Solid Waste Management Plan

General Purpose Landfill Chapter

Metropolitan Service District
Portland, Oregon

March 1988

METRO

The Metropolitan Service District was created by voters in 1978 to handle regional concerns in the urban areas of Clackamas, Multnomah and Washington counties. Metro is responsible for solid waste disposal, operation of the Washington Park Zoo, transportation planning and technical services to local governments, and construction and operation of the Oregon Convention Center.

Executive officer
Rena Cusma

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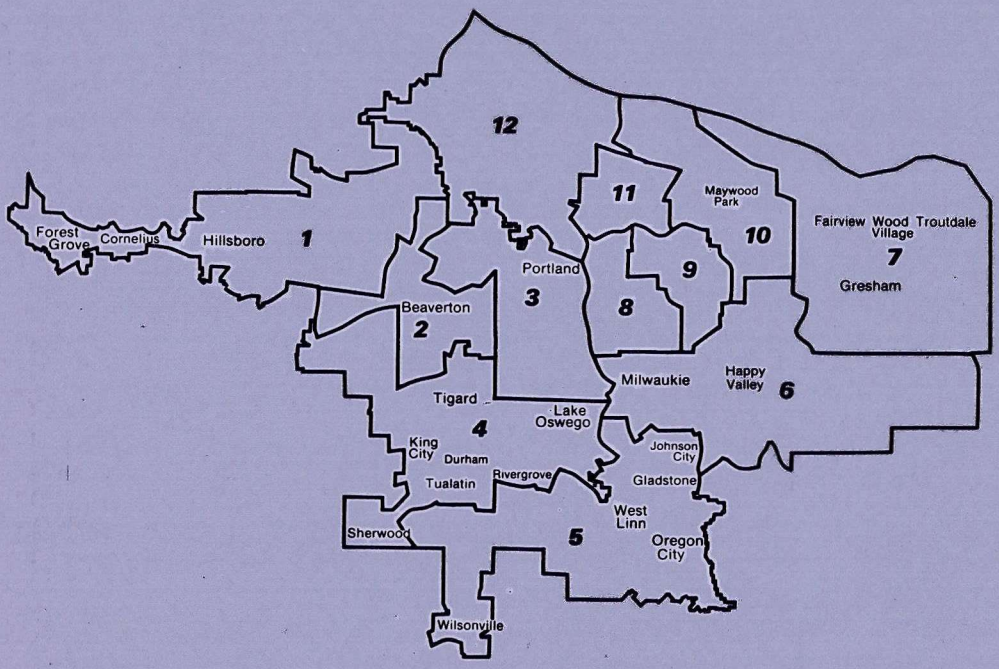

First printing
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BEFORE THE COUNCIL OF THE
METROPOLITAN SERVICE DISTRICT

FOR THE PURPOSE OF ADOPTING AN UPDATED GENERAL PURPOSE LANDFILL CHAPTER TO THE SOLID WASTE MANAGEMENT PLAN	))))	ORDINANCE NO. 88-240A Introduced by Rena Cusma, Executive Officer

WHEREAS, ORS chapters 268 and 459 provide for the development of a solid waste management plan; and

WHEREAS, The Metropolitan Service District is the provider of the solid waste disposal system in the Metro region; and

WHEREAS, Executive Order No. 78-16, Office of the Governor, State of Oregon, designates Metro as the Solid Waste Planning and Implementation Agency for Clackamas, Multnomah and Washington counties; and

WHEREAS, The Metro Solid Waste Management Plan was adopted by MSD Ordinance No. 9 in 1974, and while several ordinances and resolutions have been adopted since to modify the 1974 plan, a comprehensive evaluation and update to the Plan is necessary; and

WHEREAS, Metro Ordinance No. 86-207 established a planning procedure for designating areas and activities in need of functional planning (per ORS 268.390); and

WHEREAS, Metro Resolution No. 87-740 designated solid waste as an area and activity appropriate for development of a functional plan; and

WHEREAS, Metro Resolution No. 87-785A initiated an update to the regional Plan in part by determining that the Plan be developed as a functional plan and further establishing regional committees

for formulate recommendations to the Council of the Metropolitan Service District regarding solid waste planning policy issues; and

WHEREAS, The 1974 Plan identifies several potential general purpose landfill sites for review subject to specific siting criteria; and

WHEREAS, Metro Resolution No. 81-252 specifically designates the Wildwood site in Multnomah County as the new landfill for the tri-county region; and

WHEREAS, In 1984 Multnomah County revised its Comprehensive Plan and Zoning Ordinance to prohibit Metro's further consideration of the Wildwood site as a sanitary landfill; and

WHEREAS, Under provisions of Oregon Laws 1985, chapter 679 (SB 662), the Environmental Quality Commission and the Department of Environmental Quality have been charged with locating and establishing a disposal site for Clackamas, Multnomah and Washington counties; and

WHEREAS, The Environmental Quality Commission has completed a study of potential regional general purpose landfill sites and has narrowed their study to the Bacona Road site in Washington County; and

WHEREAS, ORS 459.300 authorizes Metro to provide for disposal of solid waste at sites other than a site selected the Environmental Quality Commission pursuant to chapter 679 Oregon Laws 1985; and

WHEREAS, Metro solicited request for bids from the private sector for purpose of seeking alternative final disposal options for the region; and

WHEREAS, Oregon Administrative Rules, Chapter 340, Division 61, requires that any general purpose landfill site for the Metro region to be compatible with the adopted Solid Waste Management Plan and that the need for such a site be clearly demonstrated; and

WHEREAS, A decision by Metro identifying final disposal options needs to be consistent with Metro's Solid Waste Management Plan; and

WHEREAS, The 1988 updated general purpose landfill chapter identifies the need for general purpose landfill capacity as an integral component of the regional solid waste management system; and

WHEREAS, The 1988 general purpose landfill chapter identifies the appropriateness of fulfilling the need for general purpose landfill capacity by selecting in-region sites, out-of-region sites, existing sites, new sites and/or a combination thereof; and

WHEREAS, The 1988 general purpose landfill chapter recognizes a need for flexibility in locations for general purpose landfill capacity for a variety of reasons including diversion from St. Johns Landfill, ash disposal and maintaining competitiveness with private sector options; now, therefore,

THE COUNCIL OF THE METROPOLITAN SERVICE DISTRICT HEREBY ORDAINS:

1. The general purpose landfill chapter update (1988) to the Solid Waste Management Functional Plan which is attached hereto as Exhibit A and hereby incorporated by reference is hereby adopted.

2. The provisions of the 1988 updated general purpose landfill chapter shall supersede and take precedent over any prior ordinances and resolutions previously adopted that are inconsistent with the chapter including but not limited to previously adopted portions of the Solid Waste Management Plan.

3. Resolution No. 81-252 is hereby rescinded.

ADOPTED by the Council of the Metropolitan Service District this 10th day of March, 1988.

Mike Ragsdale

Mike Ragsdale, Presiding Officer

ATTEST:

A. Marie Nelson

Clerk of the Council

BC/sm
8927C/531
02/10/88

I certify this ordinance was not vetoed by the Executive Officer

By: A. Marie Nelson
Clerk of the Council

Date: 3/18/88

SOLID WASTE MANAGEMENT PLAN

GENERAL PURPOSE LANDFILL CHAPTER

Metropolitan Service District

March 1988

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TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES AND TABLES

I. PURPOSE STATEMENT

The purpose of this landfill chapter is to determine the need for general purpose landfill capacity as an integral component of the region's solid waste management system. Further, this document shall be used to establish findings of compatibility with the solid waste management plan for any proposed landfill where waste from the tri-county area is to be disposed.

Limited purpose landfills are not addressed within this chapter except as noted in their general role within a solid waste system. Limited purpose landfills are to be addressed in future chapters of the solid waste management plan.

This landfill chapter shall be recognized as a component of the updated solid waste management plan developed in accordance with the following state statutes:

ORS Chapter 459
ORS Chapter 268
ORS Chapter 468

ORS 268.390 includes provisions for the development and implementation of functional plans. This landfill chapter is a component of the solid waste management plan to be adopted as a functional plan pursuant to ORS 268.390.

ORS 459 provides for a comprehensive statewide program for solid waste management and determines a hierarchy of methods for managing solid waste. Rules adopted under ORS Chapter 459, OAR-340-61-025 and 026, require that local governments adopt a solid waste management plan in order to receive a landfill facility operating permit from the Department of Environmental Quality. In the Portland tri-county area, Metro is responsible for developing that plan.

ORS 468.220 requires that local governments (or Metro) have an adopted Solid Waste Management Plan, approved by the Department of Environmental Quality, in order to receive monies from the State Pollution Control Fund for disposal facility planning and construction.

II. INTRODUCTION

The Portland metropolitan area currently disposes of its municipal solid waste in two types of landfill facilities: general purpose landfills and limited purpose landfills. Limited purpose landfills are prohibited from accepting food waste, but they are permitted to receive commercial demolition debris and industrial solid waste that does not contain food waste.

General purpose landfills accept all types of residential, commercial, and industrial wastes, excluding hazardous wastes. The St. Johns Landfill is the only general purpose landfill remaining in the Metro district. Approximately 65 percent of the waste generated each year in the Metro district is disposed of in this landfill. St. Johns is owned by the City of Portland and operated by Metro. Metro's contract with the city requires the landfill to close by February, 1991. However, current estimates of remaining capacity indicate that the landfill could close before that date.

