



**METRO**

**MEETING:** Metro Solid Waste Advisory Committee

**DAY:** Thursday

**DATE:** May 27, 1993

**TIME:** 9:00-11:00

**PLACE:** **Metro Headquarters, 600 N.E. Grand Avenue  
Council Chambers Annex**

- |  |                |
|--|----------------|
| 1. Introduction of SWAC Committee Members    | Roger Buchanan |
| 2. Committee Responsibilities                | Roger Buchanan |
| 3. Approval of Committee By-Laws             | Roger Buchanan |
| 4. Long-Term Rate Assessment: Project Update | Terry Petersen |
| 5. Yard Debris Recycling Evaluation          | Steve Kraten   |
| 6. Other Business                            | Roger Buchanan |
| 7. Adjourn                                   | Roger Buchanan |

**Enclosures:**

1. Committee Members
2. Draft By-Laws
3. Yard Debris Evaluation
4. Metro Center Maps

TP:clk

/share/pete/swac/swac0422.egd

## METRO SOLID WASTE ADVISORY COMMITTEE

Members (May, 1993)

### VOTING MEMBERS

#### **Metro Council:**

Roger Buchanan, Chair	600 N.E. Grand Ave. Portland, OR 97232	797-1551
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#### **Clackamas County**

Ken Spiegle, Senior Environmental Specialist	902 Abernethy Rd. Oregon City, OR 97045	655-8521
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#### **Multnomah County**

Gary Hansen, Commissioner	1120 S.W. Fifth Ave. Portland, OR 97204	248-5219
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#### **Washington County**

Delyn Kies, SW Program Coordinator	155 N. First Ave. Hillsboro, OR 97124	648-8772
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#### **Clackamas County Cities**

Bob Kincaid Assistant City Manager	P. O. Box 369 Lake Oswego, OR 97034	635-0220
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#### **Multnomah County Cities**

Chris Boitano, Councilor, City of Gresham	1726 SW 20th Court Gresham, OR 97080	425-0413
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#### **Washington County Cities**

Emilie Kroen, Program Coordinator Operations Department	P. O. Box 369 Tualatin, OR 97062	692-2000 x 835
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#### **City of Portland**

Susan Keil, Manager Industrial & Solid Waste	1120 S.W. 5th, #400 Portland, OR 97204-1972	823-7763
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**Solid Waste Hauling Industry**

Jim Cozzetto, Metropolitan Disposal Corp.	P.O. Box 11229 Portland, OR 97211	285-0571
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Steve Schwab, Sunset Garbage Collection Co.	9435 S.E. Clatsop Street Portland, OR 97266	658-8072
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Estle Harlan, OSSU/Tri-County Council	2202 S.E. Lake Road Milwaukie, OR 97222	654-9533
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Tom Miller, Miller's Sanitary Service, Inc.	5150 S.W. Alger St. Beaverton, OR 97005	644-6161
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**Solid Waste Facilities**

Doug Coenen, Division President Oregon Waste System	Columbia Ridge Landfill & Recycling Center 18177 Cedar Springs Lane Arlington, OR 97812	1-796-0564
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Ralph Gilbert, President	East County Recycling P. O. Box 200960 Portland, OR 97220	248-2080
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Ralph Orrino, General Manager Trans Industry	Metro Central Transfer Station 6161 N.W. 61 Portland, OR 97210	226-6161
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**Citizens**

Jeanne Roy	2420 S.W. Boundary St. Portland, OR 97201	244-0026
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Merle Irvine	United Disposal 2215 N. Front Woodburn, OR 97071	222-6565
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Bruce Broussard	Cad Tek P. O. Box 3165 Portland, OR 97208	654-8035
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NON-VOTING MEMBERS:

Department of Environmental Quality Pat Vernon, Waste Reduction Section Manager	811 S.W. Sixth St. Portland, OR 97204	229-6165
Port of Portland Renee Dowlin, Senior Planner	P. O. Box 3529 Portland, OR 97208	231-5000
Clark County Jerry Morse, Environmental Services Manager	P. O. Box 5000 Vancouver, WA 98668	(206) 699-2375
Marion County Jim Sears, Director	388 State Street, #735 Salem, OR 97301	1-588-5056
Yamhill County Judy Ashley, Solid Waste Coordinator	535 E. 5th Street McMinnville, OR 97128	1-434-7516X634
<b>Metro Solid Waste Department:</b> Bob Martin, Director	600 N.E. Grand Ave (2nd Floor)	797-1661
<u>Staff</u> Terry Petersen, Planning & Tech. Serv. Mgr.	(2nd Floor)	797-1669
Connie Kinney, Clerk to the Committee	(2nd Floor)	797-1643



**BY-LAWS OF THE  
METRO SOLID WASTE ADVISORY COMMITTEE**

**Committee Responsibilities**

1. Evaluate policy options and present policy recommendations to the Metro Council and Executive Officer regarding regional solid waste management and planning.
2. Advise Metro on the implementation of existing solid waste plans and policies.
3. Provide recommendations concerning the solid waste planning process to ensure adequate consideration of regional values such as land use, economic development, and other social, economic and environmental factors.
4. Provide recommendations on the compliance of regional solid waste management and planning with applicable state requirements.
5. Provide recommendations on alternative solid waste policies and practices developed by subcommittees of the Solid Waste Advisory Committee.
6. Recommend needs and opportunities for involving citizens in solid waste issues.
7. Recommend measures to build regional consensus for the management of solid waste.

