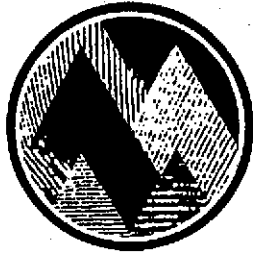
6. Hazardous Waste Received at the Metro Transfer Stations

Residents bringing flood debris to the transfer stations were able to use the Metro hazardous waste facilities to drop off their household hazardous waste. Hazardous waste technicians were not able to keep flood-related hazardous waste separate from the non-flood-related hazardous waste on any given day. However, the flood debris tickets filled out by the scalehouse technicians were used to determine how many loads of flood-related household hazardous waste came in each day. This information was then used to estimate how much of the hazardous waste received at the facility each day was flood related.

FLOOD DEBRIS VOUCHER

Voucher #: VOID

Truck #: _____



METRO

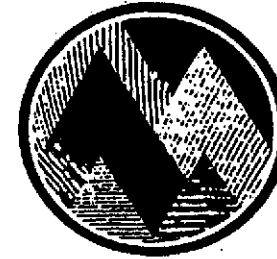
Driver: Present this voucher to a Scalehouse Technician upon arrival at a Metro Transfer Station.

Scalehouse Technician: Attach voucher to load receipt.

FLOOD DEBRIS VOUCHER

Voucher #: VOID

Truck #: _____



METRO

Driver: Present this voucher to a Scalehouse Technician upon arrival at a Metro Transfer Station.

Scalehouse Technician: Attach voucher to load receipt.

Attachment K-1

FLOOD DEBRIS VOUCHER

Voucher #: VOID

Truck #: _____



METRO

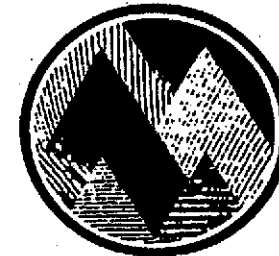
Driver: Present this voucher to a Scalehouse Technician upon arrival at a Metro Transfer Station.

Scalehouse Technician: Attach voucher to load receipt.

FLOOD DEBRIS VOUCHER

Voucher #: VOID

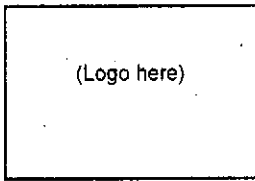
Truck #: _____



METRO

Driver: Present this voucher to a Scalehouse Technician upon arrival at a Metro Transfer Station.

Scalehouse Technician: Attach voucher to load receipt.



FLOOD DEBRIS TICKET

Information Questionnaire

Name: _____
Home Address: _____ Zip Code: _____
Load Origin: _____ Zip Code: _____
If business waste, business address: _____

Type of Waste (check all that apply):

- Household clean-out
- Small business clean-out
- Household hazardous waste

Type of Vehicle (check all that apply):

- Car
- Pick-up
- Other

Hauler: _____
Drop Box #: _____
Truck #: _____
Drop-site Location: _____
Date: _____ Time: _____

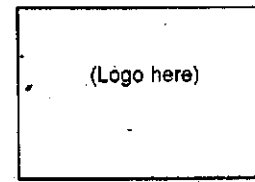
I hereby testify that the material I have brought to this disposal site is flood-related.

Driver Signature: _____

Jurisdiction Authorization: _____

Signature

Print Name



FLOOD DEBRIS TICKET

Information Questionnaire

Name: _____
Home Address: _____ Zip Code: _____
Load Origin: _____ Zip Code: _____
If business waste, business address: _____

Type of Waste (check all that apply):

- Household clean-out
- Small business clean-out
- Household hazardous waste

Type of Vehicle (check all that apply):

- Car
- Pick-up
- Other

Hauler: _____
Drop Box #: _____
Truck #: _____
Drop-site Location: _____
Date: _____ Time: _____

I hereby testify that the material I have brought to this disposal site is flood-related.

Driver Signature: _____

Jurisdiction Authorization: _____

Signature

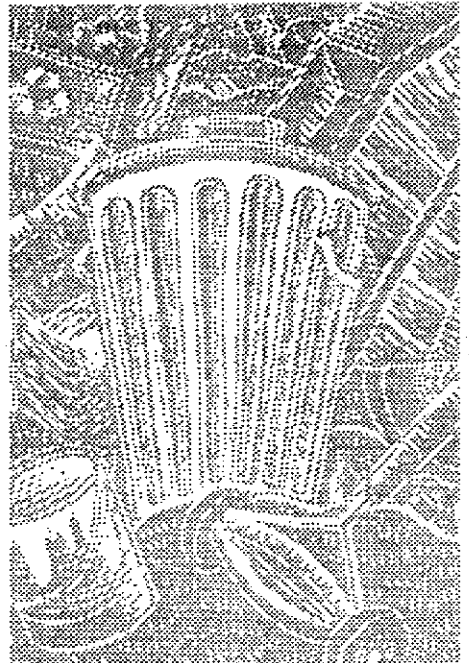
Print Name

Attachment K-2

Appendix L
Memorandum of
Understanding for
Solid Waste Services
After a Disaster*

Section 3

Appendices and Glossaries



Appendices

- A. Tables, Figures and Maps
- B. Technical References
- C. Year Six Metro Local Government Annual Waste Reduction Plans
- D. Metro's Authority to Implement the Regional Solid Waste Management Plan
- E. Solid Waste Management Alternatives: Technical Specifications and Expected Performance*

*Appendix E has not been included in this document due to its length. Call the Metro records specialist (797-1675) to secure a copy of the appendix.

Appendix A

Tables, Figures and Maps

- Table 2.2 Waste Composition
by Material and Generator

- Table 2.3 Material Collected in Curbside
Recycling Programs
(Single Family Residential) 1994-95

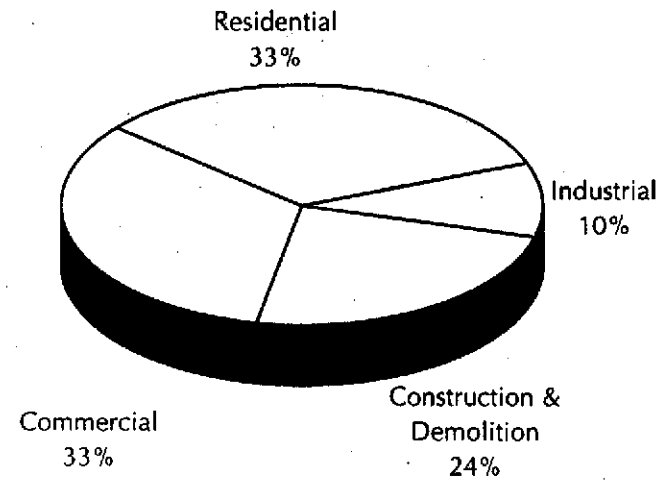
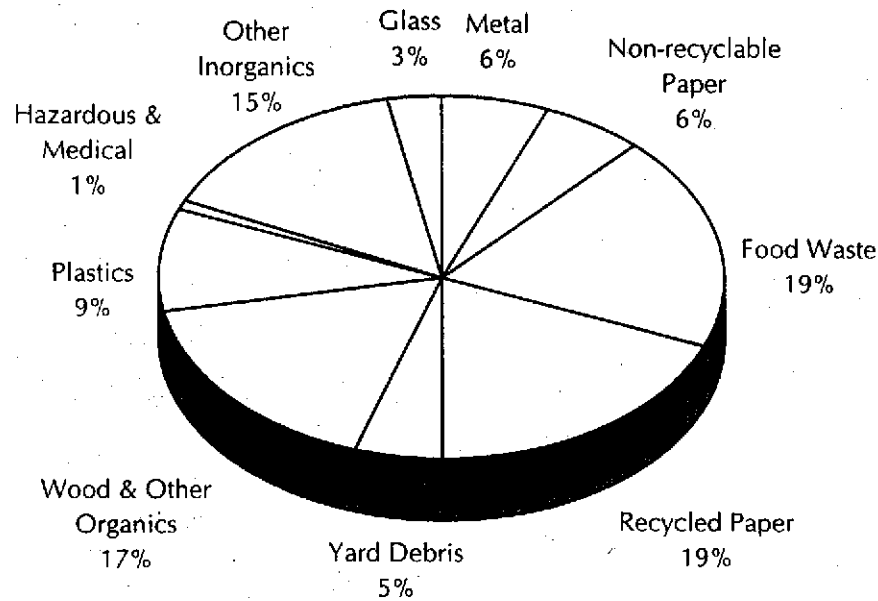
- Table 2.4 Yard Debris Collection Programs
(Single Family Residential) 1994-95

- Table 2.5 Regional Solid Waste Facilities

- Map 2.1 Regional Solid Waste Facilities

This appendix includes tables, figures and maps referred to in Chapter 2 of the RSWMP.

Table 2.2 - Waste Composition by Material and Generator



Material Category	Total		Residential Waste		Commercial Waste		Industrial Waste		Construction & Demolition Waste	
	Tons/Year	Percent	Tons/Year	Percent	Tons/Year	Percent	Tons/Year	Percent	Tons/Year	Percent
Recyclable Paper	196,504	19%	75,398	21%	87,018	24%	15,649	16%	19,307	8%
Non-Recyclable Paper	64,672	6%	20,630	6%	31,838	9%	7,964	8%	4,258	2%
Food Waste	200,386	19%	95,399	27%	96,033	27%	6,952	7%	1,999	1%
Yard Debris	49,459	5%	27,871	8%	13,068	4%	2,403	2%	7,717	3%
Wood/Lumber	94,410	9%	11,455	3%	13,938	4%	16,270	17%	53,205	23%
Other Organics	83,120	8%	35,142	10%	24,309	7%	7,000	7%	17,302	7%
Plastics	95,581	9%	28,252	8%	42,939	12%	16,495	17%	7,782	3%
Metal	60,800	6%	23,786	7%	16,570	5%	7,851	8%	12,535	5%
Glass	28,789	3%	11,818	3%	10,785	3%	4,829	5%	1,347	1%
Other Inorganics	156,864	15%	22,643	6%	16,613	5%	11,786	12%	106,021	46%
Hazardous and Medical Waste	6,750	1%	2,586	1%	2,926	1%	248	0%	974	0%
Total Tons	1,037,334	100%	351,403	100%	356,036	100%	97,448	100%	232,447	100%

* Source: 1995 Revision - Metro 1993-94 Waste Characterization Study Final Report - Combined Four Season Study Activity
Excludes Petroleum Contaminated Soils, Special Waste and Car Fluff.

Table 2.3 - Material Collected in Single-Family Residential Curbside Recycling Programs, 1994-95

County	Service and Program Areas	Weekly Curbside Established	Materials Collected					Containers			
			Principal Recyclable Materials*	Plastic Bottles	Magazines	Aerosol Cans	Aseptic Boxes	Scrap Paper	Distributed	Type	
CLACKAMAS	Clackamas County	Unincorp. area in/outside USB		X	X	X	X	X			
		Happy Valley, Sandy, Molalla	Apr-90	X	X	X	X	X	Apr-90	1 - 14 gal	
		Canby	Apr-90	X	X	X	X		Apr-90	1 - 14 gal	
		Oregon City	Nov-88	X	X	X	X	X	Apr-90	1 - 14 gal	
		Gladstone		X	X	X	X	X	Apr-90	1 - 14 gal	
		West Linn		X	X	X	X	X	Apr-90	1 - 14 gal	
		Estacada	1986(est.)	X	milk jugs only				Apr-90	1 - 14 gal	
		Johnson City	Incorporated area	Apr-90	X	X	X		X	Apr-90	1 - 14 gal
		Raivergrove	Incorporated area	Apr-90	X	X	X	X	X	Apr-90	1 - 14 gal
		Lake Oswego	Incorporated area	Aug-90	X	X	X	X	X	Aug-90	1 - 14 gal
Milwaukie	Incorporated area	Jul-90	X	X	X	X	X	Jul-90	1 - 14 gal		
MULTNOMAH	Portland	Incorporated area plus USB	Feb-92	X	X	X	X	X	Feb-92	2 - 14 gal	
		Maywood Park	Feb-92	X		X			Feb-92	2 - 14 gal	
		East Multnomah	May-89	X	X	X	X		Oct-90	1 - 14 gal	
		County Cities	May-82	X	X	X	X		Oct-90		
			May-89	X	X	X	X		Oct-90		
		Troutdale	May-89	X	X	X	X		Oct-90	1 - 14 gal	
WASHINGTON	Washington Co.	Unincorporated area in USB**	Feb-91	X	X	X	X		Feb-92	1 - 14 gal	
		Beaverton	Feb-91	X	X	X	X		Feb-92	1 - 14 gal	
		Hillsboro	Feb-91	X	X	X	X		Feb-92	1 - 14 gal	
		Tigard	Feb-91	X	X	X	X		Feb-92	1 - 14 gal	
		Tualatin	Feb-91	X	X	X	X		Feb-92	1 - 14 gal	
		Forest Grove	Feb-91	X	X	X	X		Feb-92	1 - 14 gal	
		Cornelius	Feb-91	X	X	X	X		Feb-92	1 - 14 gal	
		Sherwood	Feb-91	X	X	X	X		Feb-92	1 - 14 gal	
		King City	Feb-91	X	milk jugs only	X	X		Feb-92	1 - 14 gal	
		Durham	Feb-91	X	X	X	X		Feb-92	1 - 14 gal	
		Wilsonville	Feb-91	X	X	X	X		Feb-92	1 - 14 gal	

* Principal Recyclable Materials: Newspaper, OCC/Kraft paper, Glass, Tin, Aluminum, Motor Oil, and Metals. Yard Debris is also officially a principal recyclable but is covered in following table.
 **USB - Urban Services Boundary; the area within the urban growth boundary where individual jurisdictions negotiate who will provide water, sewer, and stormwater services to the residents.
 Plastic bottles includes containers with a neck narrower than the body, does not include yogurt containers.

Table 2.4- Yard Debris Collection Programs, 1994-95

County	Service and Program Areas	Service Frequency			Exemption Program*	Container		Date Implemented	Leaf Program**
		Weekly	Every other week	Other		Hauler Provided	Customer Provided		
CLACKAMAS									
Clackamas County	Unincorporated area in USB, Happy Valley, Sandy, Molalla, Canby	X			X (annual fee)	X (60 gal)	X (32 gal)	1992	
	Oregon City	X				X (60 gal)	X	1980	
	Gladstone	X				X (60 gal)	X	1982	X
	West Linn	X ⁽¹⁾		depot/on call				1995 ⁽¹⁾	
	Johnson City	X					X (32 gal)	1989	
	Lake Oswego	Incorporated area	X			X (no fee)	X (60 gal)	X (32 gal)	1992
Milwaukie	Incorporated area	X				X (60 gal)	X (32 gal)	1992	
MULTNOMAH									
Portland	Incorporated area plus USB		X ⁽⁴⁾			Carts offered	X (32 gal)	1993	X
Maywood Park	Incorporated area	X ^{***}					X		
East Multnomah	Fairview	X			X (one time fee)	X (60 gal)	X (32 gal)	1992	
County Cities	Gresham (5)	X			X (one time fee)	X (60 gal)	X (32 gal)	1992	X
	Wood Village	X			X (one time fee)	X (60 gal)	X (32 gal)	1992	
Troutdale	Incorporated area	X			X (one time fee)	X (60 gal)	X (32 gal)	1992	
WASHINGTON									
Washington Co.	Unincorporated area in USB		X				X (32 gal)	1994	
	Beaverton		X			X (60 gal)		Oct-94	
	Hillsboro		X			X (60 gal)		1994	
	Tigard		X			X (60 gal)		1994	
	Tualatin	X				X (90 gal)		1991	
	Forest Grove			****				TBD	
	Cornelius			****				TBD	
	Sherwood		X ⁽²⁾					1994	
	King City			X ⁽³⁾				TBD	
	Durham		X				X (60 gal)	1994	
	Wilsonville (6)	X		X	X (no fee)	X (60 gal)	X (35 gal)	1994	

* Allows customers to not pay for yard debris services. Most programs require that exempt participants demonstrate usage of home composting or landscaping services and pay a small yearly or one-time fee.

** City Collection and composting of street leaves from residential areas.

*** Weekly yard debris curbside 7 months, on-call for other 5 months, 2 community collection events annually.

**** Program is in planning stage. Some elements still have to be determined. Programs currently rely on a depot system.

TBD - To Be Determined

(1) West Linn is planning to implement weekly curbside in April 1995, pending Council approval. Service levels are to be determined.

(2) Every other week collection or compost bin distribution option. Also has an annual collection event.

(3) King City holds two yard debris collection events annually. No other program is proposed.

(4) Portland is testing alternatives to weekly curbside collection during the Spring of 1995.

(5) A large percentage of the City of Gresham is located outside the metropolitan burn ban area.

(6) Charbonneau area has 3 programs: small lots=35 gal. roll carts collected on 1st garbage day of month; larger lots=60 gal. carts collected weekly; and no-fee exemption program w/approved landscape service.