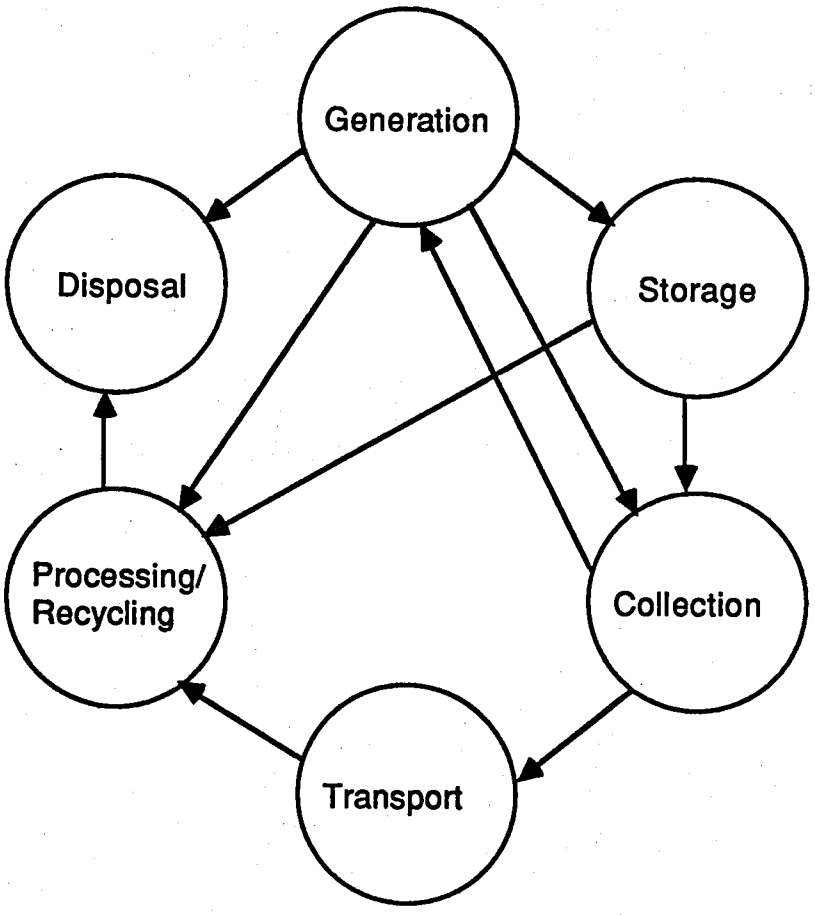
Sanitary landfills are an integral part of the entire solid waste management system. Figure 1 depicts the six major parts of that system: Generation, Storage, Collection, Transport, Processing/Recycling, and Disposal. The diagram also illustrates the interrelationships that exist between the various parts of the system. For example, source separation of wastes can substantially reduce the need for landfill volume, but it requires changed collection and operating procedures; transfer stations can reduce the costs of long-distance hauling and reduce congestion at the landfill site itself; recycling centers can reduce disposal requirements and alter the composition of wastes requiring disposal. Ultimately, the disposal component is the receiver of all impacts of the other parts of the solid waste management system.

Metro is responsible for the safe and efficient disposal of solid waste produced in the Portland tri-county area. Under the current system of solid waste management, the tri-county area relies on landfills for the majority of waste disposal. Metro's goals for solid waste management seek to reduce to the maximum extent possible that portion of the waste stream that must go to a landfill.

Metro's 1986 Waste Reduction Plan recommends a number of programs which will reduce the amount of waste going to landfills. These include source separated recycling and composting, materials recovery and yard debris centers, and energy recovery facilities. However, even if these programs were all in place, there would still be unrecyclable material and unprocessable waste and by-products. Energy recovery facilities produce at least 10 percent residue by volume as a by-product of the combustion process. As much as 30 percent of the waste

FIGURE 1

Interrelationships within the solid wastes system



Source: *Solid Wastes Management,* April, 1977

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entering a composting facility must be disposed of as well. These materials, as well as by-pass wastes from scheduled facility shut-down and waste generation in excess of resource recovery facility capacity, must be disposed of in a landfill.

It is Metro's responsibility to assure that facilities are available for the disposal of waste generated in the Portland metropolitan area. Metro must ensure the availability of general purpose landfill capacity to meet the disposal needs of the entire Metro region.

III. LANDFILL FUNDAMENTALS

General

The traditional definition of sanitary landfill comes from a Sanitary Landfill Manual of Practice, prepared by the American Society of Civil Engineers (ASCE) in 1959. "Sanitary Landfill is a method of disposing of refuse on land without creating nuisances or hazards to public health or safety, by utilizing the principles of engineering to confine the refuse to the smallest practical area, to reduce it to the smallest practical volume, and to cover it with a layer of earth at the conclusion of each day's operation or at such more frequent intervals as may be necessary."

Today's sanitary landfills are distinctly different from the old garbage dumps, which were open pits operated with little or no precautions against the potential hazards of gas migration, water pollution, rodent infestation, etc. Modern sanitary landfills operate according to a design and operating plan which has been approved by appropriate regulatory agencies. Landfill operations are closely monitored by federal and state agencies under an operating permit and regulations. The Resource Conservation and Recovery Act (RCRA) passed by Congress in 1976 requires that open dumps must be either closed or upgraded to meet prescribed standards of sanitary landfills, and new land disposal facilities must meet stringent criteria in siting and operation. These criteria relate to the following:

1. Floodplain integrity and management
2. Endangered species preservation
3. Surface water protection
4. Groundwater protection
5. Application of wastes to land used for the production of food chain crops
6. Disease prevention
7. Air quality protection
8. Public safety with respect to explosive gases, fires, bird hazard to aircraft, and site accessibility.

The U.S. Environmental Protection Agency (EPA) is currently evaluating the regulations for municipal waste landfills in response to the Hazardous and Solid Waste Amendments of 1984 to Subtitle D of the Resource Conservation and Recovery Act of 1976 (RCRA). In general, these proposed federal regulations affecting landfills are moving away from categorical design criteria toward strict performance standards. The federal regulations set the performance standards, which define the end result, and require

states to implement a regulatory system that will achieve that end result. It would be the facility's responsibility to demonstrate that the proposed design and operation will meet the federal performance standards and the state regulations. Previously developed categorical design criteria may be issued as guidance by EPA as a way of evaluating facility design to verify that it meets the performance standards.

Current Status of Proposed Regulations

The EPA has scheduled April, 1988 as the envisioned publication date for the proposed new Subtitle D regulations covering landfills for non-hazardous wastes. They have released drafts of the proposed regulations for review and comment to state regulatory agencies, industry associations, and other interested groups. Clearly, new regulations will emphasize groundwater protection, monitoring and elimination of hazardous waste from landfills, and lining requirements.

Characteristics of a Modern Landfill

Figure 2 presents a generalized schematic of the typical features that characterize a modern landfill.

While there are few ideal sites for landfills, some locations have more desirable conditions than others and have fewer potential effects on people and the environment. It is important for a site to be large enough to last a number of years, to provide a buffer around the active fill area, and to be capable of being constructed to meet regulatory standards for environmental safety.

Transport

Usually, getting waste to a landfill is a two-step process. Refuse haulers bring their collected waste to transfer stations near the region's centers of waste. Large transfer trucks, which keep the garbage completely enclosed, haul the waste to a landfill, where they unload it in a designated area. Variations to this procedure may occur when a landfill is close enough to the commercial and residential collection area to facilitate efficient direct haul by the refuse collector to the face of the operating landfill. Such has been the case in the operation of the St. Johns Landfill.