**Membership**

**Voting members:**

Metro Council (1)  
Clackamas County (1)  
Multnomah County (1)  
Washington County (1)  
Clackamas County Cities (1)  
Multnomah County Cities (1)  
Washington County Cities (1)  
City of Portland (1)  
Solid Waste Hauling Industry (4)  
Recycling Industry (1)  
Solid Waste Facilities (3)  
Citizens (3)

### **Non-Voting Associate Members:**

**Metro Solid Waste Department Director (1)**  
**Department of Environmental Quality (1)**  
**Port of Portland (1)**  
**Clark County (1)**  
**Marion County (1)**  
**Yamhill County (1)**

**Additional associate members without a vote may serve on the Committee at the pleasure of the Committee.**

### **Appointment of Members**

- 1. Representatives from the Counties shall be appointed by the Chairperson of the County Board.**
- 2. The representative from the City of Portland shall be appointed by the Mayor of Portland.**
- 3. Representatives of Cities within a County shall be appointed by consensus of those Cities.**
- 4. A pool of candidates for the citizen representatives shall be nominated by the participating jurisdictions and the Metro Executive Officer shall appoint one citizen member for each County.**
- 5. Industry candidates shall be solicited from the industry and appointed by the Metro Executive Officer. Solid waste hauling industry representatives shall include one from each of the three Counties.**

### **Officers**

- 1. The permanent Chairperson of the Committee shall be the Metro Council Solid Waste Committee Chairperson.**
- 2. In the absence of the Chairperson, the Committee shall be chaired by the Metro Council Solid Waste Committee Vice-Chairperson.**

### **Subcommittees**

**Working groups may be established by the Chairperson as necessary upon request of the Committee. Membership composition shall be determined according to mission and may include individuals who are not members of the Committee. All such sub-committees shall report to the Committee.**

**METRO  
WASTESHED  
YARD DEBRIS  
COLLECTION SYSTEM  
EVALUATION**

**MAY 1993**

**Metro**  
Solid Waste Department  
Waste Reduction Division  
*Recycling Section*  
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Portland, OR 97232-2736  
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*Printed on Recycled Paper*

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**METRO WASTESHED**  
**YARD DEBRIS COLLECTION SYSTEM EVALUATION**  
**MAY 1993**

The Metro Regional Yard Debris Recycling Plan (RYDRP), adopted in January of 1991, directs Metro to perform an evaluation of the regional yard debris collection system by August of 1993. The purpose of the evaluation is to determine the need for weekly curbside collection or other higher intensity program consistent with market capacity.

This report is presented now to afford all local governments in the Metro wasteshed adequate time to assess the results of their collection systems and to make adjustments, where necessary, to comply with the regional plan by July, 1994. This is the time specified in the regional plan by which yard debris collection systems will enable maximum yard debris recovery, consistent with available processing and marketing capacity.

**BACKGROUND**

In practice, generators utilize a number of different methods to "get rid of" yard debris. Yard debris is burned, disposed as garbage, illegally dumped in empty lots, ravines, etc., home composted, self-hauled to depots, and recycled through curbside collection systems and community clean-up events. In reality, many households use a combination of these alternatives. The yard debris collection systems were intended to complement efforts at home composting and to substitute for illegal dumping and disposal as garbage.

There are two major documents that govern the implementation of the region's yard debris collection programs. One is the RYDRP. The other is the Department of Environmental Quality (DEQ) conditional approval of Washington County's yard debris depot system. Adopted in January 1990, this approval permitted Washington County to follow its own plan in lieu of the RYDRP.

The conditional approval listed three key elements of a successful yard debris recycling program. These elements are: "1) the changing ability of yard debris processors to receive and process yard debris and to market yard debris products, 2) the effectiveness of the proposed yard debris depots and collection systems, and, 3) the impact of proposed education and promotion programs on the levels of public participation in yard debris separation and recycling efforts."

The conditional approval also stated that the Washington County depot system must meet the performance standards set in OAR 340-60-125(5). These standards specified a target yard debris recycling level of 80 percent by July, 1992. These Division 60 rules were re-written, however, as OAR Chapter 340 Divisions 90 and 91 which were adopted in December, 1992. The new rules dropped the 80 percent yard debris target and substituted an overall regional recycling goal of 40 percent (45 percent with MSW composting) by 1995.

The RYDRP established an even more ambitious yard debris recycling goal of 67 percent by 1993 and 93 percent by 1996. These targets remain as part of the Plan.

## **LIMITATIONS OF THE STUDY**

In performing this evaluation, there were a number of factors that limited the analysis. Some of these factors are explained below.

### **Effect of the 1992 Drought**

Most of the programs were implemented in the summer of 1992. This was a drought year in which water restrictions were enacted and yard debris generation was probably well below normal. The result would be an overall underestimation of diversion rates.

### **Lack of Data on Source of Yard Debris Self-Hauled to Depots**

Yard debris depots do not collect data on the source of self-hauled yard debris. Thus, there is little data available upon which to base estimates on the amount of yard debris captured by depots from any particular jurisdiction. This presented a serious problem in evaluating the Washington County depot program.

## **REGIONAL YARD DEBRIS PROCESSING CAPACITY**

Both the RYDRP and the Washington County Plan require an intensification of programs to weekly curbside collection if the regional processing and marketing capacity appears adequate to handle the increased flow. As part of this analysis, Metro staff visited each processor and analyzed the processing capacity based on land, equipment, and method of processing. The analysis indicates that, over the past two years, increases in the number of processors and amount of processing equipment have resulted in a net capacity that is more than adequate to process the estimated flow from a region-wide weekly curbside collection system. The following is an analysis of each individual yard debris processing facility.

Table 1 summarizes the processing capacity of yard debris processors in the region. The columns labeled Rated Capacity summarizes the equipment manufacturers rated capacities of the primary size reduction equipment (i.e., hammer mills and tub grinders) used at each facility. The current total rated capacity listed in the table is 725 tons per hour for processing yard debris.

Equipment manufacturers often overstate the capacity of their equipment. Compost processors report that the actual capacity of the equipment is 1/3 to 1/2 less than the rated capacity. In addition, the actual processing rate of the equipment is further reduced by up to 1/3 for operational inefficiencies such as equipment utilization, maintenance and materials availability.

A *very* conservative calculation of the effective processing capacity for the region is calculated as follows:

Rated capacity x actual capacity factor x operational inefficiencies = effective capacity

725 tons/hour x 1/2 (actual cap. factor) x 2/3 (op. inefficiencies) = 242 tons/hour

For purposes of this analysis, it is assumed that the processors would receive 200,000 tons of yard debris a year if all of the yard debris in the region was collected and processed. If the processors were operating 40 hours per week, the entire 200,000 tons of yard debris could be processed in approximately 20 weeks based on the effective capacity of 242 tons/hour.