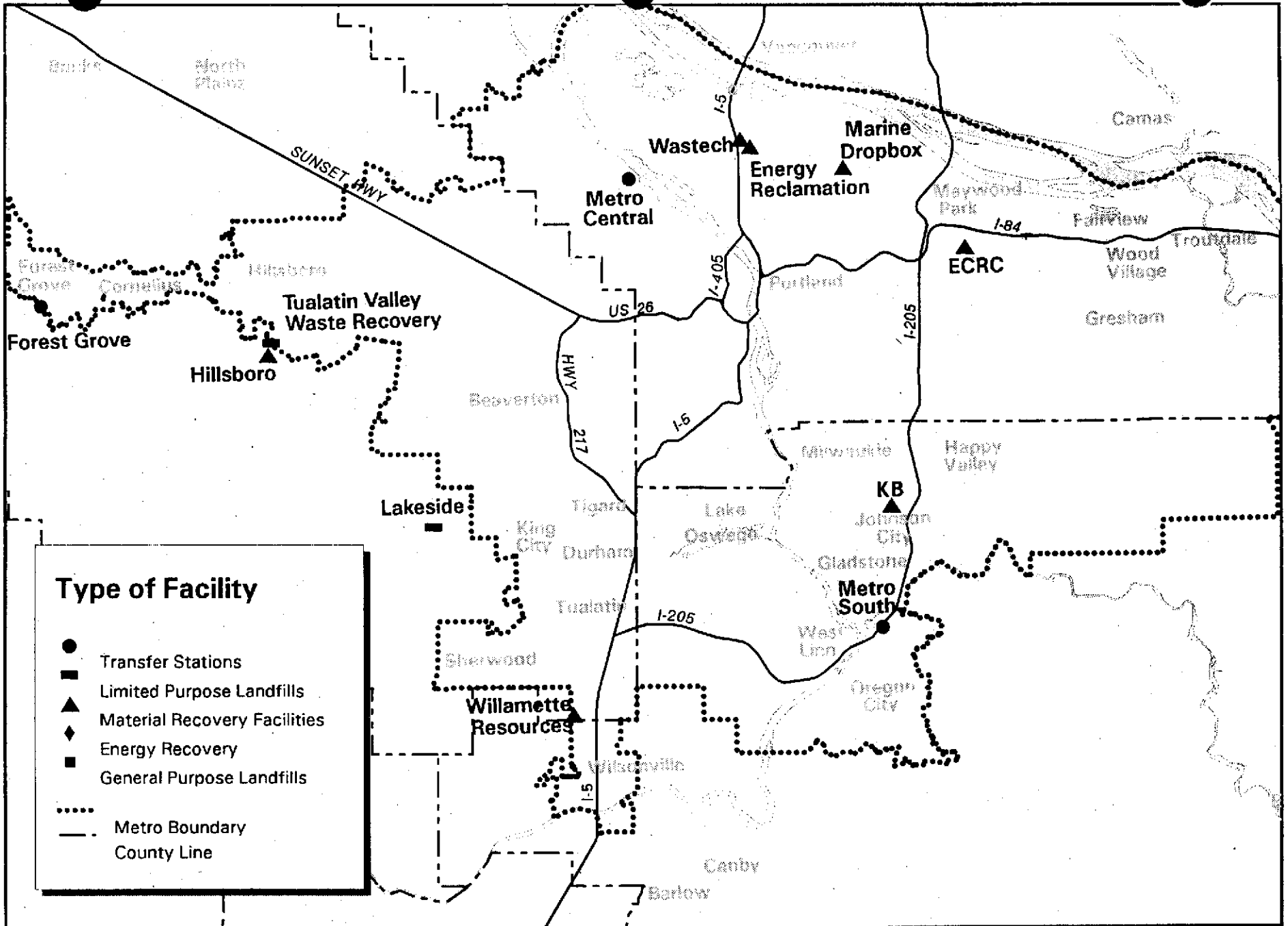
All others = 60 gal. serviced weekly.

Table 2.5 - Regional Solid Waste Facilities

<p>Reuse and Recycle</p>	<p>Mixed Construction/ Demolition Recycling</p> <ul style="list-style-type: none"> • East County Recycling • Grimm's • Lakeside Landfill 	<p>Wood Waste Recovery</p> <ul style="list-style-type: none"> • American Compost & Recycling • Bredl Saw and others • Wood Exchange 	<p>Drywall Recovery</p> <ul style="list-style-type: none"> • Gypsum Wallboard Recycling • Knez Building Materials • United Pacific Recycling
<p>Compost</p>	<p>Yard Debris Composting</p> <ul style="list-style-type: none"> • American Waste Recovery • American Compost • Amazon Recycling • Best Buy in Town • City of West Linn • Danner Nursery • Grimm's Fuel • McFarlane's Bark 	<ul style="list-style-type: none"> • Minsinger Nursery • Portland Leaf • River Cities Recycling • Scott's Hyponex • S & H Logging • Tualatin Valley Recovery • Universal Wood Recycling • Wood Waste Processing 	<p>Vermicompost</p> <ul style="list-style-type: none"> • Oregon Soil
<p>Recovery</p>	<p>Energy Recovery</p> <ul style="list-style-type: none"> • Marion County Energy Recovery 	<p>Petroleum Contaminated Soils (Decontamination Facilities)</p> <ul style="list-style-type: none"> • Oregon Hydrocarbons • PEMCO 	<p>Material Recovery (mixed waste)</p> <ul style="list-style-type: none"> • East County Recycling • Energy Reclamation, Inc. (ERI) • KB Recycling • Marine Drop Box • Metro Central Transfer Station <ul style="list-style-type: none"> • Pride Disposal • TV Waste Recovery • Wastech • Willamette Resources Inc.
<p>Store (temporary)</p>	<p>Treatment and Storage</p> <ul style="list-style-type: none"> • Burlington Environmental • Western Compliance 	<p>Household Hazardous Waste Depot</p> <ul style="list-style-type: none"> • Metro Central Transfer Station • Metro South Transfer Station 	<p>Yard Debris Depot</p> <ul style="list-style-type: none"> • City of Beaverton • Metro Central Transfer Station <ul style="list-style-type: none"> • Metro South Transfer Station • Best Buy in Town
<p>Transfer and Disposal</p>	<p>Limited Purpose Landfill</p> <ul style="list-style-type: none"> • Hillsboro Landfill • Lakeside Landfill <p>General Purpose Landfill</p> <ul style="list-style-type: none"> • Columbia Ridge • Finley Buttes • Northern Wasco County • Riverbend • Roosevelt 	<p>Demolition Landfill</p> <ul style="list-style-type: none"> • Durham Pit and others <p>Hazardous Waste Disposal Facility</p> <ul style="list-style-type: none"> • Chemical Waste Management 	<p>Monofill</p> <ul style="list-style-type: none"> • North Marion County Landfill (Ash from Marion County Energy Recovery Facility) <p>Solid Waste Transfer</p> <ul style="list-style-type: none"> • Forest Grove • Hillsboro Reload • Metro Central Transfer Station • Metro South Transfer Station • Sandy Transfer

Note: These descriptions do not include facilities that exclusively accept source-separated materials, with the exception of certain organic wastes such as yard debris.

Map 1 - Regional Facilities



Introduction

This appendix describes documents that are available to the reader of the Regional Solid Waste Management Plan (RSWMP). Many of these documents were used as resources to develop the 1995-2005 RSWMP. Call the Metro records specialist (797-1675) to order documents published by Metro.

System Measurement

- **SWIS Reports** (published twice annually by Metro). The Solid Waste Information System (SWIS) is a program for integrating data on waste generation, delivery, disposal and recycling. It is used to report historical solid waste data and forecast future waste flows. The information is also used to set rates, build budgets, devise facility management strategies and develop waste reduction programs. The information produced by SWIS is reported on a semi-annual basis. The report includes delivery, disposal and waste reduction data for the region encompassing Clackamas, Multnomah and Washington counties.
- **Recycling and Recovery Level Surveys** (published annually by Metro). Metro conducts the survey each year to estimate the amount of waste diverted from disposal through waste reduction, recycling and recovery. The results help the region measure progress, evaluate programs and plan strategies for future years. The survey also provides an opportunity to track recycling trends and understand market dynamics.
- **Waste Characterization Study, 1993-94 Final Report** (published in February 1995 by Metro). The report details the findings of a four-season study that characterized the region's wastestream by material type, type of generator (residential, commercial, industrial and construction waste generators), where waste loads originate and where they terminate. A one-page summary of the waste characterization findings are included in Chapter 3, Table 2.2. Study results are being used to improve services to haulers of waste, their customers and disposal and recycling facilities. Metro conducted previous waste characterization studies in 1989-90 and 1987.
- **Other Measurement Studies.** Metro periodically conducts studies to measure waste generation, disposal, recycling and recovery activity within specific sectors of the region. These sectors include single-family residential, single-family yard debris, multi-family residential, businesses and the building trades. Study results are used to assess progress, evaluate existing programs and plan new program efforts. Call the Metro records specialist for information about current study results.

Appendix B

Technical References

System Financing

- **Report on Analysis of Rate-Setting Practices** (published by Black & Veatch for Metro in June 1993). The report presents results of an examination of Metro's rate setting methodology by Black & Veatch, a consultant hired by Metro. The report discusses cost-allocation procedures practiced at the time of publication. The consultants also recommend rate development alternatives to enhance Metro's ability to achieve its rate policy objectives.
- **Solid Waste Revenue System Study** (published in January 1994 by Metro). The report summarizes the recommendations of the Metro Solid Waste Advisory Committee for financing the regional solid waste system. The recommendations address user, generator and product charges, as well as benefits to solid waste system customers. Recommendations are summarized in Chapter 8 of the Metro Regional Solid Waste Management Plan.
- **Rate Review Studies** (published periodically by Metro). Metro conducts periodic studies for the purpose of analyzing current and proposed rate policies. The study process can include analysis of past and projected solid waste operating costs, waste flows and other factors. Periodic reports contain information about study findings, recommendations and a documentation of the process used for setting Metro solid waste rates during a stated time period. Study findings and recommendations were most recently published in July 1992.

Waste Reduction

- **Annual Recycling Report to the Oregon Department of Environmental Quality** (published annually by Metro). The state of Oregon requires Metro to file an annual report each calendar year (OAR 340) to satisfy requirements of the state Opportunity to Recycle Act (ORS 459.A). Metro is the reporting agency for jurisdictions within Clackamas, Multnomah and Washington counties. DEQ uses the report information to determine state wide and local waste shed recovery rates, compliance with the Opportunity to Recycle Act requirements and to provide information on the types and amounts of residential and commercial solid waste generated, disposed and recovered in Oregon.

Specific information in the report includes: a matrix of waste reduction program elements selected from a menu of options as provided under state law, disposal site/depot recycling collection, county and city recycling collection, cooperative regional programs, and rate schedules and descriptions of any rate changes. The report also includes exhibits (e.g., brochures, newsletters and flyers) that demonstrate Metro and local government compliance with requirements to inform and

educate the public about opportunities to recycle. (Note: multiple copies of this document are not available. The document can be reviewed at the Metro offices, however.)

- **Biennial Report to the Environmental Quality Commission on the Implementation of the Metro Solid Waste Reduction Program, 1992-93** (published in July 1994 by Metro). The state of Oregon (ORS 459.345) requires Metro to file waste reduction progress reports biennially with the Oregon Department of Environmental Quality, Environmental Quality Commission. These reports describe the status of waste reduction programs, the amounts of waste disposed and recovered at transfer stations and landfills and the amount of material recycled and recovered throughout the region. Other reported information includes comparison of current progress to annual goals, waste reduction projections for the region and a summary of the Metro Regional Environmental Management Department budget. (Note: multiple copies of this document are not available. The document can be reviewed at the Metro offices, however.)
- **Local Government/Metro Waste Reduction Work Program ("Metro Challenge")** (published annually by Metro). Waste reduction work programs are developed collaboratively by Metro and local governments each year. They contain detailed program strategies for implementing the general waste prevention, reuse and recycling practices adopted as part of the Regional Solid Waste Management Plan. The work program identifies activities for Metro, local government and cooperative regional efforts. It also establishes grant funding to assist local governments with the implementation of selected activities.
- **Market Profiles** (published periodically by Metro). Metro periodically updates market profiles for recyclable materials as part of its Recycling Business Assistance program. Separate reports are published for used motor oil, mixed scrap paper, high grade paper, corrugated cardboard, magazines, newsprint, glass, scrap metals, scrap tires, plastics, wood, gypsum and latex paint. These profiles include information about major regional generators, estimated tonnage generated, estimated recovery, end users, handlers and processors, origin of recovered materials, secondary uses and locations of end markets. Each report also summarizes past and present recycling and recovery activity, along with projections and an analysis of market dynamics.
- **Program Analysis Reports** (published periodically by Metro). Under the provisions of Chapter 6 of this RSWMP, Metro will issue periodic reports to assess whether an alternative practice proposed by a local government is equivalent to the recommended practice and to evaluate the effectiveness of a recommended practice.
- **Recycling Business Resource Directory** (published periodically by Metro). The directory is a service of Metro's Recycling

Business Assistance Program. It is a comprehensive guide to the agencies, services and information available to help recycling businesses meet operational and development needs. Information in the directory includes: financial assistance options; economic development resource; marketing, procurement, research and development resources available to recycling businesses; solid waste and recycling information and assistance.

- **Targeted Generator Waste Diversion Strategies in the Non-Residential Sector** (published by Metro in January 1995). The position paper summarizes the specific strategy being used by Metro and other local governments to target waste reduction program efforts in the non-residential sector. The strategy is consistent with the new 1995-2005 RSWMP.
- **Regional Yard Debris Recycling Plan** (published by Metro in January 1991). **Regional Yard Debris Recycling Plan Implementation Summary** (published by Metro in March 1991). The Regional Yard Debris Recycling Plan was adopted by the Metro Council in 1991 to implement portions of the 1988 Regional Solid Waste Management Plan that related to yard debris management. All regional yard debris programs implemented between 1991 and 1995 were consistent with this implementation plan. The 1995-2005 RSWMP replaces the Regional Yard Debris Recycling Plan.
- **Yard Debris Recycling Plan Analysis** (published by Metro in June 1995). This report provides an analysis of how the regional yard debris management system performed under the old Regional Yard Debris Recycling Plan. The report also includes recommendations for future yard debris management. These recommendations are included in the new 1995-2005 RSWMP.

Facility Siting

- **Siting Solid Waste Facilities** (published by Metro in January 1992). The purpose of the guide is to assist city and county planners and officials to implement the RSWMP goals and objectives related to siting solid waste facilities.

Disposal Facility Operations and Household Hazardous Waste Management

- **Metro Hazardous Waste Program Annual Reports** (reports published annually by Metro). These reports summarize annual activities related to household hazardous waste collection at the region's two permanent disposal sites (Metro Central and Metro South Stations), household hazardous waste collection at satellite events and collection of hazardous materials from designated businesses (conditionally exempt generators).

- **Metro South Station Annual Report** (published annually by Metro). The report summarizes annual activities including tonnage transferred to disposal sites, tonnage recycled and recovered, hazardous waste collection, litter patrol, rate and revenue information, noise, dust and odor abatement, employee safety, capital improvements, community enhancement projects and Metro Code enforcement activities.
- **Annual Report of Waste Transport Services and Mitigation of Truck Impacts** (published annually by Metro). The report summarizes the activities of Metro's contractor who transports waste from the two Metro-owned transfer stations to Columbia Ridge Landfill in central Oregon. The report also addresses the requirements of Metro's agreement with the Automobile Club of America.

Illegal Dumping

- **Illegal Dumping Plan** (published by Metro in September 1991) implemented Chapter 4 of the 1988 RSWMP. The 1995-2005 RSWMP is intended to replace the 1991 Illegal Dumping Plan.

Disaster Debris Management

- **Regional Disaster Debris Management Plan** (published by Metro; draft plan available in 1996). Chapter 5 of the 1995-2005 RSWMP adopts goals and objectives related to the removal, recycling and disposal of debris materials in the event of a major natural disaster. Metro is working with the Regional Emergency Management Technical Committee and the Metro Solid Waste Advisory Committee to develop plan to implement those goals and objectives. It is anticipated the plan will be drafted for public review and comment in 1996. The final implementation plan will be adopted by the Metro Council.

Legislation

- **Metro Code** (published by Metro and updated periodically). The code, adopted by the Metro Council through various ordinances, is the legal framework for Metro to administer regional solid waste programs, assess and collect solid waste rates and fees, establish reporting requirements, grant and administer facility franchises, prohibit certain types of activities and grant exemptions to and enforce code provisions.
- **State Solid Waste Legislation** (published by the state of Oregon). Section 13 of the "Oregon State Integrated Resource & Solid Waste Management Plan, 1995-2005," contains a useful index of state statutes and rules relating to solid waste. The index is provided as a reference tool for anyone needing to learn about specific solid waste management requirements in

Oregon. The annotated version reflects most of the significant statutes, but does not represent a complete summary or legal interpretation of the statutes cited. The reader may wish to personally consult the statutes or to consult with legal counsel for a complete interpretation of Oregon solid waste law. Call DEQ at 229-5913 to order a copy of the plan document.