How a Modern Landfill Works

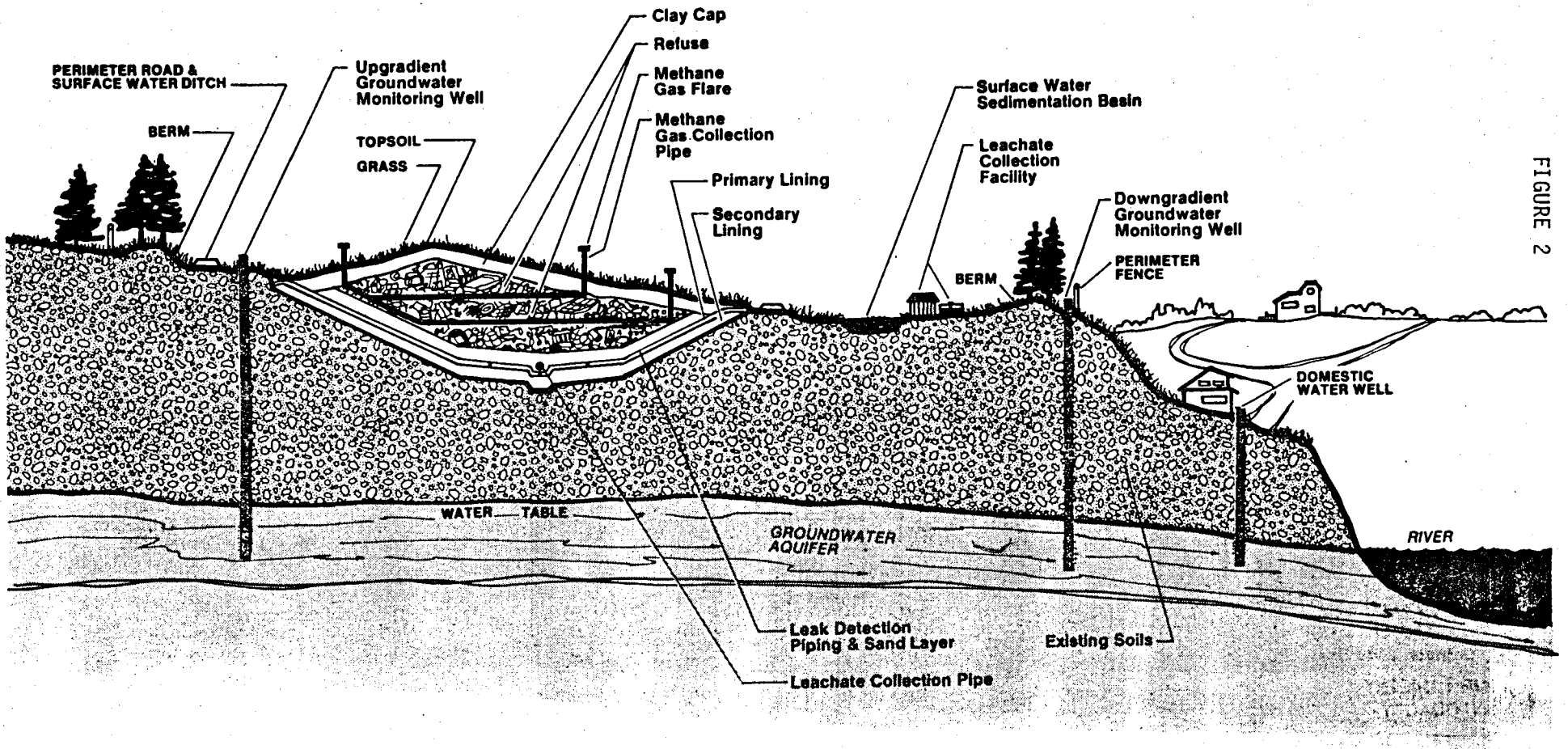


FIGURE 2

SOURCE: Landfill Siting Report: Summary
March 1987, Department of Environmental Ouality

The transfer of refuse from the area of generation to the landfill is sometimes best accomplished by utilizing other modes of transport such as barging or rail. This usually occurs when the landfill is located a great distance from the waste collection area. In this later scenario it is possible for waste to go through a three-step process to get to the landfill. One, haulers bring waste to the transfer station; two, transfer trucks take waste to a barge or rail loading facility; and three, the barge or rail car takes the waste to the distant landfill. Barging will usually require an additional step to get the waste from the barge site to the operating landfill. Rail may or may not require a similar additional step depending on the location of rail terminals.

Design and Construction

Groundwater or infiltrating surface water moving through solid waste can produce leachate, a solution containing dissolved and finely suspended solid matter and microbial waste products. The active areas of modern sanitary landfills have a system of liners to prevent leaks of this leachate. This system includes pipes to collect leachate from the bottom of the landfill and pump it to a treatment facility. Pipes are also installed to collect gas produced as the garbage decomposes. This gas may be flared to minimize environmental damage and odors if the system is not actively using the gas. Surface drainage is provided to direct surface water to a sedimentation basin and/or discharge culverts. Other features are incorporated into the landfill design to address particular site needs such as noise, berms, visual barriers, fire barriers and litter control measures.

Operation

The landfill is divided into working areas several acres in size. Usually, only one working area at a time is developed and used. Within the working area, waste disposal is confined to one small cell (about one acre at a time). The waste is spread into thin layers, compacted, and covered with a clean soil layer daily. When a working area is full, it is closed and disposal moves to another area.

Groundwater protection is an important feature of a modern landfill. Leachate leak detection systems are installed between the liners. If one liner leaks, it is detected before pollutants reach the second liner and corrective actions are taken. Groundwater monitoring wells are installed at appropriate locations around the site. If pollutants should escape through the bottom

liner, they can be detected before downgradient water wells. Gas monitoring systems are also provided. Fire prevention measures include on-site water systems and proper separation of the cells so fire is confined to a small area if it should occur.

Closing the Site

Even before the landfill begins to operate, plans are made for its eventual closure. They specify what the final protective cover will be (usually a clay cap), how the site will be graded and planted and for what new uses the land will be suitable. Groundwater and gas monitoring continue for many years after the landfill is closed.

IV. EXISTING GENERAL PURPOSE LANDFILLS

St. Johns Landfill - Remaining Capacity

Currently, St. Johns is the only general purpose landfill in the Portland tri-county area. This 236 acre facility, located in north Portland, has been operating since about 1934. Owned by the City of Portland, and operated by Metro, the landfill receives a total of almost 650,000 tons of waste per year from commercial and individual haulers or about 65 percent of all the wastes landfilled each year.

Projections on St. Johns' remaining capacity are based on three factors: 1) the rate of waste flow into the site, 2) the density of compaction of the waste as it is placed into the site, and 3) the amount of settlement. Regional solid waste policies and programs, such as diverting waste to out-of-region landfills or to materials processing centers, and banning out-of-state loads also impact the site life of St. Johns.

As of September, 1987 Metro estimates that there are approximately 2.5 million cubic yards (2,698,660 tons) of remaining capacity including daily cover at St. Johns Landfill. This volume is predicated on two actions: 1) increasing compaction ratios by 12 percent; and 2) refilling an area in the old, closed-out section of the landfill.

Based on current flow projections and capacities, Metro anticipates the landfill will close by Summer 1990 unless additional measures can be taken to extend its life to February 1991--the end of the contract date with the City of Portland.

Diversion Efforts

Diversion is the process which redirects waste from one solid waste facility to another and is an additional tool Metro uses to prolong the life of St. Johns. Metro encourages haulers to utilize alternative facilities such as materials recovery centers or limited purpose landfills where appropriate. Metro makes these alternative facilities economically attractive through rate setting techniques.

Encouraging the diversion of loads to alternative sites is limited by the type of alternative facilities available and the willingness of haulers to use them. Currently, the alternative facilities available within the Metro region can only take non-food waste or loads with a high percentage of recyclables. While use of the facilities has increased, economic incentives have been insufficient to divert all the waste which could be handled by these alternative facilities.

Metro has permitted and encouraged haulers to utilize disposal facilities outside the Metro boundaries and has intergovernmental agreements with those facilities which allow this diversion. Commercial haulers are currently permitted to use the Forest Grove Transfer Station from which transfer trucks haul the waste to the Riverbend Landfill in Yamhill County. Metro also hauls waste to this landfill from its Clackamas Transfer and Recycling Center. Other haulers in Washington County haul directly to Riverbend.

In total, the Riverbend general purpose landfill receives approximately 36,000 tons of commercially hauled waste per year from the tri-county area. The Marion County energy recovery facility in Brooks can accept up to 40,000 tons of solid waste per year from the Portland region for incineration. Figure 3 illustrates the distribution of non-recyclable waste in 1987.

Extensions to the Landfill

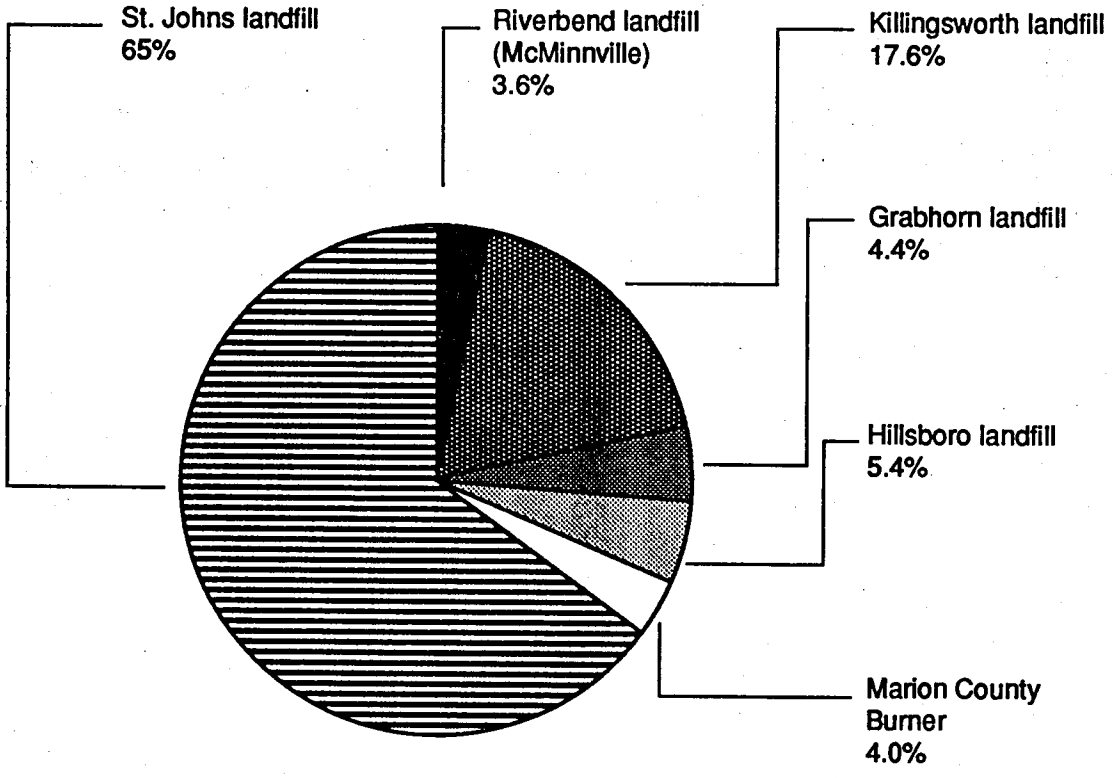
Metro has conducted several studies to analyze the feasibility of extending the area or capacity of St. Johns to make it last longer. Theoretically, its life can be extended by expanding laterally through filling of new areas or vertically by adding lifts.