Clackamas County's 1992 material flow summary shows that 5 months<sup>1</sup> in the spring and fall account for over 50% of the yard debris collected. May, the highest flow month accounted for approximately 12% of the year's flow. The effective processing capacity could process up to 21% of the year's total flow (42,000 tons) in one month. This indicates that current processing capacity is adequate to keep ahead of these high flow periods. Processors could also operate more than 40 hours per week when material flow is high.

A Metro survey, completed in July 1991, of rated processing capacity indicated that these same facilities had a combined rated capacity of 335 tons per hour. The 216% increase in capacity in 18 months has largely been spurred by the prospects of receiving increased quantities of yard debris. Many of the existing facilities currently have plans to expand further.

Processors have responded to the prospects of increased availability of yard debris by expanding their processing capacity. It appears that there is excess capacity in the region even when the most optimistic projections of yard debris tonnage are compared to the most conservative processing capacity rates.

Many of the yard debris processors also process additional materials in their operations. Land clearing debris, stumps and construction/demolition wood are most common. Most facilities have additional equipment not listed in this report, that is primarily used for these other materials. However, there is some cross utilization of equipment. This additional equipment could potentially be utilized for yard debris processing if the material flows increased significantly. The processors are constantly adding and upgrading processing equipment. It is reasonable to believe that this will continue especially if more yard debris becomes available for processing.

## PROCESSOR FACILITY LOCATIONS

Map 1 shows the location of all yard debris processors in the Metro region. All but three of the yard debris processors are located along the southern borders of the Metro region. The southern tier processors represent greater than 90% of the total processing capacity in the region. There appears to be an excess of capacity in the southern region but a lack of capacity in the northern tier.

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<sup>1</sup> April, May, June, Oct., and Nov.





## TOTAL LAND AREA

Table 2 shows the land area available for composting. A total of 41 acres is dedicated to composting operations. Assuming that the entire year's yard debris (200,000 tons) could be ground to prepare it for composting, the volume of the material would be 800,000 yards based on a volume reduction factor of 2:1 for unprocessed to ground yard debris. The ground yard debris stacked 6 feet high would cover an area of 85 acres. This does not account for maneuvering areas through and around the ground material. A conservative factor for allowing maneuvering and access space of 100% could be applied making the total area requirement  $85 \text{ acres} \times 2 = 170 \text{ acres}$ . This assumes that all material would be on the composting site for a full year. Another measure of capacity can be calculated by dividing the annual tonnage by the available area to determine the land utilization in tons/year/acre. In this example the land utilization would be 1,176 tons/year/acre.

According to the processors, the composting process takes between 6 to 26 weeks. If the average time for material to be on site is 16 weeks, the entire inventory of ground material would turn over three times per year. This effectively increases the capacity of the facilities to compost the material by a factor of three or creates an effective area of  $41 \text{ acres} \times 3 = 123 \text{ acres}$ .

Five of the facilities use static composting piles that are in excess of six feet high which reduces both the land area required to compost the material and maneuvering area around the pile. The effect is to increase the land utilization. As an example, the Solid Waste Information System Report indicated that Grimm's Fuel Company received 192,000 yards of yard debris in 1992. This is equivalent to 24,000 tons (8:1 ratio). The land utilization factor for Grimm's would be  $24,000 \text{ tons/year} \div 11 \text{ acres} = 2,180 \text{ tons/acre/year}$  which is almost twice as large as the average calculated earlier in this section. This indicates that processors utilize their land more efficiently than the earlier example and current land area is probably sufficient to process all of the region's yard debris.

The landfills (Hillsboro and Lakeside) could extensively expand the area dedicated to yard debris. Grimm's and Best Buy in Town could triple the size of their current operations if enough yard debris was available. Many of the processors have not completely utilized their land area for composting. They could expand their current operations with no additional acreage.

**TABLE 1**  
**MAJOR EQUIPMENT RATED CAPACITY**

Facility	July 1991 Rated Capacity* (tons per hour)	January 1993	
		Rated Capacity* (tons per hour)	Horsepower
American Compost and Recycling	80	40	400
Best Buy in Town	---	20	200
Grimm's Fuel Company	180	350	1600
Tualatin Valley Waste Recovery	---	-0-**	-0-**
Scott Hyponex	---	40	250
Lakeside Reclamation Landfill	25	150	1500
McFarlane's Bark	50	50	500
S & H Logging	---	75	850
River Cities	---	-0-**	-0-**
<b>TOTAL</b>	<b>335</b>	<b>725</b>	<b>5350</b>

\*Actual capacity may be 2/3 to 1/2 of manufactures rated capacity

\*\*Rent tub grinder

**TABLE 2**  
**LAND AREA AVAILABLE FOR COMPOSTING**

Facility	Current Composting Area	Possible Future Expansion of Composting Area
American Compost and Recycling	5	-0-
Best Buy in Town	6	14
Grimm's Fuel Company	11	34
Tualatin Valley Waste Recovery	1	---*
Scott/Hyponex	7	-0-
Lakeside Reclamation Landfill	1	---*
McFarlane's Bark	6	-0-
S & H Logging	2	-0-
River Cities	2	-0-
<b>TOTAL</b>	<b>41</b>	<b>48</b>

\*Large land areas would allow composting operations to expand greatly.

## **AMERICAN COMPOST AND RECYCLING**

### **Site Size and Location**

American Compost and Recycling is located on Columbia Boulevard approximately 1/2 mile west of St. Johns Landfill. The site size is approximately 5 acres, all of which can be used for composting.

### **Experience**

Composting operations began in 1987. Originally the compost product was used to reclaim a mine for the Oregon Department of Minerals and Geology but has been refined for sale to the general public.

### **Equipment Size and Capacity**

Two 200-horsepower tub grinders, each capable of processing 20 tons per hour are used for the initial grinding of yard debris. A deck screen and leased trommel are used for size segregation of the final product.

### **Current Process**

Leaves and grass clippings are processed through one tub grinder while brush and woody debris is processed through the other tub grinder. Size reduced material is placed on a pile which is periodically turned with a front-end loader. The composting process takes about 6 months. Composted material is size segregated through a trommel and deck screen.

### **Future Process**

The site is currently being paved for public safety and convenience. Windrows will eventually replace the compost piling method. Commercial windrow turners are being investigated for addition to the process.