State Planning Documents

- **Oregon State Integrated Resource and Solid Waste Management Plan: 1995-2005** (published in January 1994 by the Oregon Department of Environmental Quality). The 10-year plan, developed by the Oregon Department of Environmental Quality, provides overall guidance and direction for the development of solid waste policy in Oregon. The plan emphasizes waste prevention and public education on all areas of solid waste management including waste prevention, recycling and disposal. The plan also emphasizes the public-private partnership necessary to develop a solid waste system that is economically self-sustaining and places value on waste as a resource. Call DEQ at 229-5913 to order a copy of the complete plan document or an executive summary.

FY 95-96 Framework For Metro Challenge

The Metro Challenge program provides local governments with partial funding to complete recycling and waste reduction activities within their jurisdiction. During the past five years, a prescribed list of work items was developed for all jurisdictions regardless of the jurisdiction's size, maturity of their recycling programs or other local conditions. Many of the past activities were the basic "tried and true" programs successfully implemented region-wide. Future advances in waste reduction will be more difficult requiring greater creativity and the development of new programs and approaches. Unlike past programs, new efforts have few models to replicate. In addition, existing programs require continued updating so that the current recycling and waste reduction base is not eroded.

Metro Challenge will continue to help local governments defray the cost of both existing and new waste reduction and recycling efforts. Metro Challenge will be reformatted for FY 1995-96 to allow jurisdictions to develop and implement new program ideas based on local circumstances. The experience they gain will be shared with other jurisdictions to provide mutual benefit. Existing programs will be expanded and updated as well.

The basic framework for administering the FY 95-96 Metro Challenge program is as follows:

1. The work list will contain two parts: foundation and expansion elements. Foundation elements are those that should be implemented by every local government to ensure regional continuity and to provide a basic level of service. This portion of Metro Challenge recognizes that existing programs need attention and resources to stay viable and grow. Currently jurisdictions are at different levels of implementation of foundation elements. Those lagging behind will be able to focus on improvement where needed. The expansion elements contain items that are new and emerging on a region-wide basis or are unique to one jurisdiction.
2. Local governments with populations more than 30,000 will select 11 expansion elements as part of their annual waste reduction work plans; one from each program area and four additional from any area. Local governments with populations less than 30,000 will select one expansion element from each program area and one additional item for a total of eight elements. Joint projects between local governments, Metro and DEQ or combinations thereof are encouraged. In all cases, the experience gained from the expansion elements will be shared throughout the region.
3. The agreement between Metro and local governments will be customized to reflect the work items selected by that

Appendix C

Year Six Metro and Local Government Annual Waste Reduction Plans

jurisdiction (as compared to the past when all jurisdictions had the same work items).

4. Foundation and expansion elements will be developed to coincide not only with the needs of individual jurisdictions, but also with the broad-based long and short-term benchmarks in the Regional Solid Waste Management Plan.
5. Local governments allocate a substantial amount of resources towards developing and implementing waste reduction programs. Metro Challenge provides only a portion of the total costs. This is particularly true as the breadth and depth of programs have increased substantially in the past few years but funding has remained the same or reduced. Local governments will quite likely have program areas outside of Metro Challenge. Metro Challenge does not necessarily provide a complete listing of all waste reduction activities that local governments will implement.
6. The commercial program is much more prominent in the FY 95-96 work plan than it has been in the past. This is essentially a new area of work. The 10 "foundation" items indicate the large effort that we placed on commercial by local governments. The nine commercial "expansion" items allow local governments to help sort out what works and doesn't work in commercial recycling. It is expected that the trial and error experience gained through the expansion elements will help jurisdictions develop comprehensive, and universally accepted programs.
7. In order to receive total funding allocation, the local government must complete the foundation elements and all expansion items selected. Reporting of the previous year's activities will also be tied to release of funds.
8. Funding for Metro Challenge will continue to be based on the population of the jurisdiction.
9. Many of the foundation elements will center around achieving the minimum regional goal. For program areas that do not have a regional goal, the goal will be developed as a work item.
10. In their work plans, each local government will submit a brief description of how selected element will be completing in FY 95-96. Each work plan will be reviewed by a Metro committee consisting of representatives from the Waste Reduction Division, Solid Waste Planning and Technical Services Division and Metro Council. After the committee's initial review, discussions will be held with each local government to review areas of concern, make clarifications and to finalize the work plan elements for that jurisdiction's Metro Challenge Grant. The 1995-95 work plans and 1994-95 program reports will be

due to Metro by August 1, 1995. At the end of FY 1995-96 local governments will submit a report that describes how they have accomplished their planned work items. The same Metro committee will review these reports. If any work plan items were not completed or were found to be deficient, the committee will meet with the local government to determine the cause and appropriate action so that the problem can be remedied rather than automatically levying a penalty, which probably would not fix the cause of problem. Penalties may still be applied if other options are exhausted.

Year 6 Local Government Work Plan

Background: Local Jurisdictions will be required to implement or continue to implement all tasks listed under Foundation. One Expansion element from each category and four additional from any category for a total of eleven expansion items will also be required for jurisdictions or cooperative programs with populations totaling over 30,000 residents. Those jurisdictions or cooperative programs with total populations of under 30,000 will implement one expansion item from each category and one additional expansion item for a total of eight. Cooperative projects between local governments and/or Metro are encouraged to reap the maximum benefit from minimal resources.

RESIDENTIAL

FOUNDATION	Selected Tasks
1. Comply with all applicable OAR 340-90-040 chosen menu items.	X
2. Yard debris collection must meet minimum regional standard regardless of collection methods.	X
3. Aggressively pursue addition of scrap paper.	X
EXPANSION	Selected Tasks
1. Investigate addition of new materials and access to recycling for non-curbside materials.	
2. Work with Metro on home compost bin distribution program.	
3. Explore co-collection of garbage and yard debris.	
4. Explore selective mixing of recyclables.	
5. Explore a "recycling only" service.	
6. Explore causes of low-recycling in high 60 or 90 gallon roller-cart use areas.	
7. Adopt uniform standards for siting yard debris facilities.	
8. Other.	

FOUNDATION

Metro

- Continue yard debris weighing and measuring amounts left in can/monitor YD programs

- Continue home compost bin distribution (cooperative with Local Governments).
- Increase outreach to include more community education programs i.e., neighbor-to-neighbor education.

MULTIFAMILY

FOUNDATION	Selected Tasks
1. Ensure placement of containers for at least 4 materials to substantially all (85%) of multi-family units and keep up with growth and development.	X
2. Update and distribute educational materials.	X
3. Modify/improve existing systems in place on an ongoing basis.	X
EXPANSION	Selected Tasks
1. Conduct surveys of program effectiveness (Cooperative with Metro).	
2. Continue to provide data to Metro to help maintain accurate database.	
3. Investigate additional materials/perform trials.	
4. Other	

FOUNDATION

Metro

- Maintain database of multi-family units served, measure completion (cooperative with LGs)
- Develop regional campaign for promotion (cooperative with LGs).

COMMERCIAL

FOUNDATION	Selected Tasks
1. Expand availability of recycling service for paper and/or other prevalent materials still being disposed of in the business wastestream.	X
2. Work cooperatively with Metro to develop business inventory information.	X
3. Continue to perform waste evaluations utilizing a standardized approach within local jurisdiction. Scope should include complete WR package i.e. reduce, reuse, recycle, buy recycled, etc.	X
4. Continue to work with Metro to target generator sectors for customized waste reduction programs.	X
5. Cooperate with Metro and the DEQ to determine independent collector effects on recycling and collection issues.	X
6. Participate in commercial work group to develop program goals and standards.	X
7. Continue to provide government in-house recycling collection programs.	X
8. Continue to provide school in-house recycling programs	X
9. Increase education and promotion.	X
10. Provide business recognition/promote recognition recipients.	X
EXPANSION	Selected Tasks
1. Participate with Metro in organics project.	
2. Continue street sweeping and leaf composting programs.	
3. Develop standard information to provide businesses based on pilots.	
4. Continue to investigate methods of collection and collection equipment suitability for businesses (hauler based initiative).	
5. Review regulations (ordinances, franchises) and funding sources for commercial recycling to establish new and/or improved business recycling services.	
6. Investigate possibility of differentiating rates between business based on typical weight for that type of business.	
7. Establish a business work group to determine best methods to increase recycling.	
8. Investigate non-residential yard debris programs (research, report, pilot, phased, cooperative)	
9. Other	

FOUNDATION

Metro

- Continue developing and sharing information with local governments regarding targeted generator diversion strategies (new targets will be collectively developed with local governments and work with current targets will continue)
- Continue working with business, trade and industry associations to provide ownership of recycling programs to their members (cooperative with local governments).
- Continue ongoing information gathering and exchange regarding business recycling: database, case studies, analysis, etc. (cooperative with local government).
- Maintain business contact database on the GIS system. (This would include business name, address (site and mailing), business type and employee size. The LGs and haulers would be able to use this info for mailings, contact lists, and could provide feedback to Metro if businesses do not exist, etc.)
- Print region-wide business recognition material.

EXPANSION

Metro

- Expand information about business recycling
- Investigate non-residential yard debris programs (research, report, pilot, phased, cooperative with local governments)
- Continue Earth-Wise Compost designation and testing.

BUILDING INDUSTRY

FOUNDATION	Selected Tasks
1. Continue to develop and distribute educational materials (i.e. in permit offices).	X
2. Attempt to target specific local building projects for waste reduction and recycling demonstrations (cooperative with Metro and linked to LG options)	X
EXPANSION	Selected Tasks
1. Work toward removal of perceived or real service barriers for providing recycling to construction projects.	
2. Other	

FOUNDATION

Metro

- Continue to work with building industry associations to provide information and education to their membership (cooperative with Local Governments).
- Update and publish information for use by local governments, building associations and contractors.
- Continue to promote yard debris compost for erosion control.

EXPANSION

Metro

- Work with local governments to remove real or perceived barriers in all aspects of building industry recycling.
- Inventory the building industry.

PROMOTION/PUBLIC EDUCATION

FOUNDATION	Selected Tasks
1. Comply with OAR 340-90-040 expanded education item.	X
2. Provide and promote home composting education (cooperative with Metro).	X
EXPANSION	Selected Tasks
1. New or targeted material promotion.	
2. General waste reduction promotion.	
3. Multi-family promotion.	
4. Participate with Metro on annual regional promotional campaign.	
5. Other	

FOUNDATION

Metro

- Annual undefined regional campaign to be developed collectively with local governments and DEQ.
- Should do a regional campaign every year even if its for reminders and not new programs (cooperative with Local Governments, DEQ, industry and haulers).
- Distribute home composting video.
- Continue workshops at home compost sites.
- Support Master Recyclers to provide home composting information.
- Establish region-wide promotion for home composting (cooperative with Local Governments).

IN-SCHOOL EDUCATION PROGRAMS

FOUNDATION	Selected Tasks
1. Provide for in-school presentations and resources (cooperative with Metro and DEQ).	X
2. Provide curriculum that fits into the School Reform Act (cooperative with Metro and primarily DEQ).	X
EXPANSION	Selected Tasks
1. Sponsor school events such as Earth Day.	
2. Provide assistance to school Earth Clubs	
3. Other	

FOUNDATION

Metro

- Provide kits and activities for teachers to use in class work.
- Produce new puppet shows about hazardous waste and composting.
- Develop exercises that face real world problems (site a landfill).
- Train the trainers (in-service training for educators).
- Help to provide school recycling programs (with Local Governments)

BUY RECYCLED

FOUNDATION	Selected Tasks
1. Continue to promote the use of yard debris compost on City/County projects.	X
2. Continue to work on procurement practices in offices.	X
EXPANSION	Selected Tasks
1. Work with Metro to hold buy recycled shows within local jurisdiction.	
2. Promote/educate general public on buying recycled utilizing Metro materials.	

FOUNDATION

Metro

- Publish Buy Recycled Guides with emphasis on retail.

EXPANSION

Metro

- Take Buy Recycled trade show on the road, include procurement in targeted generator strategy (cooperative with local governments).

DEQ support

The DEQ will continue to support related activities to augment the local government programs. These support elements are included here to provide a regional perspective with all players involved. The DEQ is not part of the Metro Challenge Grant Program.

- Continue to provide grants on residential basis.
- Clarify rules about not charging more for providing recycling service.
- Review deregulation and fair market value issues.
- Work with regional pollution prevention group (cooperative with local governments and Metro).
- Provide planning assistance to local governments and Metro.
- Develop statewide business recognition.
- Investigate creative uses for materials (cooperative with Metro).

Introduction

This appendix contains excerpts from an opinion issued in December 1994 from the Metro Office of General Counsel to the Metro Presiding Officer.

General Metro Authority

Metro has been granted extensive express authority to manage solid waste in the metropolitan area. By charter, statute and current judicial interpretations, Metro also has broad implicit authority to take action to carry out its designated functions in any manner that is not expressly foreclosed by its charter, or preempted by state or federal constitutions or statutes.

The more express responsibilities and powers discussed above are augmented by more general statutory and charter grants of authority to Metro.

Common Enforcement Mechanisms

The most common enforcement tools utilized by state and local governments include:

1. Issuing an enforcement order. As examples, both the Environmental Quality Commission and the Land Conservation and Development Commission have statutory authority to issue enforcement orders. [see ORS 197.320, ORS 459.055(4)] There is nothing in state law indicating that Metro would be preempted or otherwise foreclosed from issuing enforcement orders related to Metro's authorized functions. Due process would be required and could be provided through Metro contested case proceedings. If a local government refused to comply, Metro would need to utilize one of the other remedies this list.
2. Obtaining an injunction from a court of competent jurisdiction [ORS 268.360(3)]. This action is best taken after Metro has established a record and made a determination of noncompliance, through a contested case proceeding.
3. Withholding revenue (if there is any revenue to withhold). As an example, LCDC can, as part of an enforcement order, withhold certain revenues from local governments that fail to comply with statewide land use planning goals.
4. Imposing fines for noncompliance. As with all local governments, Metro has authority to adopt ordinances and enforce them through imposition of fines. ORS 268.990 allows penalties of not more than \$500 or imprisonment in a county jail for not more than 30 days, or both, for violation of Metro ordinances. In addition, ORS 268.360(4)

Appendix D

Metro's Authority to Implement the Regional Solid Waste Management Plan

allows Metro to assess civil penalties not to exceed \$500 per day against "any person who violates any ordinances or order of the district pertaining to one or more of its authorized functions." General grants of authority in the Charter allow Metro to impose fines in excess of those established by Chapter 268, although there are judicially imposed limits to the amount of a fine that can be imposed on an individual.

5. Assuming responsibility over functions that a local government has failed to carry out, or modifying Metro's system to exert greater control.

As an example, the Land Conservation and Development Commission has authority to issue an order requiring LCDC or Hearings Officer review of all local land use decisions, if the local jurisdiction fails to exercise such functions in conformance with state law. In addition, there are many ways Metro could restructure its system to exert greater control over regional solid waste and waste reduction programs. Many of the mechanisms mentioned in the current RSWMP (disposal rates and requirements, rate setting and incentives, flow control, facility certification, etc.) fall into this category. Since franchising of solid waste hauling is clearly a local function, a vote of district electors or the members of MPAC would be required before Metro could take over local aspects of hauler franchising. Otherwise, this category contains far too many options and combinations of options to discuss fully in this memo.

Enforcement in the Context of Solid Waste Planning

It is easiest to enforce against an individual or political entity under an ordinance containing a clear prohibition or required act. Prohibitions against illegal dumping and uncovered loads fit into this category. If Metro were managing an electricity or water delivery system, it could clearly establish what it expects to provide and what individuals and local governments using the system must do or refrain from doing. The solid waste system is a much more amorphous collection of services, some of which Metro provides or regulates, some of which are provided by private parties and others that are regulated by cities and counties. ~~Metro could require all local jurisdictions to adopt the same program elements and require them all to submit local plans for approval under specified criteria and attach sanctions to noncompliance.~~ It is difficult to determine at this juncture what Metro would be requiring in a solid waste plan that would appropriately be enforced using the above referenced tools.

The structure of the existing plan does not lend itself easily to enforcement of its terms. It is written as a set of goals, with Metro, local governments, haulers, processors and individuals all expected to make significant contributions. It is difficult to assess culpability for failing to carry out a plan or program when numerous factors

may contribute to a final result. For that reason, current discussions between the Solid Waste Department and this Office have focused on conflict resolution and coordination mechanisms. "Enforcement" in the existing plan and in the 'benchmark' system now being discussed, concentrates on a process for engaging all players and encouraging them to work toward common goals. As with the Regional Urban Growth Goals and Objectives (RUGGO's) and the Regional Transportation Plan (RTP), ~~not spelling out the ultimate penalty for failure retains Metro's flexibility in dealing with that failure.~~ This approach is appropriate when success is difficult to measure and is ultimately dependent on development and maintenance of cooperative working relationships.