There are a number of restrictions and limitations which decrease the effectiveness of expansion as an effective means of extending St. Johns' site life. First, the height limitation set by the land use permit for St. Johns Landfill is 80 feet mean sea level. The landfill is presently being filled to an average peak elevation of 74 feet. Vertical expansion to 80 feet would only increase site life by about two years. This expansion would require approval by the City of Portland and the Department of Environmental Quality.

Lateral expansion to gain capacity at St. Johns would require moving into Smith or Bybee Lakes. This type of expansion would require 1) repeal of state statute (ORS 541.622), 2) approval from EPA and the Corps of Engineers for filling wetlands, and 3) land use approval from the City of Portland. In addition, geotechnical studies have found marginally suitable to poor foundation conditions for lateral extension.

FIGURE 3

Distribution of Non-Recycled Waste 1987



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At this time, both lateral and vertical expansions of the St. Johns Landfill appear to be unacceptable environmentally and politically.

St. Johns Closure

Metro has developed a Draft Closure and Financial Assistance Plan for the St. Johns Landfill (December, 1986). This plan specifies the procedures that will be undertaken to assure that the landfill is closed in an acceptable manner and that appropriate activities are scheduled to monitor and maintain the site for at least 10 years and possibly up to 20 years after closure. The Oregon DEQ has reviewed this plan and has determined that additional water control structures may be needed. Metro will conduct an investigation to determine exactly what is needed. The requirements for a closure plan have been established in Oregon's Administrative Rules (OAR Chapter 340, Division 61).

The St. Johns Operations Plan calls for the closure of subareas in an ordered sequence as the filling of the landfill progresses. This "close-as-you-go" strategy is pursued so that areas susceptible to erosion and surface water infiltration are minimized throughout the period of active operations and so that the area to be closed at the time the landfill stops receiving waste is as small as practicable.

V. RELATIONSHIP OF LANDFILLS TO WASTE REDUCTION

The conventional approach to managing solid waste is to collect waste from residences or work places and to haul it to a landfill. Sometimes intermediate collection points or transfer stations are used to combine loads and transfer them to large trucks for haul to a landfill.

Increasingly, landfills are being viewed as only one part of a larger solid waste system which identifies waste as a resource from which materials and energy can be extracted. The waste reduction elements of the solid waste management system include (see Figure 4):

Source Reduction — Source reduction looks at ways to reduce packaging, make products last longer, use fewer resources in making them, and foster waste-thrifty consumer buying habits.

Source Separation — This step diverts waste before it enters the trash can. Examples include bottle return, recycling of paper, glass, metal, oil, yard debris, plastic, newspapers, and home composting.

Materials Recovery — Materials that could be recycled or composted are reclaimed from mixed waste after it is collected but before disposal. Materials can be extracted from mixed waste by hand or mechanical means.

Energy Recovery — Mixed waste can be used to generate energy either by directly burning the waste or by incinerating fuel products made from waste. Energy created can take the form of steam, hot water, or electricity.

Together, source reduction and source separation constitute "front-end volume reduction," since both take place before waste is collected. Materials recovery and energy recovery comprise "back-end volume reduction."

Specific examples of some of the region's waste reduction facilities include the following.

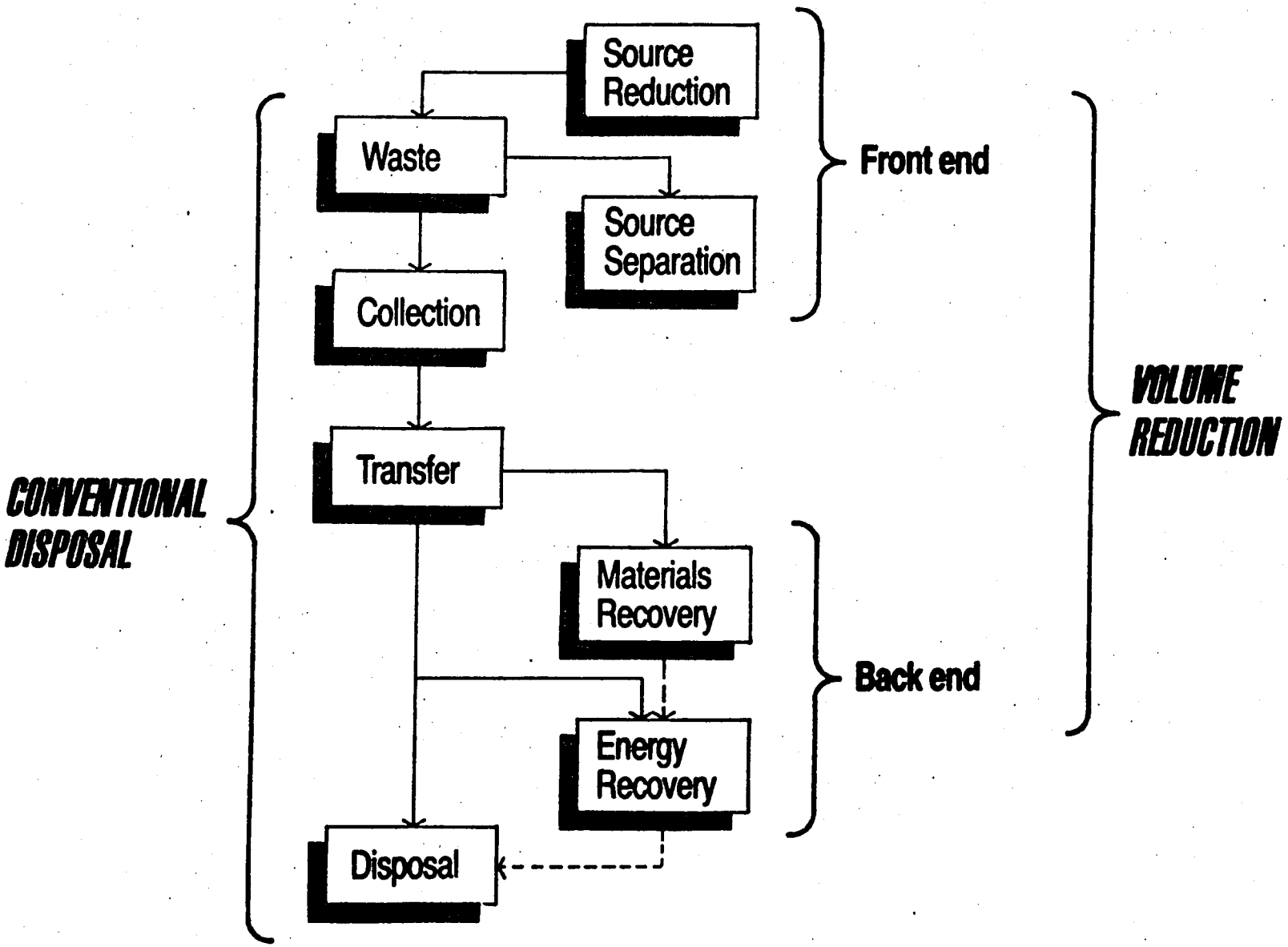

FIGURE 4

SOLID WASTE MANAGEMENT SYSTEM

Materials Recovery and Recycling Centers for Mixed Waste

- Oregon Processing and Recovery Center is located in North Portland. Mechanical devices (trommels and screens) and people are used to separate recyclables for resale. The facility accepts loads of mixed waste composed of at least 50 percent recyclable materials. The facility's capacity is estimated at 12,000 to 15,000 tons per year. Residual waste (estimated 40 percent of volume received) is disposed of at St. Johns Landfill or Killingsworth Fast Disposal.

- East County Recycling is located in the Parkrose district of Portland. Mixed waste is accepted for processing at the site for loads with at least 30 percent recyclable material. The owners/operators hand-sort the loads in preparation for sale of the materials to the secondary market. Between October 1986, when they began reporting their volumes to Metro, and June 1987, they processed about 4,250 tons, with about 70 percent of that recycled.

- Marine Drop Box--Marine Drop Box, located in northeast Portland, collects dunnage and debris from ships and sorts out useful wood, rope, cable, turn buckles, metal clips and wire for resale or for salvage. Ninety percent of the material received is reused or recycled. Approximately 10,000 cubic yards of waste are processed yearly.

- Sunflower Recycling located in southeast Portland has a composting operation for limited amounts of source separated food scraps, grass clippings, weeds, sawdust, and sod. Less than two tons per month of waste is composted in two 6 cubic yard cement mixers. Food and garden wastes are collected from Sunflower customers only and resold to the business's customers.