## **BEST BUY IN TOWN**

### **Site Size and Location**

Best Buy in Town is located on Cornell Road approximately 1 mile west of 185th Avenue near Hillsboro. The 1-1/2 acre site is used for collection of yard debris and marketing of final product. A second 41 acre site is located in rural Washington County. Approximately 6 acres are used for composting but up to 20 acres could be used in future operations. The concrete slab used for tipping is 60' square. The site is also a retail outlet for a wide variety of landscape products.

### **Experience**

Best Buy in Town has been receiving yard debris and composting for approximately nine years. Its unscreened compost product is sold as a soil amendment.

### **Equipment Size and Capacity**

A 200-horsepower, 20 ton per hour tub grinder is used for size reduction of the material.

### **Current Process**

Yard debris is collected at the Cornell Road site and is trucked to the rural location for grinding. Windrows are formed which are turned by a plow blade. The final product is composted in two months. The material is marketed unscreened as a coarse compost material.

### **Future Plans**

Screens will be added in the future to provide size segregation to the operation.

## **GRIMM'S FUEL COMPANY**

### **Site Size and Location**

Grimm's Fuel Company is currently located on Route 99, approximately 5 miles west of the junction with 217. Grimm's currently utilizes slightly over 11 acres of its 45-acre site. The composting area could easily be expanded by 5 acres if additional material was received. The remainder of the site is potentially available for future development of composting operations but would require modifications.

### **Experience**

Grimm's Fuel Company has been composting yard debris for over 10 years on its current site and has developed products which have gained wide acceptance within the Metro area.

### **Equipment Size and Capacity**

Two processing lines are used for preparation of yard debris and conditioning the final compost products. The first line contains a 500 horsepower hammer mill capable of processing 100 tons per hour. It feeds a trommel which is used for final screening of compost product. A 250 horsepower, 50-ton per hour hammer mill processes the oversize material after the trommel. The second parallel line contains a recently installed 850 horsepower hammer mill capable of processing 200 tons per hour. Six aeration beds have been partially constructed for accelerating the composting process.

### **Current Process**

Yard debris is processed through one of the hammer mills for size reduction before it is moved to the composting piles. All material is composted in one large static pile and requires three to five months to complete the composting process. Once the composting process is complete, material is reground through a hammer mill and processed through a trommel screen for size classification. Over-sized trommel rejects pass through a 250 horsepower hammer mill for further size reduction. The final compost product is marketed as garden mulch or mixed with other materials to produce ground cover, mushroom compost or soil.

### **Future Plans**

A trommel screen will be added to the processing line containing the 850 horsepower hammer mill. Cross conveyors will be included to allow for transfer of material between the two lines after initial size reduction and for direct deposition of ground material onto the composting pile. This will add much versatility and flexibility to the processing capacity at Grimm's Fuel Company and will also provide complete redundancy for all critical equipment.

## **LAKESIDE RECLAMATION LANDFILL (GRABHORN, INC.)**

### **Site Size and Location**

Sixty acres in size, Lakeside Landfill is located approximately 5 miles west of the Progress Exit of Route 217 on Vandermost Road. Yard debris is tipped in an undeveloped portion of the landfill. Size reduced material is composted on a one-acre blacktop slab.

### **Experience**

Grabhorn has been composting yard debris for approximately one year. New products utilizing the finer grade are being developed.

### **Equipment Size and Capacity**

All of the equipment at Lakeside Reclamation is mobile and can be configured into different processing lines depending upon the needs. A 300 horsepower tub grinder capable of processing 50 tons per hour and a 1200 horsepower tub grinder capable of processing 100 tons per hour are used for the primary size reduction. A trommel screen and shaker screens are used for size segregation of finished products.

### **Current Process**

Yard debris is processed through one of the tub grinders and is placed in a large pile on the paved area. The pile is turned with a track hoe to provide aeration. The finished compost is then screened into final products.



## **Future Plans**

The composting process will continue to be refined as needed.

## **MCFARLANE'S BARK, INC.**

### **Site Size and Location**

McFarlane's Bark, Inc. is located approximately 1/2 mile west of Milwaukie Exit of I-205. The site is approximately 6 acres. Recent commercial development of the surrounding area has led to increased complaints about odor. Relocation to another site is presently under consideration.

### **Experience**

McFarlane's Bark began composting operations in 1972 on this site and has an established compost product.

### **Equipment Size and Capacity**

A 400 horsepower, 40 ton per hour hammer mill is used for initial size reduction of the material. A second 150 horsepower, 10 ton per hour hammer mill is available for regrinding the final composted products. Two trommel screens and other screening equipment is also on site.

### **Current Process**

Yard debris is accepted and tipped on a paved area. Leaves and grass are separated from larger yard debris by a screen. The larger yard debris is processed through the 400 horsepower hammer mill and moved to the static composting pile. According to the owner, the composting process takes approximately one and one-half months. Composted material is then size segregated through a trommel screen. Large materials which do not pass through the trommel screen are reintroduced into the composting pile. A second line for processing the finished compost consists of a hand sorting station to remove large pieces of wood before the material is reground and screened into the finished products. The second line is used as a backup to the trommel. The end products are compost, ground cover mulch and soil amendments.

## **Future Plans**

A 300 horsepower, 30 ton per hour hammer mill will be installed after the trommel screen to regrind the oversized, uncomposted materials. The size of the static composting pile has been reduced significantly during the past year although a large volume remains on site. New locations are being sought for the operation since the current site is located in a commercial area and a number of odor complaints have been received.

## **RIVER CITIES RECYCLING CENTER**

### **Site Size and Location**

River Cities Recycling Center is located approximately one mile west of the West Linn/Oregon City Exit of I-205. The two acre site is leased from PGE and is completely paved.

### **Experience**

West Linn has been composting yard debris on this site for approximately five years. Gladstone and Oregon City have been utilizing the site for the past 6 months. The final products are sold directly to residents of the cities and have been well received.

### **Equipment Size and Capacity**

A tub grinder is rented to process the accumulated material. No other processing equipment is on site.

### **Current Process**

The accumulated yard debris is ground through the tub grinder and composted in static piles. The composting process takes approximately two months.