The Regional Transportation Plan provides one model for conflict resolution. Under the RTP, Metro reviews local plans for consistency. Under a new RSWMP, Metro could require the development of local plans, or take any number of other, more result oriented approaches.

For example, Metro could allow local governments flexibility in developing local programs and ~~require formalized review of local plans only if there is some reason to believe a particular local jurisdiction is not in compliance with the RSWMP or is making an additional contribution to achieving regional goals.~~ If staff assessment and attempts to gain local compliance are unsuccessful, the Solid Waste Director could refer the matter to the SWAC, with a recommendation for specific action. Compliance or noncompliance would ultimately be determined by the Metro Council through a contested case proceeding. I believe this is the approach being suggested by Solid Waste Department staff in the current new RSWMP draft.

APPENDIX E TO THE REGIONAL SOLID WASTE MGT. PLAN

Appendix 9.C Expected Performance of Individual Programs Technical Specifications and Results

One element of the 1994 RSWMP update involves an examination of programs and facilities for solid waste management. This element was triggered by planning questions such as: Is the system currently geared up to meet regional recovery goals? Are additional disposal facilities needed in the future? Do answers to these questions change if the region experiences significantly different growth than expected? What if waste reduction programs do not perform as anticipated?

For example, this plan reaffirms a commitment to recover at least 50% of waste generation by the year 2000. To achieve this goal, approximately 200,000 tons must be shifted from current disposal. How to do this? The RSWMP planning response is to develop and test a series of solid waste management alternatives, identify the costs and tonnage consequences of various options, and recommend the best set of actions that are likely to help achieve solid waste goals.

At the beginning of the RSWMP planning process, several potential alternatives for solid waste management were described and specified. Subsequently, these alternatives were screened and modified through extensive discussion and technical analysis. The refined and surviving set of alternatives are the Recommended Practices discussed in Chapter 7.

Contents of Appendix. This appendix describes the specification and empirical analysis of all alternatives, and provides an overview of the technical procedure by which each alternative was evaluated. Section I provides a general description of the alternatives, and the approach to evaluation and screening. Section II gives detailed descriptions of each alternative and the major assumptions on specification. Section III summarizes the findings of the empirical analysis. Section IV contains tables showing major assumptions.

Section I. General Description of Alternatives and Evaluation Approach

The initial set of alternatives was chosen according to two basic principles. These are: (1) that the solid waste plan be comprehensive, in that it should address all generators and materials; and (2) it must embrace the solid waste management hierarchy. At least one program or facility was developed for each broad generator type and material type at each level of the hierarchy. Certain of the lower-level elements of the hierarchy were de-emphasized; specifically, waste-to-energy facilities were not considered.

The list of alternatives is shown in Table 9.C.1. The table indicates which element of the hierarchy is addressed by each alternative, and the generator(s) and broad class of material targeted by the alternative. Thus, waste prevention is addressed by a home composting program targeted at residential organics, and by a program of audits and education designed to reduce the use of packaging by commercial enterprises. Moving

down the table (and down the hierarchy), source-separated recycling is addressed next, followed by post-collection recovery, composting; and finally, disposal.

The alternatives are described in more detail in the second section of this appendix.

**Table 9.C.1
Solid Waste Management Alternatives: Programs and Facilities**

Hierarchy	Name of Alternative	Primary Target Generator	Primary Target Type of Material
Waste Prevention	I.A Home Composting	Residential	Organics
	I.B Commercial Waste Prevention	Commercial	Recyclables
Source Separated Recycling	II.A.1 Expand Curbside	Residential	Recyclables
	II.A.2 Selective Commingling	Residential	Recyclables
	II.A.3 New Collection Technology	Residential	Recyclables
	II.B.1 Commercial Commingled Collection--Paper	Commercial	Recyclables
	II.B.2 Commercial Commingled Collection--Paper & Containers	Commercial	Recyclables
	II.C Construction Site Source Separation	C&D	Dry Waste
Mixed Waste Recovery and Processing	III.A Mixed Dry Waste Processing	C&D, Commercial	Dry Waste
	III.B.1 Organics Recovery from Food Businesses "Low Tech" Processing "High Tech" Processing	Commercial	Organics
	III.B.2 Residential Organics Recovery "Low Tech" Processing "High Tech" Processing	Residential	Organics
Transfer and Disposal System	IV.A.1 Modify Design/Operation of Existing Facilities	All Waste*	All Waste*
	IV.A.2 Manage Flow in Existing System	All Waste*	All Waste*
	IV.B.1 New Transfer Station(s)	All Waste*	All Waste*
	IV.B.2 New Reload Facilities	All Waste*	All Waste*

*Excluding hazardous, liquid, and inert wastes.

Evaluation Procedure

Once the alternatives had been outlined in principle, the planning effort focused on detailed specification and refinement of each alternative using a combination of quantitative and qualitative evaluation procedures. The qualitative elements included expert judgment on institutional opportunities and barriers to implementation (such as the existence of the current franchise system and fair market value issues), technological feasibility, and the condition of markets for recycled materials. Quantitative elements are described in the balance of this subsection

The quantitative evaluation of alternatives entails a system-wide analysis of direct, quantifiable costs and benefits. "System-wide" means that the total cost of solid waste management for the whole waste cycle, from collection to disposal or sale of recovered materials, is considered.

The technical analysis was performed using a system cost model developed by Metro staff, and a set of technical specifications developed by Metro staff with consultant assistance.¹

The system model focuses on the total cost of handling waste which is currently delivered to disposal facilities, plus recyclables and yard debris reported by licensed and franchised haulers from all sources. It is a spatial model that enables estimation of the cost of collection, hauling, processing, transfer, and disposal of materials. It accounts for revenues from material sales, and administrative costs of both the private and public sectors. Wastes which are currently excluded from analysis are some industrial process waste (e.g., auto fluff), special waste (e.g., petroleum contaminated soils), inerts, hazardous, and liquid waste.

In order to examine the performance of solid waste management alternatives under a variety of conditions, each is analyzed under at least four scenarios, representing the combination of two program performance scenarios (lower and higher), and two regional growth scenarios (base case and high).

The higher performance scenario is usually specified to be above or well above median performance (in terms of program capture or efficiency) when compared with similar programs in other areas of the United States. The lower performance scenario is specified to be a fraction (from one-half to three-quarters) of the higher program performance specification.

The base case growth scenario is the same as the current base case for population and employment change in Metro's Region 2040 project; the high growth scenario is double the growth increment of the Region 2040 base case. The Base Case is intended to draw out the tonnage implications of "no change" to the solid waste system. It serves as a "reference scenario" for solid waste programs that affect rates of generation, recycling, and disposal. The Base Case is derived by applying current recycling and disposal rates (specific to the type of generator, material, and location in the region) to population and employment projections over the entire planning horizon. Under the Base Case, changes in recycling and disposal tonnages are due solely to changes in the trend and structure of regional growth.

Several summary measures emerge from each analysis. One of the most basic is tonnage--by program, generator, and material type:

- **Target tonnage** is the type of waste that an alternative is designed to handle. The amount of target tonnage is the "size of the universe" for the program.
- The **capture rate** is the proportion of the target tonnage which is expected to be actually handled by the program.

¹ The system model, developed by the Solid Waste Department and written in Fortran, is described in: Metro, *Technical Documentation for Waste Simulation Model* (February 1995). Fuller detail on the solid waste management alternatives may be found in Sound Resources Management Inc., *Portland Metro Resource Plan* (July 1994). Both are available from the Solid Waste Department at Metro.

- **Program tonnage** is the capture rate multiplied by the target tonnage, and equals the amount of material expected to be handled by the program. The capture rate itself (the ratio: program tonnage / target tonnage) may be viewed as a measure of program performance.

Another basic set of measures relates to cost:

- **System cost:** an estimate of the total cost of the solid waste system, from collection to landfilling, including the net cost or benefit of recycling programs. The system cost per ton is the average cost of handling a ton of material.
- **Program cost:** an estimate of the net cost of a change to the system. For example, implementing a home composting program or construction of a new disposal facility. The program cost per ton is the average net cost of handling each ton through the program.

These measures provide, in part, a screening process for evaluation. Specifically:

- If the program tonnage is large, the program has an important potential impact on system management.
- If the program cost per ton is less than the current system cost per ton, then the alternative is cost effective to the region as a whole.

Summary Results

Table 9.C.2 shows some summary statistics from the system cost model. The ranges of tonnage and costs represent the combination of the two regional growth scenarios (base case and high), and two program performance scenarios (lower and higher). Detailed results for each alternative are shown in Section II of this appendix.

Table 9.C.2
Summary of Analysis of Individual Alternatives

Alternative	Target Tonnage* (tons per year)	Potential Diversion (tons per year)	Program Cost (per ton)
Home Composting	130,000 to 180,000	11,000 to 30,000	\$0 to \$70
Commercial Waste Prevention	40,000 to 55,000	5,000 to 12,000	\$45 to \$70
Expand Residential Curbside Recycling	46,000 to 60,000	16,000 to 28,000	\$35 to \$45
Commingled Plastics Collection	7,700 to 10,500	2,600 to 4,700	\$370 to \$520
Commercial Commingled Paper	93,000 to 130,000	28,000 to 51,000	\$130 to \$140
Commercial Commingled Paper & Containers	107,000 to 150,000	30,000 to 60,000	\$107 to \$120
On-Site Construction Recycling	122,000 to 170,000	20,000 to 38,000	\$137 to \$145
Dry Waste Recovery Facilities**	203,000 to 276,000	60,000 to 182,000	\$115 to \$151
Commercial Organics Recovery**	37,000 to 50,000	6,600 to 12,000	\$350 to \$366
Residential Organics Recovery**	128,000 to 178,000	50,000 to 92,000	\$337 to \$626

* Materials currently landfilled that are the focus of the program.

** Costs reflect a wide range of collection and/or processing technologies.

The Technical Specifications tables show, in summary form, the key assumptions underlying each alternative. Each table includes three blocks: Direct Program Costs, Collection Costs, and Targeted Generators and Materials. The following explanations serve as a guide through these tables:

Direct Program Costs show four types of direct costs:

- *Fixed One-Time Costs* include costs of start up, promotion, and expensed items that are incurred only once during the planning horizon. The latter are small expenditures of goods or services that are paid in one year, such as the cost of a home composting bin or a waste audit.
- *Fixed Annual Costs* include lump-sum payments that are made every year and do not vary with program tonnage. Examples include capital repayment (amortization) costs and additional staff for the Recycling Information Center.
- *Variable Costs per Generator* include costs that vary with the level of service, paid on a per-generator basis. The principal example is composting and recycling support to households.
- *Variable Costs per Ton* include costs that vary with the amount of tonnage (excluding collection costs, described below). The principal example is processing cost.

Collection Costs are related to Table 9.C.4 (Section IV of this appendix), in which cost assumptions for route, hauling, and tipping components are shown for waste collection, curbside recyclables, and curbside yard debris. Further detail is provided in Table 9.C.4 for generators and location. The phase-in period for the program is also shown in this block.

Targeted Generators and Materials. This block identifies the generators and materials on which the program is focused. The "participation rate" for each generator group in the program is identified, together with each generator's "separation efficiency" by material, and the overall "capture rate."

- The *participation rate* is the proportion of targeted generators that actively utilize the program. For example, the home composting program focuses on 15% of single family households. This is the "target generator" group. The participation rate for this program is .8, which means that 80% of the *target* generators are assumed to participate actively in home composting.
- The concept of "*separation*" reflects the ease or difficulty with which the generator can identify and extract material from his or her own waste stream. The "separation efficiency" is the assumed proportion of each material that will be extracted from the generator's own stream due to the solid waste program. For example, the separation efficiency for food waste in the home composting program is 66%.
- The *capture rate* is simply the mathematical product of the participation rate and separation efficiency: $\text{capture rate} = \text{participation rate} \times \text{separation efficiency}$

- When matched to waste disposal, the parameters in this block determine the "target tonnage" and the "captured tonnage" of the program, reported in the Findings for each alternative. The captured tonnage forms the basis for calculating the quantitative impacts of the program: collection, processing, and disposal costs (including avoided costs); new revenue from material sales; and benchmarks such as the recycling rate and landfilled tonnage.

When using this section, the reader should keep in mind that the programs and facilities under analysis are "prototypes" that reflect average costs of collection, processing and disposal based on local data and experiences from other parts of the country. The results suggest *relative* differences among alternatives, rather than the *actual* costs that might be incurred once any alternative is implemented. Therefore, the technical analysis provided information for the screening process that determined which alternatives were recommended.

Alternative I.A: Home Composting Program Description

This program entails distribution of bins for composting yard debris and food waste (excluding meat) to 15 percent of single family households in urban and suburban areas. The program would be phased in over a five year period. Bins would be distributed at a subsidized cost of \$25 each, and would target households that are not already composting. The program would be supported by workshops, demonstration sites and a Composting Hot Line.

Technical Specifications

Direct Program Costs:	Amount	Description	Vehicle Costs	Table 9.C.4:
Fixed			Waste	cost set #1
One-time	\$28.50/HH	Bin subsidy & distribution	Recycling	cost set #1
Annual	\$115,000	Education and hotline support	Yard Debris	cost set #1
Variable Costs			Phase-In Period	5 years
per generator	\$1.12	Participant support		
per ton	- 0 -			

Targeted Generators	Participation Rate*	Separation Efficiency	Capture Rate**	Primary Targeted Materials
Single Family	80%	66%	7.92%	Food, yard debris

* of targeted generators

** capture rate = participation rate X separation efficiency

Alternative I.A: Home Composting Findings and Issues

The program cost of those tons is considerably less than the current system cost.

Distinct economies of scale begin to show up at about 10,000 tons per year; thus, it would be important to support programs which capture at least this amount if the program is to move forward into design.

Summary Results for Alternative By Program Performance and Growth Scenario, for Selected Years

Program Performance	Baseline Growth			High Growth		
	1995	2000	2005	1995	2000	2005
Target Tonnage	128,459	140,402	152,345	130,848	154,733	178,619
Expected Performance						
Captured Tonnage	4,070	11,120	12,066	4,145	12,255	14,147
Percent Captured	3.2%	7.9%	7.9%	3.2%	7.9%	7.9%
Cost/ton: Program System	\$646.20*	\$47.40	\$44.74	\$644.83*	\$43.46	\$37.20
High Performance						
Captured Tonnage	8,139	22,240	24,131	8,291	24,510	28,293
Percent Captured	6.3%	15.8%	15.8%	6.3%	15.8%	15.8%
Cost/ton: Program System	\$320.01*	\$19.40	\$17.11	\$318.91*	\$14.93	\$10.30
	\$154.50	\$149.77	\$148.15	\$153.76	\$146.12	\$142.58
Yard Debris Ban						
Captured Tonnage	15,545	42,435	46,005	15,831	46,719	53,860
Percent Captured	12.1%	30.2%	30.2%	12.1%	30.2%	30.2%
Cost/ton: Program System	\$160.00*	\$1.70	(\$0.24)	\$159.11*	(\$2.34)	(\$6.40)
	\$153.49	\$147.23	\$145.62	\$152.74	\$143.59	\$140.06

* High cost per ton reflects partially phased-in program.

Issues

The performance of this program in conjunction with other program(s) targeting residential organics (such as Alternative III.B.2 Curbside Collection of Residential Organics) will depend on complementary program design.

The performance of this program in conjunction with a total disposal ban on yard debris work would be profound. Accordingly, if disposal bans on yard debris are contemplated, evaluation of the impacts on Home Composting is recommended. The impact of bans on "upstream" programs such as home composting, compared with "downstream" programs such as curbside yard debris collection or illegal dumping should be considered.

Alternative I.B: Commercial Waste Prevention Program Description

This program is intended to achieve approximately 15 percent reduction in paper and packaging by businesses through provision of extensive waste audits and other educational and promotion efforts. The program is designed to reach about 80 percent of all businesses within a 5 year period. Provision of the educational and audit services could be by either the public or private sector.

Technical Specifications

Direct Program Costs:	Amount	Description	Vehicle Costs	Table 9.C.4:
Fixed			Waste	cost set #1
One-time	\$6.25/emp	Waste audits	Recycling	cost set #1
Annual	\$118,200	Education and promotion	Yard Debris	cost set #1
Variable Costs			Phase-In Period	5 years
per generator	- 0 -			
per ton	- 0 -			

Targeted Generators	Participation Rate*	Separation Efficiency	Capture Rate**	Primary Targeted Materials
Retail	68%	15%	10.2%	Paper, packaging, pallets & crates
Wholesale	74%	15%	11.1%	- same -
Office	71%	15%	10.7%	- same -
Food-Related	68%	15%	11.1%	- same -
Other Non-Res.	74%	15%	11.1%	- same -

* of targeted generators

** capture rate = participation rate X separation efficiency

More recycling is expected as a consequence of this program. It is assumed that twenty percent of the following materials, currently disposed, will be recycled from businesses due to waste prevention audits: rigid plastic products, mixed plastics, plastic film packaging, wood pallets and crates, and textiles. The capture rate of 20 percent is between the prevention rates of the Waste Prevention Audits alternative, and the capture rates for high valued materials in the Commingled Business Recycling alternative.