- Yard Debris Processing Centers

  Five yard debris facilities receive source separated yard debris and process the material into a product which can be sold. The material is delivered to the facilities by private individuals, commercial landscapers, and commercial waste collection firms. The material is generally processed into compost for sale as a soil amendment or ground cover. These firms received and processed over 200,000 cubic yards (about 20,000 tons) of material in 1986.

The current yard debris processing centers include Grimm's, MacFarlane's, East County, Washington County Unified Sewerage Agency, and the City of West Linn Yard Debris Center.

- Recycling Drop Off Centers

  There are approximately 150 recycling drop off centers in the Metro region. These include multi-material drop centers, newspaper only depots, buy-back centers, motor oil drop centers and pick-up services.

Future Waste Reduction Programs

In addition to these ongoing activities, Metro continues to pursue the development of a number of new waste reduction programs. These will include formulating specific waste reduction goals for various parts of the waste stream, incorporating material recovery at transfer centers and pursuing resource recovery proposals, such as mixed waste composting and energy recovery facilities.

Why a Landfill is Still an Integral Part of the Solid Waste System

Despite these methods for reducing the volumes of waste, a landfill remains an essential component of a solid waste system. The following section will analyze each waste reduction method and explain why they do not preclude the need for a landfill.

(1) Source Reduction

- Regulation of private companies that manufacture products with excessive packaging would require federal and state law changes.
- Changing consumer attitudes regarding excess packaging and reuses of materials takes time.

(2) Source Separation

- Not all materials are recyclable at this time (i.e., disposable diapers, window glass, rubber products, tree stumps, items composed of multiple materials).
- Market prices for source-separated recyclables vacillate depending on economic conditions.
- Changing public attitudes and habits regarding separation will take time.

(3) Materials Recovery

- A residue of waste remains after materials have been recovered which must be sent to a landfill.
- Markets for recovered materials (i.e., high grade paper, metals) vary depending on economic conditions. If markets are not available, materials can end up in a landfill.

(4) Energy Recovery

- Energy recovery facilities such as mass incinerators or refuse-derived fuel plants leave an ash residue that must be sent to a landfill.

In the event of a system failure (mechanical, markets, public participation), landfills provide a fail-safe element for public health, safety and welfare. Landfills also allow for the growth and development of waste reduction strategies and new technologies that take time to create and implement. Reduction, reuse and recycling programs require legal and/or behavioral changes to produce effects and these take years of ongoing commitment. Disposal of solid waste through energy and resource recovery can have a substantial and immediate impact, but these technologies require a guaranteed commitment of waste. A landfill provides flexibility to maximize the recovery of materials in the waste stream for highest and best uses.

VI. NEED FOR A LANDFILL

The discussions presented in this chapter provide justification for developing general purpose landfill capacity for the Portland tri-county area. Specifically, the following findings indicate that there is a clearly demonstrated need for more final disposal capacity to facilitate management of the region's solid waste system:

(1) The St. Johns Landfill will reach capacity by 1990 or 1991.

Over 1.2 million tons of waste are generated each year in the Metro region. It is estimated that 22 percent of that amount is recycled, with the remaining 78 percent going to disposal facilities. Sixty-five percent of the waste disposed goes to the St. Johns Landfill; the remaining 35 percent is diverted to other disposal facilities (see Figure 3). Metro has also banned accepting out-of-state and out-of-region loads at Metro facilities.

Even with these measures, the landfill is anticipated to close in 1990 or 1991 (see Table 1). Physical extension possibilities are not technically feasible or are prohibited by state and federal regulations. Without a replacement landfill, there will not be enough disposal facilities for the region's garbage. This would lead to health and environmental hazards.

(2) Even with an aggressive waste reduction program, non-recyclable materials, residues from materials processing centers, and residuals from resource recovery facilities (composting and refuse-derived fuel facilities) will need to go to a landfill.

Given Metro's highest reduction and recycling scenario, 52 percent of the region's waste could be reused or recycled through source separation, collection and processing of high grade loads of select materials. This assumes that the rate of recycling would increase from the current 22 percent to 52 percent. This 30 percent increase could result only under optimal conditions which would include increased public participation in source separation, increased facility capacity for high-grade waste load separation, and stable markets which could absorb the increase in recyclable commodities.

ST. JOHNS LANDFILL CAPACITY

Table 1

TIME PERIOD	TARGET TONNAGE	CUMULATIVE TONNAGE AT END OF TIME PERIOD	REMAINING CAPACITY AT END OF TIME PERIOD (CUBIC YARDS)
May 1, 1986 to April 30, 1987	572,380	572,380	3,054,157
May 1, 1987 to April 30, 1988	555,820	1,128,200	2,260,128
May 1, 1988 to April 30, 1989	557,600	1,685,800	1,463,557
May 1, 1989 to April 30, 1990	577,600	2,263,400	638,414
May 1, 1990 to Feb. 1, 1991	446,890	2,710,290	0

Source: Agreement between City of Portland and Metropolitan Service District for Operation of St. Johns Landfill, June 1986.

Recovery facilities could also help reduce the amount of waste going to the landfill. A proposed refuse-derived fuel plant in Columbia County could accept up to 350,00 tons per year of waste. A composting facility proposed for North Portland could accept up to 160,000 tons per year. However, the RDF plant will produce approximately 116,000 tons per year of residue that will need to go to a landfill. The composting facility will reject approximately 64,000 tons per year.

(3) Optimum reduction, recycling, resource and energy recovery are not necessarily technically, economically or politically feasible at this time.

There is no certainty that either the RDF or composting facility can be built. Political opposition and financial risks are just two factors that could affect final decisions on these facilities. Markets for recyclable materials vary depending on economic conditions or they have not yet been developed. Certain materials cannot be recycled because they are contaminated or contain large quantities of liquid. Residential and commercial reduction and recycling habits take time to change. Without legislative mandates, recycling is still voluntary.

Metro will continue to aggressively pursue and support waste reduction efforts to decrease the amount of waste that is destined for the landfill. However, at this time there is still an illustrated need for a landfill as the base for our system in view of the fact that waste reduction techniques are not capable of eliminating in total the waste flow directed to final land disposal.

(4) A landfill is an integral part of a solid waste disposal system.

A landfill can be considered the base of a solid waste system--a base which provides support when everything else fails. It is a safeguard when resource recovery facilities experience mechanical breakdowns, when markets for recyclables are poor or do not exist, and when innovative waste reduction alternatives to landfilling are being developed and implemented.

(5) The amount of solid waste generated in the region is projected to increase by two percent each year. With current waste generation estimated at 1,272,022 tons, this means there will be 1,857,920 tons by the year 2000 and 2,304,459 tons by 2009. All this projected

waste needs to be managed with an assurance that there will be a place for it to go if waste reduction techniques are not adequate to substantially reduce these projected volumes.

(6) In 1985, the Oregon State Legislature recognized the immediate need for general purpose landfill capacity in the Metro region by passage of Senate Bill 662. SB 662 gave the Department of Environmental Quality the authority to study and establish landfill sites in the region after Metro had been unable to do so. This need is so compelling via direction of the Legislature that the selection of a landfill site by the Department of Environmental Quality's new authority provides DEQ the authority to override local land use plans in making such a siting selection.

VII. COMPATIBILITY DETERMINATION FOR GENERAL PURPOSE LANDFILL SITES

Clearly, there is a demonstrated need for general purpose landfill capacity as an integral component of the region's solid waste management system. However, this region and the nation continue to struggle with establishing landfill sites. Solid waste facilities of all kinds, including not only landfills but also processing centers and transfer stations, are prime examples of the "LULU" or "locally unwanted land uses" syndrome.

For the Metro region, this LULU syndrome has resulted in several uphill and unsuccessful battles in attempting to locate general purpose landfill sites. As a result, the Legislature in 1985 gave the DEQ the authority to preempt local authority and secure site(s) for general purpose landfill capacity (see Appendix 2). This authority may eventually result in the successful siting of a new regional landfill. However, as we have all seen, this preemptive authority for landfill siting has been politically unpopular, legally challengeable, and infringes on the tradition of local government decision making.

On the positive side, however, these municipal siting difficulties have resulted in an interest by the private sector to seek innovative alternatives for landfill sites and other solid waste facilities such as transfer stations and resource recovery facilities. Competitive options resulting from municipal choices as well as private proposals provide Metro the flexibility to make better decisions in regard to both environmental safety assurance and economic savings in selecting one facility option over another.

Metro continues to have a need for general purpose landfill capacity for diversion of waste from the St. Johns Landfill. Current estimates indicate that, with current flows of waste to the St. Johns Landfill, it will reach capacity by Fall, 1990. If a new landfill is not on-line prior to that time, Metro will have a need to divert large amounts of garbage from St. Johns in order to keep it open until a new landfill is on-line. This diversion will require that general purpose landfill capacity be available. This needed capacity will probably be accomplished by utilizing existing sites in either Oregon or Washington. Again, it is important to maintain flexibility in determining which sites will be used in order to facilitate a competitive options process in making that decision.

The region will need to provide for ash disposal if an energy recovery facility is put on-line. At this time, it does not appear that private sector landfill operators are willing to accept this ash. Therefore, if Metro authorizes an energy recovery facility, it will need to provide for ash disposal.

This signals a need for an additional location to facilitate ash disposal.

Finally, it is crucial for Metro to have available general purpose landfill capacity options in the event of unexpected problems or setbacks at a selected alternative disposal site. This could include such things as environmental hazards, or transport delays due to weather conditions.