### **Future Process**

There are no immediate plans to change the current process.

## **S & H LOGGING**

### **Site Size and Location**

S & H Logging is located at the Stafford Road Exit off I-205. Two acres of the 8-1/2 acre site are used for windrows of composting yard debris. Use of the site for composting is not consistent with the property's zoning and the composting operation may have to be moved to a different location. Another site is presently under consideration.

### **Experience**

S & H Logging has been composting for approximately two years. Its compost products are sold from the site along with bark and other soil products.



### **Equipment Size and Capacity**

S & H Logging does its initial grind with a 525 horsepower tub grinder that can process 50 tons of yard debris per hour. A second tub grinder rated at 325 horsepower and 25 tons per hour provides additional first grind capacity and is used to regrind composted material.

### **Current Process**

Yard debris is sized reduced through the large tub grinder and then windrowed. The windrows are turned with a front end loader and compost is mature in three to four months. The compost is then re-ground before being sold.

### **Future Process**

Expansion at composting operation is not possible at this site.

## **SCOTT/HYPONEX**

### **Site Size and Location**

SCOTT HYPONeX is located approximately two miles east of the I-205/Route 212 Interchange. The site contains approximately 10-acres of fenced area with approximately 7-1/2 acres prepared for composting and storage.

### **Experience**

SCOTT/HYPONeX began operations at this site in November, 1992. The site currently has very little yard debris processed. The company operates 22 yard debris composting sites across the country. The products from these sites are bagged and sold through retail outlets.

### **Equipment Size and Capacity**

A 225 horsepower horizontal feed grinder capable of processing approximately 40-tons per hour is used both for the primary grinds and finish grinds.

### **Current Process**

Yard debris is ground and placed in windrows which are turned with a front-end loader. The composting process takes approximately 10 to 12 weeks. The finished compost will be trucked to Molalla, Oregon, for final screening, blending and bagging.

### **Future Plans**

The facility is currently investigating the procurement of a compost turning machine.

## **TUALATIN VALLEY WASTE RECOVERY (HILLSBORO LANDFILL)**

### **Site Size and Location**

Tualatin Valley Waste Recovery (TVWR) located at Hillsboro Landfill, provides all yard debris processing for the landfill. Hillsboro Landfill is located approximately one mile south of Tualatin Valley Highway on Minter Bridge Road in Hillsboro. The landfill covers 350 acres. Yard debris is tipped and processed on approximately one acre of the site. This area could be expanded considerably to handle increased volumes of yard debris.

### **Experience**

TVWR has been processing yard debris for approximately 1-1/2 years. The first grind product is sold directly to end users. No composting operations are performed on the landfill site.

### **Equipment Size and Capacity**

A portable tub grinder is rented to process the accumulated yard debris.

### **Current Process**

Source separated yard debris is stockpiled for two to three weeks until a sufficient quantity has been accumulated to ensure that the tub grinder will be utilized for at least two days. The ground product is loaded into trucks for sale directly to commercial customers as a soil amendment.

### **Future Plans**

TVWR is planning to purchase a tub grinder for its yard debris processing.

## **MARKET CAPACITY FOR YARD DEBRIS PRODUCTS**

The purpose of this part of the analysis was two-fold: 1) to reexamine market capacity for yard debris compost since adoption of the *Regional Yard Debris Recycling Plan* (January 1991) and implementation of collection programs in the tri-county area; and 2) to determine if the markets are adequate to utilize an increased supply of material from an expanded system of weekly curbside collection region-wide. The results indicate that there is adequate market capacity to absorb a significant additional quantity of yard debris compost.

## **Markets Capacity Criteria**

The *Regional Yard Debris Recycling Plan* identified the following criteria to evaluate market capacity in the tri-county area:

- Sustained upward trend in sales of product
- Consistent, favorable product test results
- Demonstrated new market penetration
- Annual market analysis comparing yard debris products to other competitive products
- Demonstration that incoming materials are processed and marketed within two years of receipt

## **Methodology**

To determine market capacity, Metro considered the evaluation criteria from the *Regional Yard Debris Recycling Plan* and other factors affecting demand for yard debris products, such as population growth and housing starts. The conclusions and findings are based on a combination of quantitative information on production and sales gathered from yard debris processors, and descriptive information on potential future demand for compost. Information was collected from the following sources:

1. A telephone survey of nine yard debris processors in the tri-county region to determine inventory levels, amount of material sold, and sales compared to competing products. A copy of the survey form is attached to this report.
2. An analysis of regional building permit data and population projections to determine current and potential demand for compost products.
3. A review of new uses for yard debris compost products to evaluate the potential for new market penetration.
4. A review of procurement laws and policies to determine their impact on demand for yard debris products.
5. A review of compost test results from the past two years.

## **Survey Results of Yard Debris Processors**

In February 1993, Metro surveyed nine yard debris processors in the tri-county area to identify the amount of compost products sold in 1991 and 1992; and to document information about trends for future sales of compost products. The processors who participated in the survey were Grimm's Fuel Company, McFarlane's Bark, American Compost and Recycling, Lakeside

Reclamation, Best Buy in Town, S&H Logging, River Cities One Stop Recycling Center, Scott's Hyponex and Hillsboro Landfill.

Only Grimm's Fuel and McFarlane's Bark kept records of sales of compost products; the remaining processors gave estimates. Some of the compost products sold by Grimm's Fuel and S&H Logging are blended products that do not contain 100% yard debris. All other processors sell compost products that are 100% yard debris. Only seven processors sold yard debris compost products in 1991 and 1992. SCOTT HYPONeX and Hillsboro Landfill were also surveyed but are not listed on graphs 1 through 3 because they did not produce compost in 1991 or 1992. However, they both expect to produce compost in 1993. Scott's intends to bag their product and market it at the retail level.

Graphs 1 through 3 show that sales of yard debris compost products increased or remained the same for all processors between 1991 and 1992. All nine processors indicated that demand will continue to increase for their compost products and cited the following six reasons.

- Bark products have increased in price and decreased in availability.
- The public thinks bagged soil amendments currently on the market are too expensive.
- Successful compost education programs by Metro and others continue to bring in new customers.
- Old customers come back for more compost because they are happy with quality and price.
- Public perception has changed. People want the "look" of compost instead of bark products.
- People are more environmentally aware and more interested in gardening than five years ago.