Alternative I.B: Commercial Waste Prevention Findings

The per-ton cost of waste prevented by this program is well below the current system cost.

Mild economies of scale begin to show up at about 10,000 tons per year.

Summary Results for Alternative By Program Performance and Growth Scenario, for Selected Years Waste Prevented†

Program Performance	Baseline Growth			High Growth		
	1995	2000	2005	1995	2000	2005
Target Tonnage	39,680	43,549	47,420	40,454	48,194	55,934
Low Performance						
Captured Tonnage	1,682	4,616	5,026	1,715	5,108	5,929
Percent Captured	4.2%	10.6%	10.6%	4.2%	10.6%	10.6%
Cost/ton: Program	\$729.53*	\$67.90	\$64.19	\$726.98*	\$61.62	\$54.58
System	\$154.19	\$151.66	\$150.05	\$153.44	\$148.02	\$144.49
High Performance						
Captured Tonnage	3,364	9,231	10,052	3,430	10,216	11,858
Percent Captured	8.5%	21.2%	21.2%	8.5%	21.2%	21.2%
Cost/ton: Program	\$387.11*	\$55.12	\$52.36	\$385.43*	\$50.06	\$44.65
System	\$154.04	\$151.29	\$149.67	\$153.30	\$147.65	\$144.11

* High cost per ton reflects partially phased-in program.

† Tonnage recycled due to waste audit programs: 9,400 tons per year by 2005

Alternative II.A.1: Expand Residential Curbside Program Description

This program is intended to improve participation in curbside programs and extend mixed scrap paper, milk jugs and weekly yard debris collection to all single family residences. The program would also extend collection of principal recyclables to multifamily complexes with sufficient site space to incorporate a recycling station. Half of these multifamily residences would also have collection of mixed scrap paper.

Technical Specifications

Direct Program Costs:	Amount	Description	Vehicle Costs	Table 9.C.4:
Fixed			Waste	cost set #1
One-time	\$185,000	Kick-off promotion	Recycling	cost set #2
Annual	- 0 -		Yard Debris	cost set #2
Variable Costs			Phase-In Period	1 year
per generator	\$1.12	Participant support		
per ton	- 0 -			

Targeted Generators	Participation Rate*	Separation Efficiency	Capture Rate**	Primary Targeted Materials
Single Family	90%	35-42%	31-38%	Scrap paper
Single Family	90%	56-70%	50-63%	#2 plastics
Multifamily	90%	59-95	53-86%	Principal recyclables
Multifamily	45%	93%	42%	Yard debris
Multifamily	45%	35%	16%	Scrap paper
Multifamily	90%	70%	63%	Misc.plastics

* of targeted generators

** capture rate = participation rate X separation efficiency

Note: ranges reflect effect of different waste stream composition due to different programs in different areas.

In conjunction with this program, the impact of banning yard debris from home drop box rentals and residential self-hauled loads is considered. This element is assumed to be 80% efficient; that is, 80% of the yard debris disposed by these two modes is assumed to be diverted.

Alternative II.A.1: Expand Residential Curbside Findings and Issues

This program shows the effect of raising participation rates and pulling more curbside materials from existing programs—under the assumption that the costs of doing so are incremental and do not involve major new expenditures. Accordingly, the per-ton program cost is low—\$35 to \$45.

Even with single family participation pushed to 90% and including large multifamily complexes, only 15,000 to 30,000 more tons of curbside material are extracted.

Summary Results for Alternative By Program Performance and Growth Scenario, for Selected Years

Program Performance	Baseline Growth			High Growth		
	1995	2000	2005	1995	2000	2005
Target Tonnage	46,754	50,202	53,649	47,444	54,338	61,233
Low Performance						
Captured Tonnage	16,139	17,281	18,423	16,362	18,651	20,936
Percent Captured	34.5%	34.4%	34.3%	34.5%	34.3%	34.2%
Cost/ton: Program	\$35.08	\$32.09	\$29.80	\$34.25	\$28.26	\$23.96
System	\$151.87	\$150.42	\$148.83	\$151.12	\$146.82	\$143.33
High Performance						
Captured Tonnage	21,518	23,041	24,563	21,823	24,868	27,914
Percent Captured	46.0%	45.9%	45.8%	46.0%	45.8%	45.6%
Cost/ton: Program	\$45.24	\$42.50	\$40.41	\$44.45	\$38.76	\$34.71
System	\$151.52	\$150.09	\$148.50	\$150.79	\$146.49	\$143.01

The ban of yard debris from home drop box rentals and residential self-hauled loads results in 6,400 tons per year of materials diverted by 2005.

Alternative II.A.2: Curbside Residential Commingled Plastics Program Description

This alternative would add a number of new materials to the region's curbside collection systems. The program specification is roughly consistent with a commingled plastics curbside program developed by the American Plastics Council. The program provides for collection of rigid plastic containers from all single and multifamily residences.

The findings suggest an alternative specification for this option in which haulers employ extensive on-truck commingling techniques. Additional processing capacity or facilities are expected to be necessary to prepare the materials for market. See Issues, below.

Technical Specifications

Direct Program Costs:	Amount	Description	Vehicle Costs	Table 9.C.4:
Fixed			Waste	cost set #1
One-time	\$185,000	Education and promotion	Recycling	cost set #3
Annual	\$310,000	Amortization of compactors	Yard Debris	cost set #1
Variable Costs			Phase-In Period	1 year
per generator	\$1.12	Participant support		
per ton	\$88.00	Operating cost for PRF		

Targeted Generators	Participation Rate*	Separation Efficiency	Capture Rate**	Primary Targeted Materials
Single Family	90%	50-100%	46-89%	Easily identifiable plastic containers
Single Family	90%	28%	24%	#3-#7 and uncoded plastic containers
Multifamily	90%	50-100%	46-89%	Easily identifiable plastic containers
Multifamily	45%	28%	12%	#3-#7 and uncoded plastic containers

* of targeted generators

** capture rate = participation rate X separation efficiency

Alternative II.A.2: Curbside Residential Commingled Plastics Findings and Issues

Unlike the previous alternative, this program adds materials to curbside programs under the assumption that the costs would not be incremental, but would involve new investment and operational changes. Accordingly, the per-ton cost of this program is high--2 to 3 times the current system cost. This is because new capital costs for collection (compactor mounted on truck) and expansion of local processing are spread over a very small tonnage base of only 3,000 to 5,000 tons. It should be kept in mind, however, that the program costs below are the marginal costs of adding plastics to curbside programs, and may not be comparable with conventional measures of curbside costs by material, which are usually average costs. It is likely that a marginal analysis of other light recyclables (e.g., aluminum) would yield comparably high marginal costs per ton.

**Summary Results for Alternative
By Program Performance and Growth Scenario, for Selected Years**

Program Performance	Baseline Growth			High Growth		
	1995	2000	2005	1995	2000	2005
Target Tonnage	7,659	8,342	9,025	7,795	9,162	10,529
Low Performance						
Captured Tonnage	2,557	2,789	3,020	2,603	3,067	3,531
Percent Captured	33.4%	33.4%	33.5%	33.4%	33.5%	33.5%
Cost/ton: Program	\$519.62	\$505.82	\$494.71	\$516.02	\$489.58	\$470.19
System	\$154.17	\$152.68	4151.06	\$153.41	\$149.02	\$145.47
High Performance						
Captured Tonnage	3,409	3,719	4,028	3,471	4,090	4,708
Percent Captured	44.5%	44.6%	44.6%	44.5%	44.6%	44.7%
Cost/ton: Program	\$412.61	\$401.84	\$393.21	\$409.77	\$388.82	\$373.47
System	\$154.12	\$152.64	\$151.01	\$153.37	\$148.98	\$145.43

Issues

This program has a small impact, and is expensive--on a *tonnage* basis. It is a matter of appropriate application whether weight-based assessments of plastics give a correct reading on the desirability and feasibility of the program.

The finding that this is a high-cost option rests on the assignment of all new collection and processing costs (on-truck compactor and plastics recovery facility, respectively) to this alternative alone. By contrast, some other alternatives (e.g., Expanded Residential Curbside) incur only marginal costs by assuming sufficient collection and processing capacities to allow capitalizing on existing infrastructure. If the infrastructure required for this option emerges in response to market forces, then the program cost for collection and processing of plastics will fall correspondingly.

Alternative II.A.3: Residential Curbside—New Collection Technologies

This alternative is intended to lower the cost of collecting materials in the residential sector by adopting new collection technologies. The program is specified as a two-truck residential collection system: Truck #1: Dual collection of yard debris and garbage in separate compartments. New trucks would be required. Truck #2: Recyclables. Existing recycling collection trucks would continue to be used.

This alternative serves as a sub-option for several other alternatives, as its primary focus is operational efficiency of collection routes. The effect of this alternative is enhanced if disposal facilities can be co-sited to allow "one-stop" dumping of the dual-compartment trucks.

In particular, this alternative was examined as a sub-option for the residential organics program, Alternative III.B.2, below.

Cost assumptions for this alternative are shown in Table 9.C.4 (Section IV), Waste Cost Set #2

**Alternative II.B.1: Commercial Collection of Commingled Paper
Program Description**

This program is designed to capture recyclable paper in the commercial waste stream that is not currently being collected by other efforts. The program would provide for commingled collection of mixed paper at all businesses and would be supported by strong education and promotion efforts.

An alternative means of arranging for the service described above is to provide collection of source-separated principal recyclables to small businesses together with single family routes.

Technical Specifications

Direct Program Costs:	Amount	Description	Vehicle Costs	Table 9.C.4:
Fixed			Waste	cost set #1
One-time	\$6.25/emp.	Waste audits and education	Recycling	cost set #4
Annual	\$115,000	Kick-off promotion	Yard Debris	cost set #1
Variable Costs			Phase-In Period	1 year
per generator	- 0 -			
per ton	\$34.00	Sorting, processing		

Targeted Generators	Participation Rate*	Separation Efficiency	Capture Rate**	Primary Targeted Materials
Retail	-na-	-na-	32-44%	Paper, paper packaging
Wholesale	-na-	-na-	32-44%	- same -
Office	-na-	-na-	32-44%	- same -
Food-Related	-na-	-na-	32-44%	- same -
Other Non-Res.	-na-	-na-	32-44%	- same -

* of targeted generators

** capture rate = participation rate X separation efficiency

Alternative II.B.1: Commercial Collection of Commingled Paper Findings

The program is estimated to capture an additional 25,000 to 50,000 tons of material.

The per-ton cost of this program is somewhat less than the current system cost, ranging from \$130 to \$140. This program incurs new costs by a mild expansion in the scope of on-site commercial recycling, but collects only relatively clean, valuable material.

**Summary Results for Alternative
By Program Performance and Growth Scenario, for Selected Years**

Program Performance	Baseline Growth			High Growth		
	1995	2000	2005	1995	2000	2005
Target Tonnage	93,493	102,571	111,649	95,309	113,464	131,620
Low Performance						
Captured Tonnage	27,625	30,321	33,018	28,164	33,557	38,950
Percent Captured	29.6%	29.6%	29.6%	29.6%	29.6%	29.6%
Cost/ton: Program	\$141.92	\$139.44	\$137.56	\$141.03	\$135.21	\$131.08
System	\$153.15	\$151.67	\$150.06	\$152.40	\$148.02	\$144.49
High Performance						
Captured Tonnage	36,833	40,428	44,024	37,552	44,743	51,933
Percent Captured	39.4%	39.4%	39.4%	39.4%	39.4%	39.5%
Cost/ton: Program	\$138.43	\$136.06	\$134.27	\$137.58	\$132.00	\$128.05
System	\$152.96	\$151.48	\$149.86	\$152.21	\$147.83	\$144.30

Issues

This program is specified without knowing the full extent to which enterprises outside the solid waste system are providing recycling services to businesses.

It is likely that the quality and quantity of materials and the cost of collection vary considerably by size of business. It would be useful to examine the institutional and operational issues involved in extending single family curbside service to small businesses.

Alternative II.B.2: Commercial Collection of Commingled Paper and Containers Program Description

This program is designed to collect two streams of commingled recyclable materials from all types of businesses. The first stream is mixed paper as specified in the previous alternative (II.B.1). The second stream is primarily composed of glass, tin, aluminum, PET and HDPE containers. The program would be supported by education and promotion efforts.

Technical Specifications

Direct Program Costs:	Amount /	Description	Vehicle Costs	Table 9.C.4:
Fixed			Waste	cost set #1
One-time	\$6.25/emp.	Waste audits and education	Recycling	cost set #4
Annual	\$115,000	Kick-off promotion	Yard Debris	cost set #1
Variable Costs			Phase-In Period	1 year
per generator	- 0 -			
per ton	\$34.00	Sorting, processing		

Targeted Generators	Participation Rate*	Separation Efficiency	Capture Rate**	Primary Targeted Materials
Retail	-na-	-na-	32-94%	Paper, paper packaging; metal/glass/PET containers
Wholesale	-na-	-na-	32-94%	- same -
Office	-na-	-na-	32-94%	- same -
Food-Related	-na-	-na-	32-94%	- same -
Other Non-Res	-na-	-na-	32-94%	- same -

* of targeted generators

** capture rate = participation rate X separation efficiency

Alternative II.B.2: Commercial Collection of Commingled Paper and Containers Findings

The program is estimated to capture an additional 30,000 to 60,000 tons of material.

The per-ton cost of this program, \$110 to \$120, is below the current system cost. A variety of factors contribute to this:

1. Relatively clean, valuable materials are being extracted for resale
2. The two-stream, commingled aspect increases capture and reduces collection costs
3. Relatively low cost, low-tech processing is assumed.

Summary Results for Alternative By Program Performance and Growth Scenario, for Selected Years

Program Performance	Baseline Growth			High Growth		
	1995	2000	2005	1995	2000	2005
Target Tonnage	107,605	118,044	128,482	109,693	130,569	151,446
Low Performance						
Captured Tonnage	31,961	35,076	38,190	32,584	38,813	45,043
Percent Captured	29.7%	29.7%	29.7%	29.7%	29.7%	29.7%
Cost/ton: Program	\$120.22	\$117.80	\$115.97	\$119.35	\$113.66	\$109.63
System	\$152.55	\$151.06	\$149.45	\$151.80	\$147.42	\$143.88
High Performance						
Captured Tonnage	42,615	46,768	50,920	43,445	51,751	60,057
Percent Captured	39.6%	39.6%	39.6%	39.6%	39.6%	39.7%
Cost/ton: Program	\$117.21	\$114.88	\$113.12	\$116.37	\$110.89	\$107.01
System	\$152.16	\$150.67	\$149.05	\$151.41	\$147.02	\$143.48

Issues

See the discussion under the previous alternative.

Alternative II.C: On-Site C&D Source Separation Program Description

This program is designed to implement on-site, source-separation recycling practices at construction and demolition debris where feasible. Where space permits at commercial sites, drop boxes will be provided for between 2 to 6 individual materials. At residential sites, the methods will be those currently employed by clean-up contractors since they do not require individual drop boxes for each material.

The target generators for this program are determined by site space considerations that limit the number of construction jobs to which this option can be applied.

Technical Specifications

Direct Program Costs:	Amount	Description	Vehicle Costs	Table 9.C.4:
Fixed			Waste	cost set #1
One-time	- 0 -		Recycling	cost set #1
Annual	- 0 -		Yard Debris	cost set #1
Variable Costs			Phase-In Period	1 year
per generator	- 0 -			
per ton	\$30.00	On-site sorting costs		

Targeted Generators	Participation Rate*	Separation Efficiency	Capture Rate**	Primary Targeted Materials
Construction sites	23-27%	68-95%	17-25%	OCC, wood, gypsum, metals, rubble

* of targeted generators

** capture rate = participation rate X separation efficiency

Note: ranges reflect effect of different construction site sizes in different areas.

According to Metro's Waste Characterization study, the following materials, not targeted by the site-separated C&D program above, remain in significant quantities in the C&D waste stream: roofing and tarpaper, carpet, film plastic, acoustic ceiling tiles, linoleum, and fiberglass. Based on recent research, there are reasonable probabilities that technologies and markets will emerge for the first three materials in five to ten years. Accordingly, for the long run, it is assumed that the first three materials may eventually be captured at the same rates as specified in the site-separated C&D program.

**Alternative II.C: On-Site C&D Source Separation
Findings**

The per-ton cost of this program, roughly \$140 per ton, is below the current system cost. Some factors that contribute to this are:

1. Site separation reduces contamination, allowing low-tech recovery of relatively high-valued materials with low residuals.
2. This option capitalizes on existing processing capacity.