In order to maintain this necessary flexibility in choices, it is crucial to maintain flexibility in determining sites for general purpose landfill capacity. Therefore, it should be recognized that general purpose landfill capacity for the Metro region can best be accomplished by utilizing a variety of site options. These options include in-region sites, out-of-region sites, existing sites, new sites and/or a combination thereof. This flexibility is necessary to allow for continued diversion of waste from St. Johns Landfill, to provide ash disposal, to maintain competitiveness with private sector options and to ensure placement of solid waste in the case of unexpected problems or setbacks at a selected site.

Metro needs this flexibility to select a minimum of one landfill site that is available, environmentally sound, and capable of handling the projected volume of waste that will still need to be landfilled on a long term basis. Additional sites might also be secured as necessary for ash disposal or as backup where it is feasible to do so.

General Locational Considerations

In assessing the appropriateness of landfills in regard to their general location, it is important to recognize some major differences and tradeoffs associated with an in-region site or an out-of-region site located in arid conditions such as those in eastern Oregon or Washington.

Out-of-Region Landfills (arid conditions) (eastern OR or WA)

1. Favorable Environmental Conditions

The eastern terrains of Washington and Oregon are generally arid with significantly less annual rainfall than in the Willamette Valley. Arid conditions result in a minimal amount of leachate generation from a landfill. Because of arid conditions, it is less likely that vegetation or forest lands will need special protection as a result of a landfill. There will be no impacts on wetlands in this part of the northwest region.

In the Portland tri-county area, potential sites could be in areas with heavy rainfall, steep slopes and/or extensive wetlands. Landfills in these areas would generate more leachate thus requiring a more extensive landfill lining and leachate collection system than do arid region sites.

2. Rural Character - Low Population Density

A landfill is less likely to negatively impact residences and adjacent land uses because of the remoteness and lack of development in eastern Oregon and Washington. Because the Portland tri-county region is more densely developed than these eastern/arid regions, it is more difficult to find acceptable sites of sufficient size which do not negatively impact adjacent land uses. In addition, large parcels suitable for landfills might be used for more productive economic activities and new industrial development.

3. Acceptability to Local Residents

A landfill is more likely to be accepted by residents of eastern Oregon and Washington because of the environmental and land use factors mentioned above. In addition, landfill projects can create temporary and permanent jobs for areas with higher unemployment and fewer opportunities for economic development than the Portland tri-county region.

In-Region Landfills

1. Lower Costs

Since an in-region landfill is closer to the center of waste generation, disposal costs may be less than for a landfill in eastern Oregon or Washington, where the cost of transporting waste from a transfer station or depot either by rail or barge would be added to the overall disposal costs. Higher costs would be passed on to the region's ratepayers.

2. Mitigation Measures and Compensation

Cost savings from an in-region landfill, if available, can be used to offset adverse environmental conditions, such as level of rainfall, wetlands, etc. or to compensate people who are adversely affected by the landfill. They could also be used to provide other needed public works for the tri-county region.

Current and Potential Landfills within 200 Miles of the Portland Metropolitan Area

Theoretically, any new or existing landfill which has sufficient capacity and is environmentally safe could receive solid waste from the Portland tri-county region. Using data from Oregon's Department of Environmental Quality (DEQ) and Washington's Department of Ecology (DOE), the following sanitary landfill sites have been identified. These are existing or potential general purpose landfills which accept or could accept the same kinds of waste as St. Johns.

This list is not meant to be all inclusive in identifying general purpose landfill capacity that may be utilized by Metro; nor does the list imply that all these facilities are practical for use by Metro until further transport and capacity issues are analyzed. Additional sites may be developed and thus may be appropriate for Metro's consideration in the future. Further, this list does not infer that these sites are environmentally safe. Such environmental safety determinations are not made by Metro, but are made by either the DEQ or DOE.

OREGON

	NAME	LOCATION (COUNTY)	OWNER	PERMITTEE
Northwestern Oregon				
1.	Vernonia	Columbia	City of Vernonia	City of Vernonia
2.	Tillamook	Tillamook	Tillamook County	Tillamook County
Mid-Willamette Valley				
3.	Coffin Butte	Benton	Valley Landfills	Valley Landfills
4.	Florence	Lane	Lane County	Lane County
5.	Franklin	Lane	Lane County	Lane County
6.	Oakridge	Lane	U.S. Forest Service	Lane County
7.	Short Mountain	Lane	Lane County	Lane County
8.	Agate Beach	Lincoln	City of Newport	Normac, Inc.
9.	South Lincoln	Lincoln	Dahl Disposal	Dahl Disposal
10.	McCoy Creek	Marion	U.S. Forest Service	Marion County

	NAME	LOCATION (COUNTY)	OWNER	PERMITTEE
Mid-Willamette Valley (continued)				
11.	Woodburn	Marion	Marion County	Marion County
12.	Riverbend	Yamhill	M. Bernards	River Bend Co.
Southwest Region				
13.	Bandon	Coos	Coos County	Coos County
14.	Roseburg	Douglas	Douglas County	Douglas County
Central Region				
15.	Crook County Landfill	Crook	Crook County	Crook County
16.	Alfalfa	Deschutes	Deschutes County	Deschutes County
17.	Brothers	Deschutes	Oregon St. Hwy. Div.	Oregon St. Hwy. Div.
18.	Knott Pit	Deschutes	Deschutes County	Deschutes County
19.	Negus	Deschutes	Deschutes County	Deschutes County
20.	Southwest Landfill	Deschutes	Deschutes County	Deschutes County
21.	Box Canyon	Jefferson	Jefferson County	Jefferson County
22.	Chemult	Klamath	Klamath County	Klamath County
23.	Crescent	Klamath	Klamath County	Klamath County
24.	Sherman County	Sherman	U.S. Nat'l Bank	Sherman County
25.	Antelope	Wasco	City of Antelope	City of Antelope
26.	North Wasco County	Wasco	Arthur Braun	Arthur Braun
27.	Rajneeshpuram	Wasco	Rajneesh Investment	Rajneesh Commune
28.	Shaniko	Wasco	Oregon St. Hwy. Div.	City of Shaniko

POTENTIAL OREGON LANDFILL SITES

1.	Waste Management, Inc.	Gilliam	Waste Management, Inc.	(Waste Management, Inc.)
2.	Finley Buttes	Morrow	Tidewater Barge	(Tidewater Barge)
3.	I-5 Landfill	Marion	Valley Landfills	Valley Landfills
4.	Bacona Road	Washington County	Metro	Metro*

WASHINGTON

	NAME	LOCATION (COUNTY)	OWNER
1.	Lawson Landfill	Clallam	Dan Lawson
2.	Lake Creek	Clallam	Clallam County Public Works
3.	Carlson Circle C	Clark	Carl Carlson
4.	Leichner Brother	Clark	Elmer Leichner
5.	Cowlitz County	Cowlitz	Cowlitz County Public Works
6.	Sari Pit Site	Cowlitz	Ostrander Rock Co.
7.	Radakovich Landfill	Cowlitz	Bob Radakovich
8.	Aberdeen Landfill	Grays Harbor	Harold Lemay Enterprises, Inc.
9.	Hoquiam	Grays Harbor	City of Hoquiam
10.	Jefferson County	Jefferson	Jefferson County Public Works
11.	Newcastle	King	Coal Creek Development Corp.
12.	Carnation	King	City of Carnation
13.	Cedar Hills	King	King County
14.	Duvall	King	King County, Division of Solid Waste
15.	Hobart	King	King County, Division of Solid Waste
16.	Kent Highlands	King	King County, Division of Solid Waste

*Subject to final EQC order and Metro concurrence.

	NAME	LOCATION (COUNTY)	OWNER
17.	Vashon	King	King County, Division of Solid Waste
18.	Olympic View	Kitsap	Kitsap County Sanitary Landfill, Inc.
19.	Klickitat County	Klickitat	Klickitat County Public Works
20.	Centralia	Lewis	City of Centralia
21.	Mason County	Mason	Mason County
22.	Rainbow Valley	Pacific	Rainbow Valley, Inc.
23.	Fort Lewis	Pierce	U.S. Army
24.	Thun Field	Pierce	Land Recovery, Inc.
25.	Tacoma	Pierce	City of Tacoma
26.	Darrington	Snohomish	Town of Darrington
27.	Cathcart	Snohomish	Snohomish County Public Works
28.	Thurston County	Thurston	Thurston County Public Works
29.	Terrace Heights	Yakima	Yakima County Public Works

APPENDIX 1

DEFINITIONS

1. Energy recovery - recovery in which all or a part of the solid waste materials are processed to utilize the heat content, or other forms of energy, of or from the material. (ORS 459.005)

2. General purpose landfills - those facilities which accept all types of residential, commercial, and industrial wastes, excluding hazardous wastes, for disposal by incorporating them (burying) in the ground.

3. Hazardous wastes - (a) discarded, useless or unwanted materials or residues resulting from any substance or combination of substances intended for the purpose of defoliating plants or for the preventing, destroying, repelling or mitigating of insects, fungi, weeds, rodents or predatory animals, including but not limited to defoliants, desiccants, fungicides, herbicides, insecticides, nematocides and rodenticides.