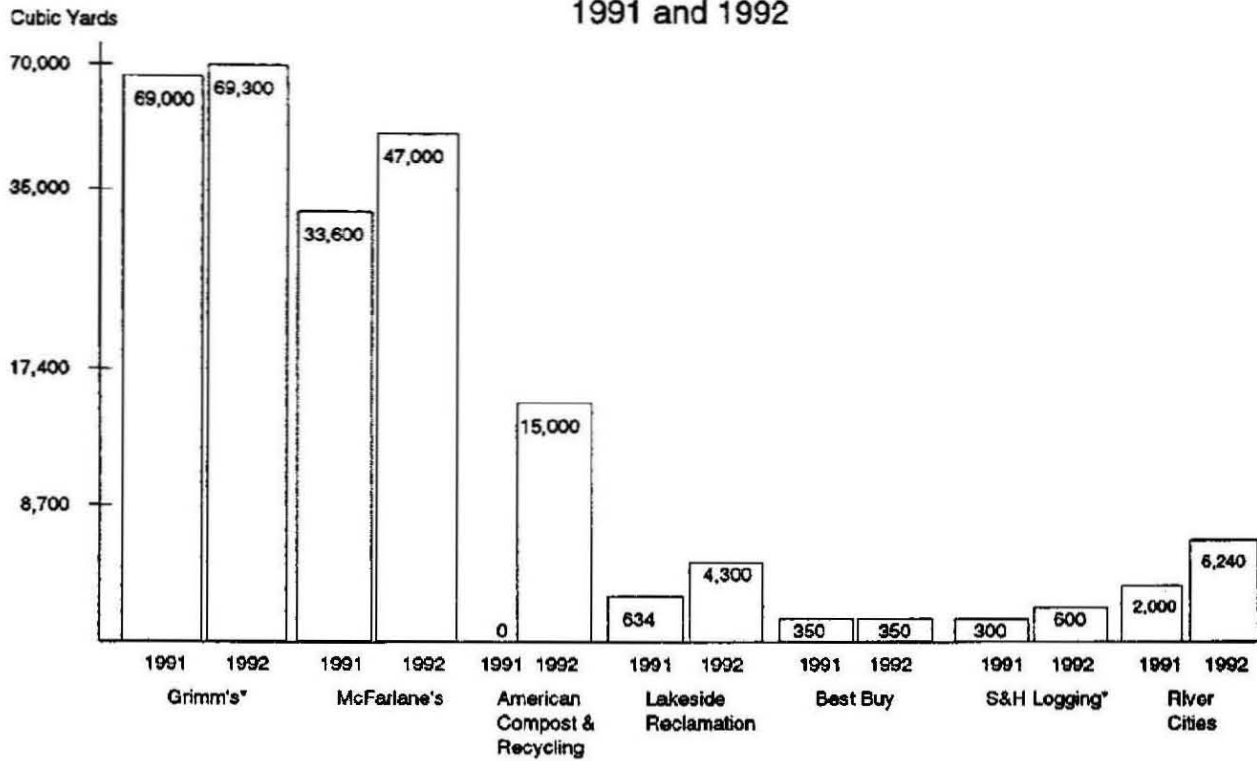
Finished compost products currently stockpiled at the processing facilities are small or nonexistent.<sup>2</sup> Even though spring, the biggest sales season of the year is approaching, only 12,600 cubic yards of finished product are available, about 17.3% of total sales for 1992. American Compost and Recycling is completely out of product, even though customers are still calling regarding availability.

Unfinished compost products (first grind) at all facilities measure about 32,660 cubic yards, or about 25% of total sales for 1992. About half of the 32,660 cubic yards of unfinished product is located in the pile at McFarlane's Bark. Failure of McFarlane's to market material has been attributed to site limitations and operating inefficiencies rather than lack of demand. Sales of processed (ground once but not composted) yard debris for hogged fuel and/or mulch measured a total of 8,850 cubic yards for 1991 and 1992 from all processors.

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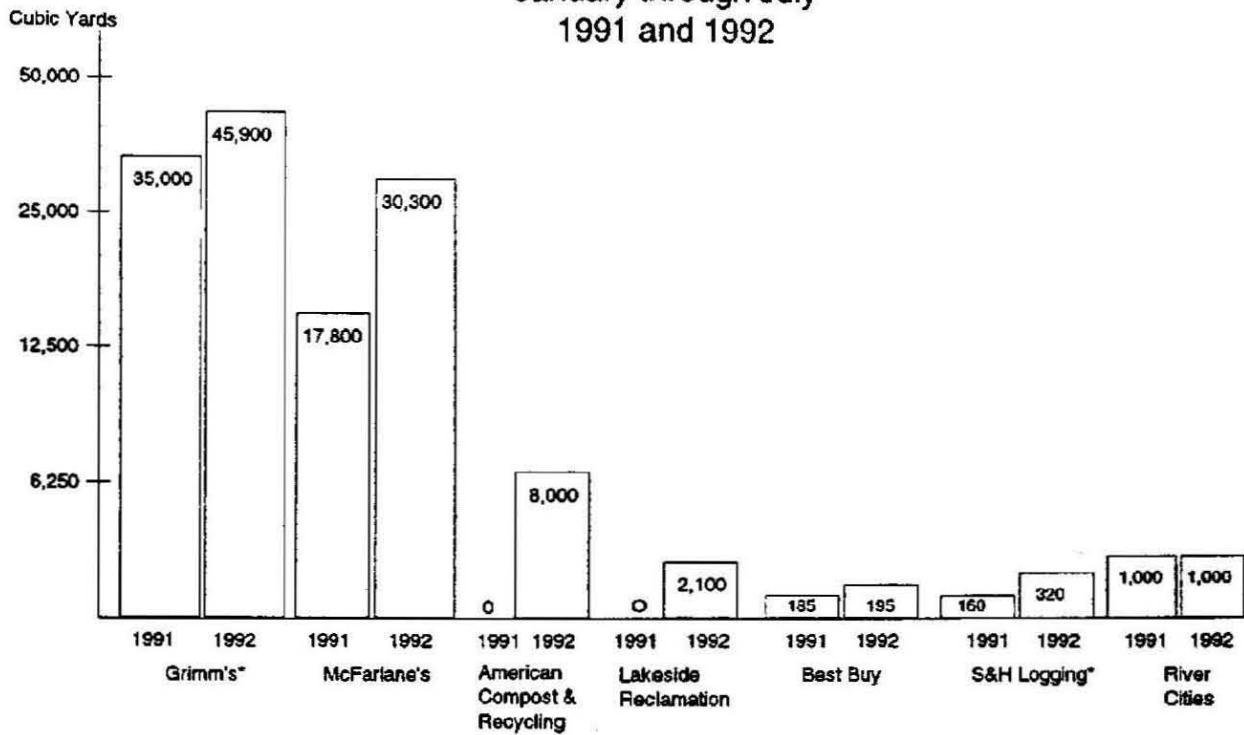
<sup>2</sup>On November 13, 1992, a pile of land clearing debris that had been processed as boiler fuel caught fire. The fire also consumed some demolition debris but, according to Grimm's Fuel Co., did not affect the stockpiled yard debris.