**Summary Results for Alternative
By Program Performance and Growth Scenario, for Selected Years**

Program Performance	Baseline Growth			High Growth		
	1995	2000	2005	1995	2000	2005
Target Tonnage	122,810	134,082	145,354	125,065	147,609	170,153
Low Performance						
Captured Tonnage	20,135	22,101	24,067	20,528	24,460	28,391
Percent Captured	16.4%	16.5%	16.6%	16.4%	16.6%	16.7%
Cost/ton: Program	\$145.94	\$144.30	\$142.78	\$145.19	\$140.75	\$137.32
System	\$153.29	\$151.83	\$150.22	\$152.54	\$148.20	\$144.68
High Performance						
Captured Tonnage	26,847	29,468	32,089	27,371	32,613	37,855
Percent Captured	21.9%	22.0%	22.1%	21.9%	22.1%	22.3%
Cost/ton: Program	\$145.94	\$144.30	\$142.78	\$145.19	\$140.75	\$137.32
System	\$153.25	\$151.78	\$150.18	\$152.50	\$148.15	\$144.64

The long-run prospective for this program when carpet, film plastic, and roofing and tarpaper are captured is an additional 7,000 tons of material (of which 4,800 tons are roofing and tarpaper).

Alternative III.A: Mixed Dry Waste Processing

This program is designed to provide regionwide capacity processing for mixed dry waste. The facilities would be open to all commercial and self-haulers and process only dry nonputrescible waste from both construction and demolition sites and general commercial activities. Three scenarios are considered: (1) increased throughput at existing facilities; (2) two new facilities in the western and eastern parts of the region, to balance accessibility; and (3) facilities are constructed at local limited purpose landfills with material-specific recovery rates equal to rates assumed for MRFs (with no change in the number or composition of mixed waste deliveries to the landfills assumed). Scenario (3) is effective only in the long-run.

Technical Specifications

As the facilities are assumed to be under private ownership, there are no "public" costs associated with this alternative. Processing costs are assumed to be \$37 to \$40 per incoming ton, including disposal of residue. Recovery rates at the new facilities are local experience-based estimates. Vehicle costs are in Table 9.C.4; the #1 sets are used. Residue from the new facilities are assumed disposed at Hillsboro or Lakeside landfills.

Findings

The scenario assuming higher throughput at existing facilities diverts 150,000 to 165,000 tons per year at a program cost of \$115 per ton. This scenario simply models a "zero-sum game" between limited purpose landfills (and transfer stations to a limited extent), and dry waste processors. The program cost is quite low because diversion is increased by simply increasing delivery with no significant new investment.

For the new-facility alternative, delivery tonnages by facility are shown in the table below. Results of the scenario are shown in the next table following.

Dry Waste Delivery Tonnage for New-Facility Alternative

Facility Location	Delivery Tonnage					
	Baseline Growth			High Growth		
	1995	2000	2005	1995	2000	2005
North	59,925	66,200	72,475	61,180	73,731	86,282
South	19,937	22,477	25,018	20,445	25,526	30,607
East	37,120	39,677	42,233	37,632	42,744	47,857
West	154,818	168,495	182,173	157,554	184,909	212,264
Total	271,800	296,849	321,899	276,811	326,910	377,010

North: Wastech and ERI; South: WRI; East: East County Recycling plus proximate new facility; West: Lakeside, TVWR plus proximate new facility

**Summary Results for New-Facility Alternative
By Program Performance and Growth Scenario, for Selected Years**

Program Performance	Baseline Growth			High Growth		
	1995	2000	2005	1995	2000	2005
Dry Waste Deliveries	271,800	296,849	321,899	276,811	326,910	377,010
Performance						
Diverted Tonnage	138,961	149,319	159,678	141,032	161,749	182,467
% Diverted	51.1%	50.3%	49.6%	50.9%	49.5%	48.4%
Cost/ton: Program	\$150.65	\$149.00	\$147.35	\$149.89	\$145.31	\$141.71
System	\$153.10	\$151.62	\$150.02	\$152.35	\$147.99	\$144.47

The third scenario, involving diversion of all appropriate dry waste from limited-purpose landfills, results in an additional 30,000 tons recovered per year by 2005.

Issues

Evaluation of this alternative outside a portfolio is of limited value because the size of the target tonnage, and capture rate assumptions, are closely tied to assumptions about upstream activity with generators and haulers. Some interesting portfolio questions are:

1. When aggressive source-separation programs extract the most valuable materials from the waste stream, what happens to the quality and recoverability of remaining materials? Are they so degraded or diminished that is uneconomical to recover them?
2. How much of the current "wet" waste can be dried out sufficiently for processing at a mixed waste facility?
3. To what extent will mixed dry waste processing activities be tied to the intrinsic value of materials and the economics of material recovery, as opposed to a reaction against tip fee costs?
4. Could competition from MRFs threaten provision of regional limited purpose landfill capacity?

The results above assume no change in shares of delivery tonnage. As these facilities are under private control, it is likely that shares would fluctuate over time in response to the effects of promotion and competition among operators. These activities would likely be a function of factors such as the amount of potential feedstock (which partially depends on the performance of "upstream" recycling programs), material prices, and so forth. Again, these scenarios are analyzed most meaningfully in a portfolio context.

Alternative III.B.1: Organics from Food-Related Businesses Program Description

This program is designed to collect food waste and non-recyclable paper from retail, wholesale, and food-related businesses. This specification calls for targeted collection of organics. Two sub-alternatives depend on the choice of processing technology: an anaerobic digester ("high tech"), or aerated composting ("low tech").

The high-tech processing specification assumes anaerobic digestion. Medium and low tech processing solutions include: aerated static pile composting, vermiculture, and windrowing. The technical analysis focused on aerated composting as a result of feedback from Metro's Organics Program. Accordingly, the impact of a medium/low tech processing option are illustrated using this technology. A summary of the costs of all these processes is shown in Table 9.C.5 (Section IV).

Due to costs of collection, areas of dense food waste generators are targeted, and less-clustered areas are de-emphasized. This change is reflected in the range of participation rates.

Technical Specifications

Direct Program Costs:	Amount	Description	Vehicle Costs	Table 9.C.4:
Fixed			Organic Waste	cost set #3
One-time	\$185,000	Kickoff promotion and education	Other Waste	cost set #1
Annual	\$460,000	Capital repayment (hi tech)	Recycling	cost set #1
	\$107,000	Capital repayment (lo tech)	Yard Debris	cost set #1
Variable Costs			Phase-In Period	1 year
per generator	\$1.12	Participant support		
per ton	\$40.00	Processing costs (hi tech)		
	\$21.77	Processing costs (lo tech)		

Targeted Generators	Participation Rate*	Separation Efficiency	Capture Rate**	Primary Targeted Materials
Food Processors	78%	85%	66%	Food
Retail/Wholesale	50-60%	85%	43-51%	Food
Food businesses	50-61%	25%	13-16%	Food
Institutions	50-61%	25%	13-16%	Food

* of targeted generators

** capture rate = participation rate X separation efficiency

Note: "hi tech" indicates program with processing by anaerobic digester. "lo tech" indicates processing by aerated composting

Note: ranges reflect effect of different participation rates in different areas, depending on density.

The participation rates and separation efficiencies above are assumed to hold in the short-run as issues involving collection economies, facility siting, and choice of processing technologies are resolved. In the longer run (that is, by the year 2005), Retail/Wholesale capture is assumed to rise to approximately two-thirds, and Food-Institutional capture is assumed to rise to approximately one-third.

Alternative III.B.1: Organics from Food-Related Businesses Findings

At around \$400 per ton for the alternative involving high tech processing, the cost of this program is considerably above current system costs. The choice of processing technology (coupled with relatively low throughput) is a major reason for the high costs: this program does not collect enough organics to achieve economies of scale in centralized, high tech processing. The high cost of dedicated collection routes costs contribute to the high cost of this program.

The alternative involving low tech processing saves approximately \$50 off the program cost of the high tech option. While this is a considerable savings (exceeding the economies of scale that could be achieved with the digester), the cost of this program is still well above current system costs. Again, the high collection cost of routes dedicated to organics collection, coupled with low throughput, are the cause.

Summary Results for Alternative By Program Performance and Growth Scenario, for Selected Years

Program Performance	Baseline Growth			High Growth		
	1995	2000	2005	1995	2000	2005
Target Tonnage	37,237	40,274	43,311	37,845	43,919	49,993
Low Performance						
Captured Tonnage	6,671	7,211	12,177	6,779	7,860	14,043
Percent Captured	17.9%	17.9%	28.1%	17.9%	17.9%	28.1%
Lo Tech: <u>Cost/ton</u>						
Program	\$354.77	\$348.62	\$343.73	\$353.14	\$341.00	\$332.07
System	\$154.49	\$153.00	\$151.37	\$153.74	\$149.34	\$145.78
Hi Tech: <u>Cost/ton</u>						
Program	\$414.15	\$405.24	\$397.97	\$411.93	\$394.80	\$382.08
System	\$154.81	\$153.30	\$151.66	\$154.06	\$149.62	\$146.04
High Performance						
Captured Tonnage	8,894	9,615	16,236	9,039	10,480	18,725
Percent Captured	23.9%	23.9%	37.5%	23.9%	23.9%	37.5%
Lo Tech: <u>Cost/ton</u>						
Program	\$342.42	\$337.22	\$333.10	\$341.00	\$330.54	\$322.58
System	\$154.77	\$153.27	\$151.64	\$154.01	\$149.60	\$146.04
Hi Tech: <u>Cost/ton</u>						
Program	\$392.58	\$385.31	\$379.40	\$390.72	\$376.51	\$366.02
System	\$155.13	\$153.61	\$151.96	\$154.37	\$149.93	\$146.34

Issues

It does not appear that business organics can be handled more cheaply than disposal through route-based collection and centralized processing. It remains to be determined whether there are qualitative issues or new, emerging technologies that argue in favor of proceeding with a program such as this. Pilot programs to examine these issues (and others, such as siting) were getting underway at Metro as this plan was developed

Other specifications may be possible for handling organics. For example, small-scale in-vessel processes may be feasible for on-site composting for large generators. It may be possible to co-collect business organics with other types of collection routes, although the issue of contamination would have to be solved. See also issues for the next alternative.

Alternative III.B.2: Organics Recovery from Single Family Households Program Description

This alternative is designed to collect food waste and non-recyclable paper from single family households. As with commercial organics, there are two specifications of processing technology. This specification calls for new collection routes dedicated to organics. As a suboption, the results of co-collecting organics and waste is examined.

Technical Specifications

Direct Program Costs:	Amount	Description	Vehicle Costs	Table 9.C.4:
Fixed			Organic Waste	cost set #4
One-time	\$185,000	Kickoff promotion and education	Other Waste	cost set #1
Annual	\$1.1million	Capital repayment (hi tech)	Recycling	cost set #1
	\$428,000	Capital repayment (lo tech)	Yard Debris	cost set #1
Variable Costs			Phase-In Period	1 year
per generator	\$1.12	Participant support		
per ton	\$25.50	Processing costs (hi tech)		
	\$21.77	Processing costs (lo tech)		

Targeted Generators	Participation Rate*	Separation Efficiency	Capture Rate**	Primary Targeted Materials
S. Family (hi tech)	66-80%	75%	50-60%	Food
S. Family (lo tech)	66-80%	75%	50-60%	Food, yard debris

* of targeted generators

** capture rate = participation rate X separation efficiency

Note: "hi" indicates program with processing by anaerobic digester; "o" indicates processing by aerated composting

Note: ranges reflect effect of different participation rates due to different densities of generators.

Under the high tech processing option, only food waste is collected under this program, consistent with the requirements for the digestion technology. Under the medium and low tech options, commingled yard debris and food is collected, as yard debris is used as a bulking agent in the processes.

Non-recyclable paper and other organics are not specified for collection with the organics waste stream. The purpose was to keep instructions simple, in order to minimize contamination of the organics waste stream.

Due to costs of collection, areas of dense population are targeted, and less-clustered areas are de-emphasized. These are reflected in the range of participation rates.

Also due to costs of collection, a specification involving co-collection of organics and waste has been simulated. This analysis was carried out using the parameters of Alternative II.A.3 New Collection Technologies. An alternative means of arranging for this service is to collect commingled yard debris and food waste on existing yard debris routes.

Alternative III.B.2: Organics Recovery from Single Family Households Findings and Issues

This is one of the more expensive options, at over \$600 per ton with the high tech processing option and separate organics routes. As before, this cost is a function of the high tech processing solution noted above; but more fundamentally, because of very high collection costs. Food waste is assumed to be source separated and collected by special equipment. High costs are exacerbated by the necessity for frequent collection coupled with very low quantities per stop.

The alternative involving low tech processing does not have the dramatic effect that it had for business organics. This is because the amount of food waste from the residential sector is sufficient to achieve mild economies of scale with the anaerobic digester. Nonetheless, processing costs are reduced by \$20 to \$30 per ton. While this may be an important savings, the residential organics program is still well above current system costs. Again, the high collection cost of routes dedicated to organics collection is the principal cause.

However, the co-collection option reduces program costs by over \$250 per ton compared with the other collection alternatives.

Summary Results for Alternative: Low Tech Processing Option By Program Performance and Growth Scenario, for Selected Years

Program Performance	Baseline Growth			High Growth		
	1995	2000	2005	1995	2000	2005
Target Tonnage*	128,459	140,402	152,345	138,848	154,733	178,619
Low Performance						
Captured Tonnage	50,018	54,500	58,982	50,915	59,878	68,841
Percent Captured	38.9%	38.8%	38.7%	38.9%	38.7%	38.5%
Cost/ton: Program	\$596.92	\$590.88	\$585.93	\$595.32	\$583.29	\$574.53
System	\$171.33	\$169.65	\$167.88	\$170.54	\$165.83	\$162.05
High Performance						
Captured Tonnage	66,691	72,667	78,642	67,886	79,837	91,788
Percent Captured	51.9%	51.8%	51.6%	51.9%	51.6%	51.4%
Cost/ton: Program	\$592.46	\$586.59	\$581.78	\$590.89	\$579.16	\$570.63
System	\$177.06	\$175.32	\$173.51	\$176.26	\$171.44	\$167.59
Co-Collection Option**						
Cost/ton: Program	\$341.92	\$339.23	\$337.12			
System	\$163.56	\$162.02	\$160.37			

* Target tonnage includes food and yard debris for low tech option.

** Costs using two-compartment dual collection technology (Alternative II.A.3).

**Alternative III.B.2: Organics Recovery from Single Family Households
Findings and Issues (continued)**

**Summary Results for Alternative: High Tech Processing Option
By Program Performance and Growth Scenario, for Selected Years**

Program Performance	Baseline Growth			High Growth		
	1995	2000	2005	1995	2000	2005
Target Tonnage*	97,300	106,393	115,486	99,119	117,305	135,490
Low Performance						
Captured Tonnage	39,419	42,968	46,516	40,129	47,226	54,322
Percent Captured	40.5%	40.4%	40.3%	40.5%	40.3%	40.1%
Cost/ton: Program	\$628.69	\$620.95	\$614.57	\$626.73	\$611.66	\$600.68
System	\$168.54	\$166.86	\$165.09	\$167.75	\$163.03	\$159.24
High Performance						
Captured Tonnage	52,559	57,290	62,021	53,505	62,967	72,430
Percent Captured	54.0%	53.9%	53.7%	54.0%	53.7%	53.5%
Cost/ton: Program	\$618.77	\$611.60	\$605.70	\$616.93	\$602.88	\$592.64
System	\$173.17	\$171.44	\$169.62	\$172.37	\$167.56	\$163.72
Co-Collection Option**						
Cost/ton: Program	\$368.23	\$364.26	\$361.07			
System	\$162.53	\$160.95	\$159.27			

* Target tonnage includes food only for high tech option.

** Costs using two-compartment dual collection technology (Alternative II.A.3).

Issues

There are important links between the choice of collection and processing methodologies. An anaerobic digester, less tolerant of contaminants than lower-tech processing solutions, calls for an expensive, food-only collection method. High collection costs might be moderated by combination of residential food routes with other types of collection activities, such as with commercial organics routes. The latter would be possible only where residential and food-related businesses are clustered in relative proximity. If these areas are relatively rare, this would serve to limit the amount of material collected. This would also raise franchise and fair market value issues where "natural" organics routes do not coincide with franchise boundaries. In addition, the choice of common or different collection vessels would have to be resolved. However, collecting food from both residences and businesses may allow greater economies of scale in the processing operation than tapping either source alone.

A lower-tech option allows collection of commingled food and yard debris because yard debris may be used as a bulking agent in aerobic composting processes. This would tend to raise the quantity of material collected and drive down per-ton collection costs. A corollary issue is whether sufficient bulking agents are available, given the large potential quantities of organics available.