   (b) residues resulting from any process of industry, manufacturing, trade or business or government or from the development or recovery of any natural resources, if such residues are classified as hazardous by order of the commission, after notice and public hearing. For purposes of classification, the commission must find that the residue, because of its quantity, concentration, or physical, chemical or infectious characteristics may:

   (1) cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or

   (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed or otherwise managed.

   (c) discarded, useless or unwanted containers and receptacles used in the transportation, storage, use or application of the substances described in paragraphs (a) and (b) of this subsection.

   "Hazardous waste" does not include radioactive material or the radioactively contaminated containers and receptacles used in the transportation, storage, use or application of radioactive waste, unless the material, container or

receptacle is classified as hazardous waste under paragraph (a), (b) or (c) of this subsection on some basis other than the radioactivity of the material, container or receptacle. (ORS 466.005)

4. Limited purpose landfills - those facilities which are prohibited from accepting putrescible waste and hazardous waste, but are permitted to receive commercial and industrial solid wastes that are non-putrescible, and demolition debris for disposal by burying in the ground.

5. Material recovery - any process of obtaining from solid waste, by pre-segregation or otherwise, materials which 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. (ORS 459.005)

6. Non-putrescible waste - non-food solid waste and demolition debris not capable of being rapidly decomposed by microorganisms, and which does not emit foul-smelling odors during decomposition.

7. Putrescible waste - solid waste containing organic material that can be rapidly decomposed 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. (OAR, Chapter 340, Division 61, Section 10)

8. 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. (ORS 459.005)

9. Regional Disposal Site - (a) A disposal site selected pursuant to Chapter 679, Oregon Laws, 1985; or

   (b) A disposal site that receives, or a proposed disposal site that is designed to receive more than 75,000 tons of solid waste a year from commercial haulers from outside the immediate service area in which the disposal site is located. As used in this paragraph, "immediate service area" means the county boundary of all counties except a county that is within the boundary of the metropolitan service district. For a county within the metropolitan service district, "immediate service area" means the metropolitan service district boundary. (Chapter 876, Oregon Laws, 1987)

10. The Resource Conservation and Recovery Act of 1976 (RCRA) - an Act passed by the U.S. Congress with the objective to promote the protection of health and the environment and to conserve valuable material and energy resources. Moreover,

it requires the states to enact laws and regulations for the management of solid waste.

11. Resource Recovery Facility - an area, building, equipment, process or combination thereof where or by which useful material or energy resources are obtained from solid waste. (Metro Code 5.01.010)

12. 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. (ORS 459.005)

13. 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 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 which are salvageable as such materials are used on land in agricultural operations and the growing or harvesting of crops and the raising of fowls or animals. (ORS 459.005)

14. Waste Reduction - to substantially reduce the volume of solid waste that would otherwise be disposed of in land disposal sites through techniques including, but not limited to, rate structures, source reduction, recycling, reuse and resource recovery. (ORS 459.790, Sec. 8(1a))

APPENDIX 2

STATUTORY PROVISIONS RELATING TO LANDFILLS AND METRO'S SOLID WASTE AUTHORITY

A number of state statutes set direction and rules for the siting and management of landfills and other solid waste facilities. The major statutes relating to solid waste include ORS Chapter 459, which deals with solid waste control; and ORS 268, which establishes Metro's solid waste disposal powers. ORS Chapter 468 relates to State Pollution Control Bonds. Chapter 679, Oregon Laws, 1985 was passed during the 1985 legislative session to respond to the solid waste disposal emergency in the Portland metropolitan area. Chapter 876, Oregon Laws, 1987 was the omnibus solid waste bill of the 1987 legislature and has been incorporated into ORS Chapter 459. However, for the purposes of this document, it is discussed separately. The major provisions of these statutes are summarized on the following pages.

ORS Chapter 459 - Solid Waste Management

ORS 459.015 provides for a comprehensive statewide program for solid waste management. The statute specifically states that after consideration of technical and economic feasibility, the state shall establish the following priorities when developing a program for solid waste management:

> First, to reduce the amount of solid waste generated.
>
> Second, to reuse material for the purpose for which it was originally intended.
>
> Third, to recycle material that cannot be reused.
>
> Fourth, to recover energy from solid waste that cannot be reused or recycled, so long as the energy recovery facility preserves the quality of air, water, and land resources.
>
> Fifth, to dispose of solid waste that cannot be reused, recycled or from which energy cannot be recovered by landfilling or other methods approved by the Department of Environmental Quality (DEQ).

Rules adopted under ORS Chapter 459 (OAR-340-60-025 and 026) require that local governments (Metro in the Portland region) adopt a solid waste management plan in order to receive a landfill facility operating permit from DEQ. This plan must identify the need for a landfill and be approved by DEQ. Proposals for landfills must be compatible with the adopted local and DEQ-approved solid waste management plan.

ORS 459.055 stipulates that a waste reduction program must be prepared before a disposal site can be established as a conditional use in an area zoned for exclusive farm use. A waste reduction program written under this section of the law specifically requires:

- a commitment to reduce the volume of waste that would otherwise be disposed of in a landfill through techniques such as source reduction, recycling, reuse and resource recovery;
- a timetable for implementing each portion of the waste reduction program;
- energy efficient, cost effective approaches for waste reduction;
- procedures commensurate with the type and volume of solid waste generated in the area; and

- legal, technical and economical feasibility.

Metro's Waste Reduction component of the Solid Waste Management Plan for the tri-county region was approved by DEQ in 1981 and is in accordance with the requirements of the statute. The Solid Waste Management Plan was updated in 1986 to reflect the new waste reduction requirements of Chapter 679, Oregon Laws, 1985. DEQ approved the updated plan in June, 1986.

ORS 459.057 specifies that before issuing a permit for a landfill disposal site or for a disposal site established as a conditional use in an area zoned for exclusive farm use within the boundaries of Clackamas, Marion, Multnomah, Polk or Washington Counties, the Department (DEQ) shall require that "to the extent legally, technically and economically feasible only solid waste from transfer stations or solid waste residues from resource recovery facilities will be deposited in landfills."

ORS 459.065 gives Metro additional authority by authorizing intergovernmental agreements between Metro, cities, counties and the DEQ in order to carry out one of its authorized functions. Subsection (g) specifically allows intergovernmental agreements for "the establishment of landfill disposal sites including site planning, location, acquisition, development and placing into operation."

ORS 459.095 states that a local government should not take actions which conflict with a solid waste management plan or program adopted by a metropolitan service district and approved by the DEQ or any ordinances or regulations adopted pursuant to such a plan or program.

Chapter 679, Oregon Laws, 1985

In 1985, the Oregon Legislative Assembly passed legislation which attempted to resolve the solid waste disposal emergency in the Portland metropolitan area.

This legislation required the DEQ to conduct a study to determine the preferred and appropriate sites for solid waste disposal facilities to serve the Portland metropolitan area. This was critical because St. Johns Landfill, the Portland area's only existing general purpose landfill, is expected to be full by 1990. The time frame for the site selection process called for the development of a comprehensive list of potential sites by May 1986; the completion and submission to the EQC of a study identifying 12 to 18 preferred and appropriate sites in June 1986; and the selection by the DEQ of three final sites for

detailed feasibility analysis by November 1, 1986. An order was to be issued by EQC directing the DEQ to establish a disposal site or sites by July 1, 1987.

Chapter 679 granted EQC broad-ranged siting authority within Washington, Multnomah and Clackamas Counties. Specific sites within Columbia, Marion, or Yamhill Counties were retained for evaluation only if they had received prior land use approval or had been recommended by the Board of Commissioners of that county.

DEQ developed a list of approximately 150 potential landfill sites using a numerical ranking system for site evaluation criteria. No out-of-region Oregon sites were ever considered even at the most preliminary stages. The 19 highest-ranking sites in the tri-county area were selected for in-depth evaluation, after which three sites were selected for detailed feasibility analysis. These three sites included Ramsey Lake, Bacona Road, and Wildwood. The Wildwood site was eventually dropped from further consideration because of landslide potential discovered deep beneath the site.

Chapter 679, Oregon Laws, 1985, also directed the Metro district to dedicate $0.50 per ton of the service charge collected at each general purpose landfill to be used for rehabilitation and enhancement of the area in or around the landfill. The legislation also stated that $1.00 per ton of the service charge must be transferred to the DEQ and paid into a separate account of the General Fund of the State Treasury. This money was to be used to carry out the department's functions and duties under this bill.

In addition to its landfill siting requirements, Chapter 679 provided for the development and implementation of a comprehensive solid waste reduction program for the Portland region. This involves a commitment by the Metro district to substantially reduce the volume of solid waste that would otherwise be disposed of in land disposal sites through techniques including rate structures, source reduction, recycling, reuse, and resource recovery. This waste reduction program was submitted to the EQC for review and approval in 1985. The waste reduction program was subsequently approved by the EQC in June, 1986.

Current Status

The following items have taken place since Chapter 679 was adopted in the 1985 Legislative session:

- The DEQ met the dates specified for siting of a landfill. The schedule for Bacona Road was amended by Chapter 876, Oregon Laws, 1987.

- The EQC issued an order identifying Bacona Road as the selected site within the time frame established, which was appealed to a hearings officer.

- Metro submitted a Waste Reduction Program, which was approved by the EQC in June, 1986.

- Metro created and implemented a rehabilitation and enhancement fee and program for St. Johns Landfill.