# 1. Compost Product(s) Sold 1991 and 1992

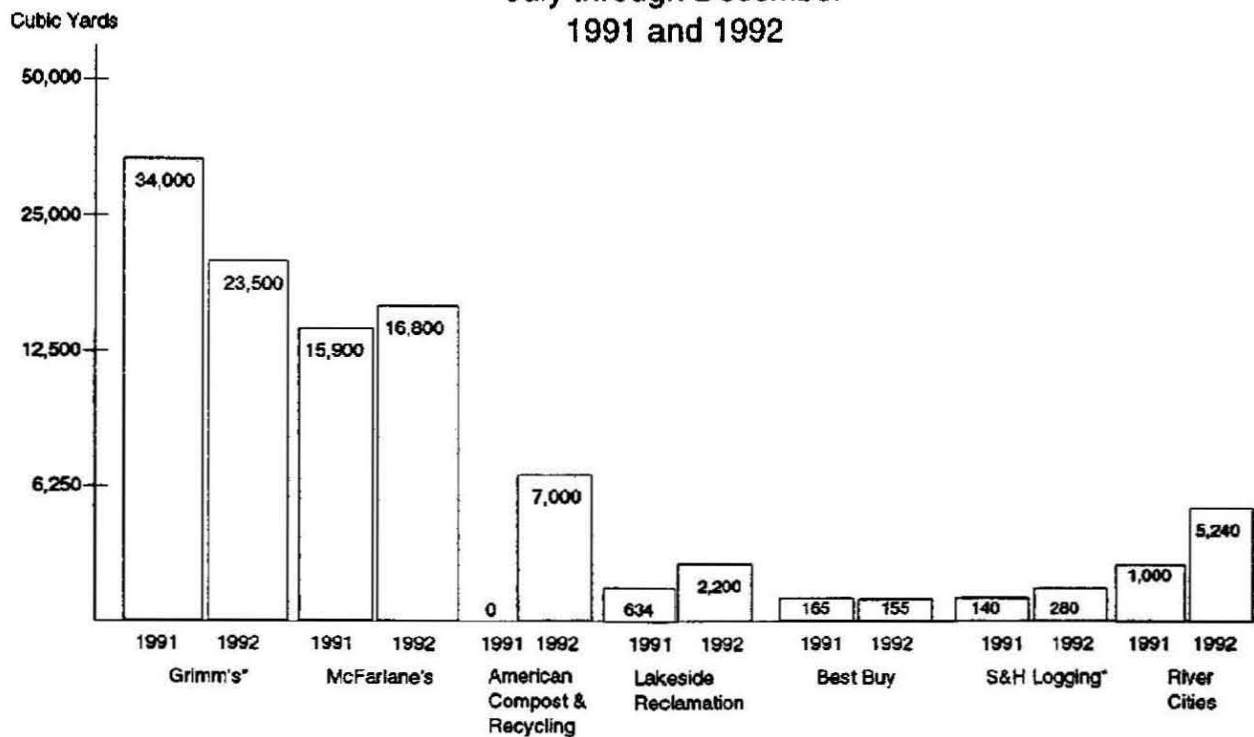


\*Includes blended compost products that are not composed of 100% yard debris.

## 2. Compost Product(s) Sold by Season January through July 1991 and 1992



## 3. Compost Product(s) Sold by Season July through December 1991 and 1992



\*Includes blended compost products that are not composed of 100% yard debris.

## SUMMARY

Based on responses to Metro's survey, the market for yard debris compost products is good and appears to be increasing. Between 1991 and 1992 compost sales increased by about 24%. Yard debris compost processors surveyed cite consumer preference, competitive price, and environmental awareness as reasons their market will continue to increase. In 1992 American Compost and Recycling began producing and selling compost. SCOTT HYPONeX, a national firm, also entered the compost business in the Metro area. Hillsboro Landfill plans to begin producing and selling compost in mid-1993. This entry into the market of new processors indicates private industry considers the compost market strong and able to handle additional product.

### Factors Affecting Demand

#### Population, Housing Starts and the Construction Market

According to Portland State University's Center for Population Research and Census, the total population for Clackamas, Multnomah and Washington Counties in 1991 was 1,217,200. Metro's population projections predict an average annual increase in population of 1.4% through 2010. Regional employment, population and housing forecasts project an average annual growth rate of 1.7 % through 2010.

The number of new housing starts also affects the demand for yard debris compost, since an increase in construction should result in an increase in landscaping activities. Residential building permit data from the State of Oregon Housing Agency, indicate that in 1992 residential building permits were issued for 7,922 housing units (single and multi-family) within the tri-county area compared to 6,888 in 1991, reflecting a 15% increase.

This compares with an average increase of 6% nationally. If the assumption that population/employment growth and activity in the construction industry results in greater compost use, then projections for the tri-county region indicate a steady, long-term demand for composted materials.