However, low-tech processes usually need to be sited at remote locations from urban areas to avoid investment in odor control equipment and other nuisance remedies. This raises issues of tradeoffs between pollution control costs, collection costs and haul costs (and, implicitly, land costs). If long-haul costs are to be reduced by consolidating

organic loads, then the question of siting transfer facilities must be resolved. If transfer is to occur at existing MSW transfer stations (a logical choice, as the all-important siting question has been resolved), then all three existing facilities will have to be remodeled to accommodate the new activity.

Alternatives IV.A: Existing Transfer System

Alternative IV.A.1: Modify Design and/or Operation of Existing Transfer System

The program is designed to improve the ability of the existing transfer facilities to handle additional growth in the solid waste stream. Performance of the system would be improved through methods such as improved traffic flows or limiting access times for self-haul customers.

This alternative serves as a sub-option for several other alternatives, as its primary focus is operational efficiency of transfer stations.

As an *additional alternative*, recovery at reloads was examined. It was assumed that by 2005, one-quarter of the regional transfer station waste would be reloaded, and that 3 percent of this tonnage would be recovered. This results in an additional 5,000 tons of recycled materials. The potential impact on recycling due to facilitation of wet/dry routes by reloads was not examined empirically.

Alternative IV.A.2: Manage Flow of Existing Transfer System

The program is designed to improve the ability of the existing transfer facilities to handle additional growth in the solid waste stream by redirecting haulers from Metro South to Metro Central as tonnage limits are reached at Metro South. Under standard growth assumptions, approximately 115,000 tons are initially redirected to Central per year, rising to over 190,000 by the end of the planning horizon. The effect on system costs is ambiguous, depending on the tradeoff between the type of load redirected, the higher material recovery rate at Central, and the different haul costs incurred.

Assuming that all diverted loads achieve the current material recovery rate at Central, redirection adds less than \$0.25 to the per-ton system cost. According to the transportation model, it appears that some haulers are currently choosing to tip at Metro South, despite having a closer haul to Central on a pure over-the-road distance basis. Redirection of these haulers to Central would help optimize regional haul distance, which helps to explain the low impact on the system cost. However, if other factors beside over-the-road distance affect the haul cost (e.g., surface road access and speed, tipping cycle, traffic queues), the model results may not hold.

Alternative IV.B.1: New Transfer Station

This alternative is designed to provide transfer station services in areas least served by existing transfer facilities. As currently specified, this alternative puts a single transfer station on the Wilsonville site. Under status quo conditions, initially it draws 120,000 tons per year, which rises to over 150,000 tons by the end of the planning horizon. It has a somewhat higher per-ton cost than the current system, leading to system costs of \$153.63. This is due to the finding that the costs of new capital, O&M, and so forth do not fully overcome haul-time savings.

Alternative IV.B.2: New Reload Facilities

This alternative is designed to provide reload services in areas least served by existing transfer facilities. The facilities would have a 10,000 to 30,000 ton per year capacity. The intent is to increase access to disposal sites, reduce ton-miles accumulated in hauling waste from collection routes to transfer facilities, and to free up traffic capacity at existing transfer stations. Achieving these objectives would presumably entail new capital investment and incurring new O&M whose cost may overcome any haul and tip time savings.

An alternative specification which capitalizes on existing investment and traffic patterns would be to add reload capacity at existing dry waste processing facilities--for example, Wastech, ERI, Tualatin Valley Waste Recovery, East County Recycling, and perhaps others.

It is assumed that new reloads would be required to provide some opportunity for recovery of materials. If 25 percent of transfer station tonnage is reloaded by 2005, and that 3 percent is recovered, then 5,000 additional tons would be diverted from landfilling. This does not account for the possibility that reloads may facilitate wet/dry routes, and thereby increase recovery above the indicated 5,000 tons.

Section III. Summary of Key Implementation Issues

The discussion and analysis of alternative management practices conducted to date suggest several findings and issues that give direction to the Regional Solid Waste Management Plan. The principal finding is that reliance on existing programs (e.g. curbside collection of mixed waste paper) is not likely to result in waste reduction goals being achieved.

Several issues are discussed in this section. They are organized according to whether they are most relevant to the Solid Waste Management Hierarchy, specific generators, or broad material types.

Solid Waste Management Hierarchy

Waste reduction programs are generally cost effective when considered in isolation of other elements of the solid waste system. However, these programs tend to have low tonnage impacts, and involve long phase-in periods, as they are aimed at affecting generator habits.

Source-separated recycling is a major component of the current solid waste system. Nonetheless, the principal recyclables still constitute approximately one-third of residential discards, and 40 percent of commercial discards. On this basis, it appears there is room for expansion of curbside programs. However, there are emerging limitations on generators' abilities to source-separate more types of materials; and on haulers' on-route abilities to maintain, cost-effectively, the separation of materials. Thus, there appears to be some room for marginal expansion of curbside programs, but major expansions may require a change in approach, such as limited commingling of materials. Commingling has an added advantage in that it generally increases generator participation. However, it also requires the existence of additional processing capacity.

Post-collection recovery. This approach to recycling was one of the principal legs of the solid waste system in the old plan that did not achieve expectations until recently, when the cost of avoided disposal and high material prices have combined to induce construction and proposals for mixed dry waste processing and material recovery facilities by the private sector. Post collection recovery has the potential for significant reductions in amount of dry waste that is landfilled. Aspects of dry waste processing are addressed in paragraphs below.

Disposal system. The current transfer and disposal system has adequate capacity through 2000. Even under extreme conditions--double current growth expectations, and with no new solid waste diversion programs--capacity appears adequate at least to the year 2005.

The future of material recovery at transfer stations is not as clear as the capacity issue, however. With ongoing development of "upstream" recycling (and without a significant change in policy toward operation of the transfer stations), the quality of materials in transfer station waste will decline. Accordingly, pilot projects which seek alternative

means of recovery at transfer stations, such as the fiber-based fuel project at Metro Central, should be encouraged.

Generators

Single family residential discards comprise approximately 30% of the current waste stream. Single family is the best-served generator class in terms of recycling programs, with services continually expanding--primarily curbside programs. As discussed under **Hierarchy**, above, there is room for expansion in single-family curbside programs by increasing participation, and extending programs to a limited number of materials such as plastics. A general resolution of residential organics will require a general solution in conjunction with other generator sectors.

Multifamily residential is a relatively small portion of the current waste stream at 6% of current disposal. On-site multifamily programs are currently expanding, but it will be difficult to reach single family participation rates. The major issues are site space for recycling and ongoing tenant education in the face of high turnover. An institutional issue: the composition of multifamily waste is similar to single family waste, but collection is usually routed along with commercial generators, as multifamily complexes tend to use dumpsters rather than garbage cans.

Commercial comprises a large portion of current disposal--about 40 percent. The overall commercial recycling rate masks a wide range of participation by specific generators. In particular, it is difficult for food-oriented businesses to achieve significant recycling due to the nature of their enterprise. Mixed-use sites such as shopping centers or commercial complexes tend to have a wide range of generator types but centralized solid waste collection, which makes it difficult to provide generator-specific recycling services. Large commercial enterprises may generate sufficient recyclable material that they can contract directly with processors or end-users outside the licensed/franchised solid waste system for sale of materials, despite falling within the franchised territory of a solid waste hauler. In these cases, grants of franchise rights are in conflict with material ownership and fair market value issues. Furthermore, as these recycling arrangements between large generators and end-users are subject to the market, there are issues of collection capacity and efficiency when materials re-enter the disposal system as waste. It is likely that the most cost-effective commercial recycling programs will target specific generators.

Construction & demolition (C&D) debris comprises 15 to 25 % of the waste stream depending on the season and stage in business and building cycles. Separation of recyclable materials on site is limited by space considerations in most circumstances. However, two distinct solutions are emerging from the private sector: mixed dry waste facilities, and cleanup crew services. As most mixed dry waste facilities are vertically integrated with a hauling company, facility operators are in an excellent position to provide contractors with appropriately sized and staged collection vehicles over the course of a job, effectively diverting materials from disposal. Cleanup crews provide a similar result by periodically removing debris and delivering it to appropriate facilities. Recovery is partially a function of the avoided cost of disposal and the market for recovered materials; thus, the stability of C&D diversion is subject to the profitability of

these factors. Nonetheless, emerging trends above suggest that the solution to C&D can be largely handled by the private sector. Public sector efforts should emphasize education of contractors as to cost savings using private sector solutions, and monitoring the system to ensure adequate disposal capacity exists in the event of weak markets.

Materials

Organics. Comprising approximately 28% of the regional wastestream, organics pose a significant challenge to waste diversion efforts. This challenge has at least four main dimensions: processing technology, collection, generator participation, and material quality

Important issues in the choice of processing technology are: (1) siting, (2) consistency of feedstock--both quality and quantity, and (3) appropriate scale--balancing cost, risk, and efficiency concerns having to do with the expected feedstock and market for output.

It is difficult to establish cost-effective collection routes that are dedicated to organics, unless generators are clustered or new collection technologies are adopted by haulers. If collection can be provided to only a subset of generators, institutional issues regarding fee structures, and questions of mandatory versus voluntary service provision must be resolved. Also, the fair market value question may arise where clusters do not follow franchise boundaries. The adoption of new collection technologies (e.g., commingled food and yard debris in a two-container waste system) would require significant new investment in rolling stock by haulers, and would require changes in habits by generators. Furthermore, to support the efficiency of a two-bin system, transfer stations should be modified to accept the two waste streams in a one-stop tipping cycle. It is not clear that haulers could make the required investments in rolling stock at this time, as the current equipment has been adapted for curbside programs and has significant remaining economic life. A change in generator habits would require education efforts, and public support of a two-container waste system (analogous to support for curbside recycling programs). These collection issues imply that significant time would be required to phase-in a broad solution to organics recovery.

Mixed Dry Waste. As discussed under C&D Generators above, a number of mixed dry waste processing facilities have recently been built or proposed by the private sector. A key implementation issue is whether these facilities can provide stable capacity for waste diversion in the long run. The related planning issue is whether mixed dry waste processing capacity should be viewed as a (quasi) public good, as are collection services. The answer to this planning issue leads to whether or not these facilities should be regulated; and if so, to what extent.

Recent facilities have been motivated by disposal cost avoidance and high material prices. As long as these incentives remain in place and the private sector provides cost-effective services, the need for regulation is minimal. However, from a public perspective, someone *should* provide recycling capacity, and someone *must* provide disposal capacity, even in the absence of these incentives. With a system of privately-

provided facilities, capacity becomes a function of the market. Furthermore, a private system of processors runs the risk of competing with upstream curbside programs for materials--although there will be some coordination with local franchisers, as current operators tend to be large haulers and hauler consortia.

Section IV. Major Assumptions

This section contains the major quantitative assumptions on which the numerical analysis is based.

Collection Costs per Ton

Table 9.C.4 shows the per-ton collection cost assumptions which are used in calculating system costs for each management alternative. Costs are broken into route, haul, and tip cycle components for waste collection, collection of curbside recyclables, and curbside yard debris. These costs vary according to the type of generator (single family, multifamily, commercial, or C&D), and predominant land use (urban or suburban). Detailed derivation of these costs is documented in Table 1 of the technical memorandum.²

Several sets of cost assumptions are shown in the tables. These correspond to differences in specifications. For example, the Commingled Plastics option specifies that an on-board compactor will be used in collection, which entails a different cost than an option without a compactor. The following list indicates which sets are used for each alternative. This list cross-references the technical specifications which are indicated for each alternative in the text of this report.

Waste

Set 1. The "status quo" set of costs. This set is used for any alternative that does not entail a change in waste collection technology or practice. This includes all options, except dual collection of residential garbage and yard debris, and the organics options.

Home Composting, Commercial Waste Audits, Expanded Commercial Recycling, Site-Separated C&D recycling, Mixed Dry Waste Processing, and all four transfer station/reload options.

Set 2. Applied to Alternative II.A.3. New Collection Technology: dual collection of residential garbage and yard debris.

Set 3. Applied to Alternative III.B.1: Collection of Business Organics. (Applied only to the separate organics routes.)

Set 4. Applied to Alternative III.B.2: Collection of Residential Organics. (Applied only to the separate organics routes.)

² Sound Resources Management Inc., *Portland Metro Resource Plan* (July 1994)

Recycling

Set 1. The "status quo" set of costs. This set is used for any alternative that does not entail a change in *recycling* collection technology or practice. This includes all options except expanded residential programs and the two-stream commercial program.

Set 2. Applied to Alternative II.A.1. Expand Residential Curbside programs.

Set 3. Applied to Alternative II.A.2. Commingled Residential Plastics program.

Set 4. Applied to Alternative II.B.2: Commercial Collection of Paper and Containers.

Yard Debris

Set 1. The "status quo" set of costs. This set is used for any alternative that does not entail a change in *yard debris* collection technology or practice.

Set 2. Applied to Alternative II.A.1. Expand Residential Curbside programs.

**Table 9.C.4
Collection Costs per Ton**

Waste and Recycling

Generator	Location & Component	Waste				Recycling			
		Set 1	Set 2	Set 3	Set 4	Set 1	Set 2	Set 3	Set 4
Single Family	Urban								
	On-Route	129.73	158.63	129.73	301.39	176.59	155.86	180.04	176.59
	Haul/Mile	0.44	0.45	0.44	0.93	0.76	0.76	0.76	0.76
	Tip Cycle	2.20	4.54	2.20	9.33	5.70	5.70	5.70	5.70
	Rural								
	On-Route	142.70	174.49	142.70	142.70	194.25	171.44	194.25	194.25
Multifamily	Urban								
	On-Route	57.97	57.97	57.97	57.97	70.02	70.02	70.02	70.02
	Haul/Mile	0.40	0.40	0.40	0.40	0.58	0.58	0.58	0.58
	Tip Cycle	1.98	1.98	1.98	1.98	4.34	4.34	4.34	4.34
	Rural								
	On-Route	142.70	174.49	142.70	142.70	194.25	171.44	194.25	194.25
Commercial	Inside CBD								
	On-Route	26.91	26.91	52.58	26.91	32.34	32.34	32.34	32.12
	Haul/Mile	0.44	0.45	0.77	0.93	0.55	0.55	0.55	0.44
	Tip Cycle	2.20	4.54	5.52	9.33	4.11	4.11	4.11	3.28
	Out of CBD								
	On-Route	62.61	62.61	122.24	62.61	86.97	86.97	86.97	86.97
C&D	Inside CBD								
	On-Route	11.65	11.65	11.65	11.65	11.65	11.65	11.65	11.65
	Haul/Mile	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
	Tip Cycle	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07
	Out of CBD								
	On-Route	23.64	23.64	23.64	23.64	23.64	23.64	23.64	23.64

**Yard Debris
Single Family Generators**

	Set 1	Set 2
Urban		
On-Route	\$189.90	\$194.70
Haul/Mile	\$0.40	\$0.40
Tip Cycle	\$2.00	\$2.00
Rural		
On-Route	\$206.70	\$213.50
Haul/Mile	\$0.40	\$0.40
Tip Cycle	\$2.00	\$2.00

Glossary of Terms

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All terms are defined in the context of the Regional Solid Waste Management Plan. These definitions are provided to assist the reader and should not be construed as policies, goals or practices of the RSWMP, or as amendments to the Metro Code.

A. General Solid Waste Terms

Advance Disposal Fee – A fee on a product that is intended to capture the cost of waste disposal of that product.

Alternative Practice – A solid waste management program or service that is proposed by a local government as an "alternative" to a "recommended practice" in the Regional Solid Waste Management Plan. An alternative practice must demonstrate the same level of expected performance as the recommended practice. Alternative practices allow for local government flexibility in meeting the RSWMP's objective.

Avoided Cost - The total cost of disposing of solid waste includes: collection from households and businesses, compacting loads of waste at a transfer station and hauling the waste to a landfill, and burying the waste at the landfill. If, due to waste prevention or recycling, some or all of these costs are not incurred, they are referred to as an "avoided cost." The term has also been used more narrowly by Metro to refer to the avoided cost of transport and disposal to the landfill when materials are recovered at a transfer station.

Base Rate – Metro fees used to cover the operation, maintenance, and debt service of regional solid waste facilities.

Bottle Bill – A law establishing a refund value on beverage containers. (see Container Deposit ORS 459A.700)

Building Industry Waste – See "Construction and Demolition Waste."

Buy-back Center – A facility where individuals bring recyclables in exchange for payment.

Car Fluff – A residual from the recycling of automobiles, which includes ground/shredded car seats, upholstery, plastic, vinyl, glass, metal, and other non-recoverable material.

Co-collection – The collection of two or more types of material in one truck with separate compartments (e.g., mixed solid waste and yard debris).

Collection Franchise – A franchise, certificate, contract or license issued by a city or county authorizing a person to provide collection service. (OAR 340-90-010)

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

Collector – The person who provides collection service.