- Metro instituted a $1.00 per ton landfill siting fee and $.50 per ton rehabilitation fee.

Chapter 876, Oregon Laws, 1987

Chapter 876, Oregon Laws, 1987, was the Solid Waste Omnibus Bill of the 1987 Legislative session. The bill covers four major policy concerns which are discussed below.

(1) Expansion of the Rehabilitation and Enhancement Fee Program

Chapter 876, Oregon Laws 1987, establishes two different rehabilitation and enhancement fee programs for publicly owned or franchised disposal facilities, including landfills and transfer stations. Under either program, citizens' advisory committees are required to select plans, programs and projects for the rehabilitation and enhancement of the area around the disposal site. For regional disposal sites, committees will be activated when the DEQ receives an application for a site permit. If the regional site is operated by Metro, the citizens' advisory committee will be established by the Council. Otherwise, counties have this responsibility. These advisory committees are required to file annual reports with the DEQ, who will consider these reports when issuing or renewing solid waste permits.

(2) Creation of New County Revenues from Regional Landfill Tonnage Surcharges

Section 7 of Chapter 876 establishes a county tonnage surcharge schedule, if the public agency and the owner/operator of a proposed regional landfill cannot come to an agreement. If the county activates the surcharge formula in lieu of a negotiated agreement,

then the county must commit 10 percent of the revenues to a transition/closure fund, and use the remaining 90 percent to mitigate adverse impacts of the facility.

(3) EQC Bacona Road Order

Section 5 of the legislation states that Metro may select an alternative to the EQC-selected site (Bacona Road). This could be an out-of-region landfill.

> The Metropolitan Service District may provide for the disposal of solid waste from Clackamas, Multnomah or Washington County at a disposal site or sites other than the site selected by the Environmental Quality Commission under Section 5, Chapter 679, Oregon Laws, 1987.

This section also prohibits the DEQ from determining that the Metro-selected site is not needed. Section 20 requires that the EQC Bacona Road order not expire before July 1, 1989. This allows Metro to look for landfill opportunities other than through the Chapter 679 process, while keeping their options open by not allowing the EQC-selected site to be abandoned prior to July 1, 1989.

(4) Establishment of Program Requirements

Chapter 876, Oregon Laws, 1987 also requires Metro to establish certain solid waste education programs, household hazardous waste collection programs, and recycling container programs. It also requires Metro to submit a biannual solid waste reduction program to the EQC for review and comment beginning July 1988. Every two years thereafter, they must submit a report on the status of its solid waste reduction plan. This bill does not give DEQ veto authority or ability to alter the plan or its amendments, as was the case in Chapter 679, Oregon Laws, 1985.

The EQC will evaluate Metro's report compared to Metro's results in meeting the plan's goals. They will submit a preliminary report of its findings to the Legislature by September 1988 and a final report prior to the 1989 Session. This review will continue every two years thereafter.

Other Impacts on Solid Waste Management

In addition to the four major policy concerns described above, Chapter 876 stipulates that any local or regional government sending solid waste to a regional disposal site after July 1, 1988 must comply with Oregon's statutory source separation/recycling statutes under Chapter 679, Oregon Laws, 1985. The EQC is in charge of making the rules and setting the fees to implement these requirements.

In addition, if Metro is sending waste to a regional disposal site located outside the current Metro district boundaries after July 1, 1988, it is required to implement the following three projects:

(1) At least semiannually operate a collection system or site for collection of household hazardous wastes;

(2) Provide residential recycling containers as a pilot project not later than July 1, 1989;

(3) Provide an educational program to increase participation in recycling and household hazardous materials collection programs.

The DEQ has been directed to conduct a statewide solid waste management study and to make its reports available to the next Legislature. The study will include evaluation of disposal sites throughout the state.

ORS Chapter 268 - Metro's Disposal Authority

ORS 268.317 provides the framework for Metro's solid waste disposal powers and it outlines the specific activities the District may undertake to implement that authority within the tri-county area. These activities include the ability to

- build, construct, acquire, lease, improve, operate and maintain landfills, transfer facilities, resource recovery facilities and other improvements necessary for the solid waste disposal system;

- sell, enter into short or long term contracts, solicit bids, enter into direct negotiations, deal with brokers or use other methods of sale or disposal for the products or by-products of the District's facilities;

- require any person or class of persons who generates solid waste to make use of the disposal, transfer or

resource recovery sites or facilities of the District or disposal, transfer or resource recovery sites or facilities designated by the District;

- require any person or class of persons who pick up, collect or transport solid wastes to make use of the disposal, transfer or resource recovery sites or facilities of the District or disposal, transfer or resource recovery sites or facilities designated by the District;

- regulate, license, franchise and certify disposal, transfer and resource recovery sites or facilities; establish, maintain and amend rates charged by facilities;

- prescribe a procedure for the issuance, administration, renewal or denial of contracts, licenses or franchises;

- regulate the service or services provided by contract, license or franchise; and

- receive, accept, process, recycle, reuse and transport solid wastes.

Functional Planning Authority

Under ORS 268.390, Metro also has the authority to prepare and adopt functional plans for areas and activities having significant impact on the orderly and responsible development of the metropolitan area.

If a functional plan is adopted for a specific area or activity, Metro can recommend or require cities and counties to make changes in their comprehensive plans to assure that local plans and actions conform to the District's functional plans.

In September 1986, the Metro Council adopted Ordinance No. 86-207 establishing a planning procedure for identifying and designating those areas and activities in need of functional planning. On March 12, 1987, Metro Council adopted Resolution No. 87-740 for the purpose of designating solid waste as an area and activity appropriate for the development of a functional plan.

Rate Setting Authority

Finally, ORS 268.317 establishes the authority to collect fees at solid waste facilities which it operates or franchises. The statute allows Metro to "establish, maintain and amend rates charged by disposal, transfer and resource recovery sites or facilities." ORS 268.515 also provides that "a district may impose and collect service or user charges in payment for its

services or for the purposes of financing the planning, design, engineering, construction, operation, maintenance, repair and expansion of facilities, equipment, systems or improvements."

ORS Chapter 468
State Pollution Control Bonds

ORS 468.220 stipulates that the DEQ shall require municipal corporations, cities, counties or agencies applying for loans, grants or requesting general obligation bonds to demonstrate that they have an adopted Solid Waste Management Plan that has been approved by the DEQ. This plan must also include a waste reduction program.

APPENDIX 3

HAZARDOUS AND SPECIAL WASTES

Hazardous waste is defined as residue that may

> cause or significantly contribute to, an increase in mortality, or an increase in serious irreversible, or incapacitating reversible, illness or pose a substantial present or potential hazard to human health or the environment when it is improperly treated, stored, transported, disposed of or otherwise managed. (ORS Chapter 466.005)

In general, any waste which is ignitable, corrosive, reactive or toxic is considered a hazardous waste.

Subtitle C of the 1976 Resource Conservation and Recovery Act contained provisions to regulate the storage, transportation, processing, and ultimate disposal of hazardous wastes. The following have been identified by the EPA as desirable Hazardous Waste Management options.

1. Minimize the amounts generated by modifying the industrial process.

2. Transfer the wastes to another industry that can use them.

3. Reprocess the wastes to recover energy or materials.

4. Separate hazardous from non-hazardous wastes at the source, thus reducing the costs of handling, transportation, and disposal.

5. Incinerate the wastes or subject them to treatment that makes them non-hazardous.

6. Dispose of the wastes in a secure landfill (one that is located, designed, operated, and monitored, even after it is closed, in a manner that protects life and the environment).

In Oregon, DEQ is responsible for hazardous waste management (ORS Chapter 466). Generators producing more than 220 pounds per month of a regulated hazardous waste (two pounds per month of acutely hazardous waste) are required to register with the DEQ and are regulated by state and federal hazardous waste regulations. These generators must dispose of their waste at a

licensed hazardous waste facility rather than at a general purpose landfill.

Generators who produce less than 220 pounds per month of hazardous waste or less than two pounds per month of acutely hazardous waste are currently exempt from state regulation. These wastes are allowed in sanitary landfills with the permission of the site operator under DEQ's Administrative Rule. Metro has a policy (Resolution No. 86-618) which states that it will not knowingly accept any quantity of hazardous waste at Metro-owned facilities.

The quantity of unregulated hazardous waste in the Portland area municipal waste stream is unknown. Examples of unregulated hazardous waste that could legally be accepted, but are not desirable, at a municipal landfill include items such as 10 pounds of arsenic and 200 pounds of barium generated by a single source in a month. Household wastes are not classified as hazardous wastes. However, many typical wastes such as some household cleaners, used motor oil, some types of paint, and some auto and furniture polish exhibit hazardous characteristics.

To reduce the risk of large quantities of hazardous waste entering the landfill, Metro has a special waste permit program. Special wastes are defined as any unusual component of the municipal solid waste stream which could potentially contain substantial quantities of hazardous waste or would require extraordinary management practices for disposal. The primary objective of the special waste permit program is to check certain wastes for contamination with hazardous wastes before the wastes are disposed of in the landfill.

If a special waste is found to be a hazardous waste, the material will not knowingly be accepted at the landfill. Examples of special wastes include: chemicals, liquids, sludges and dusts from commercial and industrial operations, empty pesticide containers and wastes containing asbestos. Special wastes are disposed of at the landfill in a manner that minimizes adverse impacts to people and the environment.

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