Commingled Recyclables – A 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. Composting for the purposes of soil remediation is not included (OAR 340-90-010)

Construction and Demolition Waste (Building Industry 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 including concrete, bricks, bituminous concrete, asphalt paving, untreated or chemically treated wood, glass, masonry, roofing, siding, plaster; and soils, rock, stumps, boulders, brush, and other similar material. This term

does not include industrial solid waste and municipal solid waste generated in residential or commercial activities associated with construction and demolition activities. (OAR 340-93-030)

Curbside Collection – Programs where recyclable materials are collected at the curb for single-family units and on-site depots for multifamily units.

Depot – A facility for transferring containerized solid waste from one mode of transportation to another. The term also refers to a place for receiving source separated recyclable material.

Disposal, Disposal Site, Disposal Facility – See Glossary B for descriptions and definitions of different types of solid waste facilities, including disposal facilities.

Earth-Wise Building Program - In partnership with the building industry, Metro has developed training programs and published guides to promote resource conservation practices in the building industry. Practices promoted include increasing resource efficiency through design and materials selection in new construction and remodeling, waste reduction in construction and demolition activities through salvage and recycling, and increased use of recycled content products.

Earth-Wise Purchasing Program - Promotion and education programs that encourage individuals and businesses making purchasing decisions to consider resource conservation issues. These include buying recycled products, selecting recyclable or reduced packaging, reusing products and buying in bulk.

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, a disposal site, a processing facility, a transfer station or a resource recovery facility. Often includes the establishment of rates by the local government.

Functional Plan – A set of detailed information policies and standards regarding some function of local government. Functional plans usually deal with capital improvements for public services (e.g., municipal water supply, sewers, fire protection, transportation). They are also known as development plans or may be referred to as elements, such as the transportation element of the comprehensive plan. A comprehensive plan often contains several functional plans, community plans, and a framework plan. The RSWMP is a functional plan.

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

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

Goal – The end toward which effort is directed. Planning goals are written to be conceptually broad and generally stating an ideal of achievement.

Hauler – Interchangeable with “collector”; the person who provides collection services.

Hazardous Waste – Discarded, useless or unwanted materials or residues and other wastes that are defined as a hazardous waste pursuant to ORS 466.005. (OAR 340-93-030)

High-grading – To generate loads of waste containing a higher than normal percent of mixed recyclables over mixed refuse for which it is economically feasible to separate out the recyclables.

Household Hazardous Waste – See Glossary C for definitions relating to household hazardous waste.

Illegal Disposal – The act of dumping or disposing of solid waste any place other than a permitted solid waste disposal facility.

Incinerator – Any device used for the reduction of combustible solid wastes by burning under conditions of controlled air flow and temperature. (OAR 340-93-030)

Inorganic Waste – Waste that does not originate from plants or animals.

Integrated Solid Waste Management – A practice of using several waste management techniques to manage and dispose of specific components of the solid waste stream. Waste management alternatives include source reduction, recycling, composting, energy recovery, incineration and land-filling. Also see: “State Hierarchy.”

Level of Service – To provide service at a level that supports solid waste collection, processing and transport efficiency for the industry and the public.

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

Low Grade Waste – A relatively uniform or homogenous material such as slag from industrial processes.

Mandatory Universal Collection – Programs that by law require residents within a local government

jurisdiction to subscribe to a regular solid waste and recyclables collection service.

Material 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)

Medical Waste – Solid waste that is generated as a result of medical diagnosis, treatment, or immunization of human beings or animals. (OAR 340-93-030)

Minimum Content Standards – Standards or requirements that dictate what percentage of a product or manufactured material must be made of secondary post-consumer resources. A regulatory mechanism used to increase or enhance the demand for recyclable material.

Mixed Waste – Solid waste containing a variety of recyclable and non-recyclable material.

Multifamily – Residential dwellings of five or more units.

Objective – An end toward which effort is directed but constructed to measure the achievement of the goal or indicate what is necessary to accomplish the goal.

On-route or On-site Collection – Pick-up of source-separated recyclable material from the generator at the place of generation.

Packaging – Material, typically comprised of paper or plastic, used to protect products during transport. Typically discarded once the product is opened for use.

Participation Rate – Measure of the number of people participating in a program compared to the total number that could be participating.

Planning Target – The Regional Solid Waste Management Plan includes numerical levels for each set of benchmarks that are to be reached by a certain time. For example, the planning target for the recycling level system benchmark is 50% by the year 2005.

Principal Recyclable Materials – These are as follows: newspaper, ferrous scrap metal, non-ferrous scrap metal, motor oil, cardboard, aluminum, glass, office paper, tin cans, and yard debris.

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)

Recycling Information Program – Metro Recycling Information is the clearinghouse for waste reduction, recycling and solid waste disposal information for the Portland metropolitan region. Information is provided about collection services, recycling depots, multi-family recycling, construction site recycling, household hazardous waste disposal, alternatives to pesticides and other hazardous products, home composting, reuse options, business recycling, markets, buying recycled products and more. Between 1992 and 1995, staff answered more than one-quarter of a million calls from individuals and businesses.

Residential – For the purposes of this document, "residential" is

defined as both the single-family and multifamily sector.

Resource Recovery – The process of obtaining useful material or energy resources from solid waste including energy recovery, material recovery, recycling, and reuse. (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)

Recommended Practice – A solid waste management program or service endorsed by the Regional Solid Waste Management Plan as a means of achieving the Plan's goals and objectives. A recommended practice identifies an area of regional interest and establishes an expected level of performance. (See also "alternative practice.")

Secondary Resource – Discarded material that has been separated from the solid waste stream because it has value as feedstock in a manufacturing process.

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; but 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; or resource recovery from solid waste; and facilities necessary or convenient to such activities. Also see "state heirarchy."

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.

Source Reduction – See "waste prevention."

Special Waste – Refers to items that because of their unique or toxic characteristics, require special or separate handling, such as sewage sludges, industrial dusts or asbestos.

State Hierarchy – An established state priority (ORS 459.015) 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.

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).

System Benchmarks – The Regional Solid Waste Management Plan will track progress toward its goals in terms of three sets of benchmarks: System Benchmarks, Facility Benchmarks, and Disposal (by generator) Benchmarks. The

system benchmarks will track regional recycling and recovery levels, regional disposal tonnages (including per capita rates) and how waste is managed in accord with the solid waste management hierarchy (See "State Hierarchy"). System benchmarks tend to be easily calculated and easily understood general measures of change.

Tipping Fee – A fee for the unloading or dumping of waste at a landfill, transfer station, recycling center, or waste-to-energy facility, usually stated in dollars per ton; also called a disposal or service fee.

Transportation System – Facilities, equipment, and sites that provide a means to transport solid waste from transfer stations or resource recovery facilities to land disposal sites.

Vertical Integration – Principal or partial involvement by a private industry in two or more of the three primary functions of the solid waste system: collection, transfer station/material recovery, and land disposal.

Waste Characterization,

Generator Types – For purposes of the 1993-94 Metro Waste Characterization Study data and Table 2.2 of this report, 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 loads not 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 (Source Reduction) – 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.

Waste Prevention – A term 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 packing waste.

Waste Reduction – (1) A term used to encompass waste prevention, reuse, and recycling practices. (2) Reducing the amount or type of waste generated. Sometimes used synonymously with "waste prevention" or "source reduction."

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."

Waste Substream – An identified component of the total waste stream that is derived from a distinct source or is characterized by a particular quality. Examples include household hazardous waste, yard debris, and low-grade waste.

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)

B. Solid Waste Facility Types and Terms

A number of different solid waste facilities comprise the Metro region's solid waste system. Some handle the disposal of different kinds of waste, while others act as drop-off processors for specific kinds of materials that can be recycled. Taken as a whole, this facility infrastructure acts as a system in itself, with all of the different pieces of that system affecting and being affected by the other pieces. The purpose of this system is to handle all of the waste the region produces in the most efficient, economical, and environmentally beneficial way possible. To this end, the facilities and their functions change over time. The major types of facilities currently in the system inventory are described below.

Facilities to Reuse and Recycle – There are a number of facilities in the Metro region that focus on the recovery of certain materials from the waste stream that can either be reused or recycled. Currently there are three different types of these facilities in the region:

- **Mixed Construction/ Demolition Recycling** – Focusing primarily on wastes found in a construction/ demolition waste stream, e.g., wood, concrete, rocks, and dirt.
- **Wood Waste Recovery** – Facilities that are equipped to handle only the reprocessing of wood products.
- **Drywall Recovery** – Facilities that accept only drywall for reprocessing.

Facilities to Compost– These facilities are currently only working with yard debris material, and not food waste or other types of

compostable material. They accept yard debris from a variety of sources, including the residential curbside yard debris programs that operate within the region.

Facilities to Recover – Recovery of solid waste can refer to either energy or material. A "mass burn" facility such as the Marion County Energy Recovery facility, recovers energy from solid waste through the extraction of its heat content. Other facilities recover specific materials (including pre-segregated) from the waste stream so that they can be processed, reused or recycled for some useful purpose.

- **Energy Recovery** – As explained above, these facilities incinerate solid waste to recover energy from it, or manufacture a fuel to be used in existing industrial boilers.
- **Material Recovery** – Solid waste or pre-segregated waste is taken to the facility and specific materials extracted or processed for the purpose of reusing or recycling them.
- **Vermiculture** – A process where compostable waste (organic/putrescibles) is fed to special red worms to produce worm castings that are used as a soil amendment and fertilizer.

Facilities to Store – Temporary storage of solid waste is provided by several kinds of facilities.

- **Treatment and storage** – These facilities are used for the temporary treatment and storage of hazardous wastes to ensure that these wastes are disposed of properly. Waste on a commercial level is the focus. For example, drums of solvents or pails of paint from commercial and industrial businesses would be processed here.

- **Household Hazardous Waste Depot** – Hazardous waste on a household-generated level can be brought to a household hazardous waste depot that will receive, sort, process, and temporarily store the waste. After processing at the depot, the different types of hazardous waste are transported to recycling, recovery or disposal facilities in accordance with federal or state law. Household hazardous waste facilities may also be prepared to accept small quantities of otherwise hazardous waste from generators deemed "conditionally exempt" from more stringent disposal requirements under federal law.
- **Yard Debris Depot** – These depots act as collection points for yard debris that is then sent on to a yard debris processor for composting.

Disposal Facilities – Different types of disposal facilities can exist within the Metro region's solid waste system to either provide or assist in the provision of a final destination for solid waste.

- **Limited Purpose Landfill** – These landfills are available for the disposal of non-putrescible wastes. Through DEQ permits, these landfills are also able to take special wastes such as asbestos and treated petroleum contaminated soil. They do not accept solid wastes containing putrescibles.
- **Demolition Landfill** – Only land-clearing debris and other construction and demolition type materials may be brought to these facilities. Putrescibles and special wastes are not acceptable.

- **Monofill** – Monofills are able to receive only one type of material for landfilling. Asbestos is an example of the material a monofill may be equipped to take.
- **General Purpose Landfill** – Generally all solid wastes, excluding hazardous wastes, can be taken to a general purpose landfill. This is the only type of landfill to which food wastes can be brought for disposal.
- **Hazardous Waste Disposal Facility** – These facilities are permitted to accept hazardous wastes for disposal.
- **Reload Facility** – A facility operated by a single hauler that consolidates mixed wastes from collection vehicles into large vehicles for hauling to an authorized disposal facility.
- **Solid Waste Transfer Station** – A transfer station receives, processes, and temporarily stores solid waste for transport to a final disposal site. It is from here that the Portland metropolitan area municipal solid waste is loaded into trucks and taken to the Columbia Ridge Landfill. Material recovery occurs at one of the three existing facilities.
- **Industrial On-Site Landfill** – Landfills that exist on the site of an industrial operation and are permitted by DEQ as a disposal site for selected kinds of materials. Usually, the materials disposed in an on-site landfill are those that are direct products of the manufacturing process that takes place on-site. For example, an asphalt shingle manufacturer may be

permitted to dispose of asphalt shingle material in an on-site landfill.

Other Facilities

- **Petroleum Contaminated Soils** – These facilities process petroleum contaminated soil by essentially sterilizing it through a high-heat process. The soil can then be returned to its site of origin, or used for a number of non-food chain applications.

C. Household Hazardous Waste Terms

Flexible Community Services – HHW collection services or events that are customized to serve specific short-term community needs (e.g., a paint-only collection event scheduled to tie in with a community clean-up campaign).

HHW – an abbreviation for “household hazardous waste(s)” used throughout this document.

Hazardous Household Products – Chemical materials and products, such as paint, pesticides, and cleaning agents that are or may be hazardous or toxic to the public or the environment and are commonly used in or around households.

Household 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 which is ignitable, corrosive, reactive, or toxic. Examples include solvents, pesticides, cleaners, and paints.

Household Hazardous Waste Collection Event – A specific day or portion of a week (usually a weekend) when a facility is temporarily set up to receive household hazardous wastes. These events typically occur quarterly or annually.

Permanent (or Fixed) HHW Collection Facility – a receiving place for HHW located on a specific site and consisting of structures on permanent foundations. There are two permanent facilities in the region located at Metro South and Metro Central Transfer Stations.

Satellite, Full-Service Collection event – A specific day(s) when a site, such as a large, paved parking lot, is temporarily set up to receive HHW. These events typically occur annually or twice a year in a designated community not conveniently served by permanent collection facilities.

D. Terms Used in Chapter 9

Alternative – A solid waste management option that targets a particular type of waste and/or generator. Alternatives may encompass a set of programs, practices, and/or facilities. In the RSWMP update, alternatives are the building blocks of a comprehensive solid waste management system.

Base Case Growth – One of the scenarios under which the performance of solid waste management options is analyzed. The base case growth scenario is the same as the current base case for Region 2040.

Captured Tonnage – That portion of the target tonnage that actually handled by the alternative. For example, under one scenario, the home composting program is estimated to handle 6,631 tons of the 125,600 target tons "available" to it in 1994.

High Growth – One of the scenarios under which the performance of solid waste management options is analyzed. The high growth scenario is double the growth increment of the Region 2040 base case.

Higher Program Performance – One of the scenarios under which the performance of solid waste management options is analyzed. The higher performance scenario is specified to be in the third or fourth quartile of performance (in terms of program capture or efficiency) when compared with similar programs in other areas of the United States.

Levelized Cost – A kind of weighted average that takes financial discounting into account. The levelized cost is a single number that summarizes a time series of different costs. It is

calculated by taking the net present value of a series of costs, then amortizing this net present value back to the original time horizon, resulting in a constant dollar figure that represents the same time-value of money as the original series of costs. In this analysis, the same discount rate is employed to calculate both the net present value and the amortization.

Lower Program Performance – One of the scenarios under which the performance of solid waste management options is analyzed. The lower performance scenario is specified to be a fraction (from one-half to three-quarters) of the higher program performance specification.

Market Price Per Ton – This figure approximates the real price faced by a generator for disposing of solid waste that is targeted by a solid waste management alternative. The market price per ton is a summary measure that indicates the feasibility of implementation. If the market price per ton is at least as much as the program cost per ton, then the alternative may be successfully implemented by the private sector. If, however, the market price is less than the program cost per ton, private-sector implementation may require special efforts such as subsidization or regulation; or the public sector may be called upon for implementation.

Option – The same as a solid waste management alternative. See "alternative."

Percent Captured Tonnage – The ratio: captured tonnage/target tonnage, expressed as a percentage.

Program Cost Per Ton – This figure approximates the net cost of handling each ton of waste by means of one of the solid waste management alternatives. Basically, it is calculated by taking the difference between the system cost with and without the solid

waste management alternative, and then dividing this difference by the tons handled by the alternative. The philosophy behind this calculation is: if there is a shift in system cost due to implementation of a solid waste management option, then the difference in system cost should be allocated to the tons managed by the option. The program cost per ton can be viewed as the marginal cost of a waste management alternative. In general, if the program cost per ton is less than the system cost per ton, then the alternative is more cost-effective to the region as a whole than the average under the current system.

Program Performance – A scenario under which the performance of a waste management alternative is analyzed. Two program performance scenarios are specified: lower program performance and higher program performance. These scenarios are specific to each alternative.

Scenarios – In order to examine the performance of waste management alternatives under a variety of conditions, each alternative is analyzed under four scenarios, representing the combination of two regional growth scenarios (base case and high), and two program performance scenarios (lower and higher).

System Cost Per Ton – The ratio: system cost/system tonnage. This figure is the average cost to the system of managing a ton of solid waste.

System Cost – The total cost of collecting, hauling, processing, transporting, and disposing of system tonnage.

System Tonnage – Waste that is currently delivered to disposal facilities, plus materials (including yard debris) reported by franchised/licensed haulers as collected

through curbside programs from all generators. Excluded are industrial process waste, special waste (e.g., petroleum contaminated soils), inerts, hazardous, and liquid waste.

Target Tonnage – The solid waste stream, in tons, on which the alternative is focused. It is usually specified by material and generator type. For example, the target waste stream for the home composting program is yard debris (leaves, grass, and small prunings), and food waste from single-family generators, estimated to be approximately 125,600 tons disposed in 1994.

Waste Management Option - The same as a waste management alternative. See "Alternative."