#### New Market Penetration

Yard debris compost competes with other landscape products such as peat moss, bark dust, composted manure, and mushroom compost. Educational campaigns promoting the value of yard debris compost combined with the higher costs and decreasing availability of many competing products have increased the use of compost compared to competitive products. The survey of processors indicate that yard debris products comprise a larger portion of sales than in prior years. The vice president of the American Society of Landscape Architects confirmed that landscapers will increase their use of yard debris compost products, as long as quality remains high. He identified three uses: soil amendment, mulch and erosion control. The entry of bagged yard debris compost into the retail market should also increase demand.



In addition to replacing other products, there are several new applications for compost products that have the potential to vastly increase demand. These are use of leaf compost for stormwater mitigation and yard debris compost for erosion control. Two demonstration projects are underway to test compost in these applications. The stormwater mitigation project is in its second year and results indicate that leaf compost is an excellent medium to mitigate stormwater runoff.

Another Metro demonstration project is currently testing yard debris compost for use at construction sites as an alternative to strawbales, plastic fencing, and other conventional erosion control techniques. Compost is already utilized for this purpose in Europe. Metro's current study is testing a three inch thickness of compost. Application at this level on construction sites and roadbeds would utilize large volumes of composted material and have the potential to greatly increase demand for the product. In addition to the large volumes required, compost for erosion control develops a market niche for coarser, less mature product than that used as a soil amendment or mulch.

The processors who participated in the Metro survey identified other new uses for yard debris compost in potting mix and horse stall bedding. W&H Pacific consultants who are conducting the stormwater and erosion control projects for Metro report that compost can also be used as a filter to remove acetone, solvent gases and propellants from aerosol cans.

### Procurement

The 1991 Oregon Recycling Act requires state and public agencies to purchase recycled products, including compost, if they are available, meet applicable standards, can be substituted for a comparable non-recycled product, and do not exceed the costs of non-recycled products by more than five percent. Yard debris compost meets all these tests.

A September 1992 report issued by the Task Force on Compost and Sludge Use for the State of Oregon recommended that the state use compost for mulching, soil amendments, ground cover and other related uses. Based on trial applications of compost, the state established specifications for different types of uses of compost. In November 1991 they adopted guidelines and procedures for the purchase of compost and sludge.

State projects can utilize large quantities of material and open up a new market for yard debris and other compost products. Metro, and the cities and counties within the Metro region have also adopted procurement ordinances as a requirement of the *Regional Solid Waste Management Plan*. These ordinances in combination with the state purchasing law should result in an increased demand for compost products. Educational programs for potential public sector users, such as public works, transportation and parks department can be expanded should there appear to be an over-supply of material.

### Testing

Metro began testing samples of yard debris compost from Grimm's Fuel and McFarlane's Bark in April 1986. Samples are tested twice annually by the Oregon State University and other testing laboratories for nutrient content, soluble sales, pH, particle size/water retention capacity, bulk density, carbon-nitrogen ration, herbicides/pesticides, germination and toxicity,



pathogens and weed suppression characteristics. The last sample was tested in March 1993. Test results have been within acceptable limits, although broad standards have yet to be completed. The fact that yard debris compost is tested and continues to be of consistent high quality helps processors in marketing their product.

### **Market Capacity Findings**

1. A telephone survey of nine yard debris processors in the tri-county area indicates that nearly all yard debris composted in 1991 and 1992 was marketed. Sales trends indicate a steady market for the material.
2. The use of compost increased in the last two years and this trend is expected to continue in subsequent years. New companies have located in the area based on their analysis of potential demand.
3. Population projections indicate continued growth in the tri-county area at a rate of approximately 1.4% each year through 2010. Regional population, employment and housing forecasts project an average annual growth rate of 1.7% through 2010. This would suggest growth in the economy and in new construction with an accompanying increase in building activity.
4. New housing starts based on residential building permit data increased approximately 15% in the tri-county area between 1991 and 1992. The national average for the same period was about 6%. This level of new residential construction suggests a steady demand for landscaping products, including yard debris compost.
5. Potential new applications for compost in stormwater mitigation and erosion control can utilize large volumes of compost and will provide new markets. Nurseries could use large amounts of yard debris compost in potting mix.
6. Government procurement and price preferences for compost will increase the purchase of compost products by state and public agencies.
7. Laboratory test results in 1991 and 1992 indicate that compost samples submitted by Grimm's Fuel and McFarlane's Bark were of consistent high quality. Continued testing and adoption of standards should result in a material that will remain competitive with other products.

### **YARD DEBRIS COLLECTION PROGRAMS**

#### **Clackamas County, Happy Valley, Lake Oswego and Milwaukie**

Standard cans, kraft bags, and tied bundles are all acceptable. Clackamas County's program, as implemented, diverted considerably less yard debris per capita than its pilot program. This may be partly attributable to the drought. However, it was also due, in large part, to the withdrawal of the hauler supplied containers. This is further evidenced by the greater tonnage

being captured by Tualatin's program which also makes use of hauler supplied carts. Lake Oswego has a garbage rate structure with an increasing marginal cost for the second can. This gives a strong incentive to recycle. Milwaukie began its weekly curbside collection program in April of 1992.

### **Oregon City, Gladstone and West Linn**

Oregon City and Gladstone have long standing curbside yard debris collection programs. Oregon City's is unique in that, for a time, the charge for the program was included in residents' water bills and there were no limitations on the amount of yard debris that could be placed at the curb for collection. West Linn has a municipal composting depot but no curbside collection. Presently these cities' programs are being managed by a contractor for the River Cities Environmental District.

### **Portland**

The City of Portland began curbside yard debris collection in April of 1992. Grass was a major component of the yard debris collected. Portland haulers currently collect yard debris monthly, though nine had an every other week collection program during April, May, and June of 1992. An every other week collection program appears to divert significantly more yard debris than monthly collection. Portland is presently considering increasing the frequency of pickup to every other week, city-wide.

In addition to its curbside program the City's Bureau of Maintenance collects Fall leaves from some residential streets and composts them. The amount of leaves collected in the Fall of FY 1991-92 was reported to be 5,200 tons<sup>3</sup>.

### **Gresham, Fairview, Troutdale and Wood Village**

These four cities have jointly planned and implemented a weekly curbside collection program. Customers have a choice of using either a standard 32-gallon can provided by the customer or a 60-gallon roller cart supplied by the hauler.

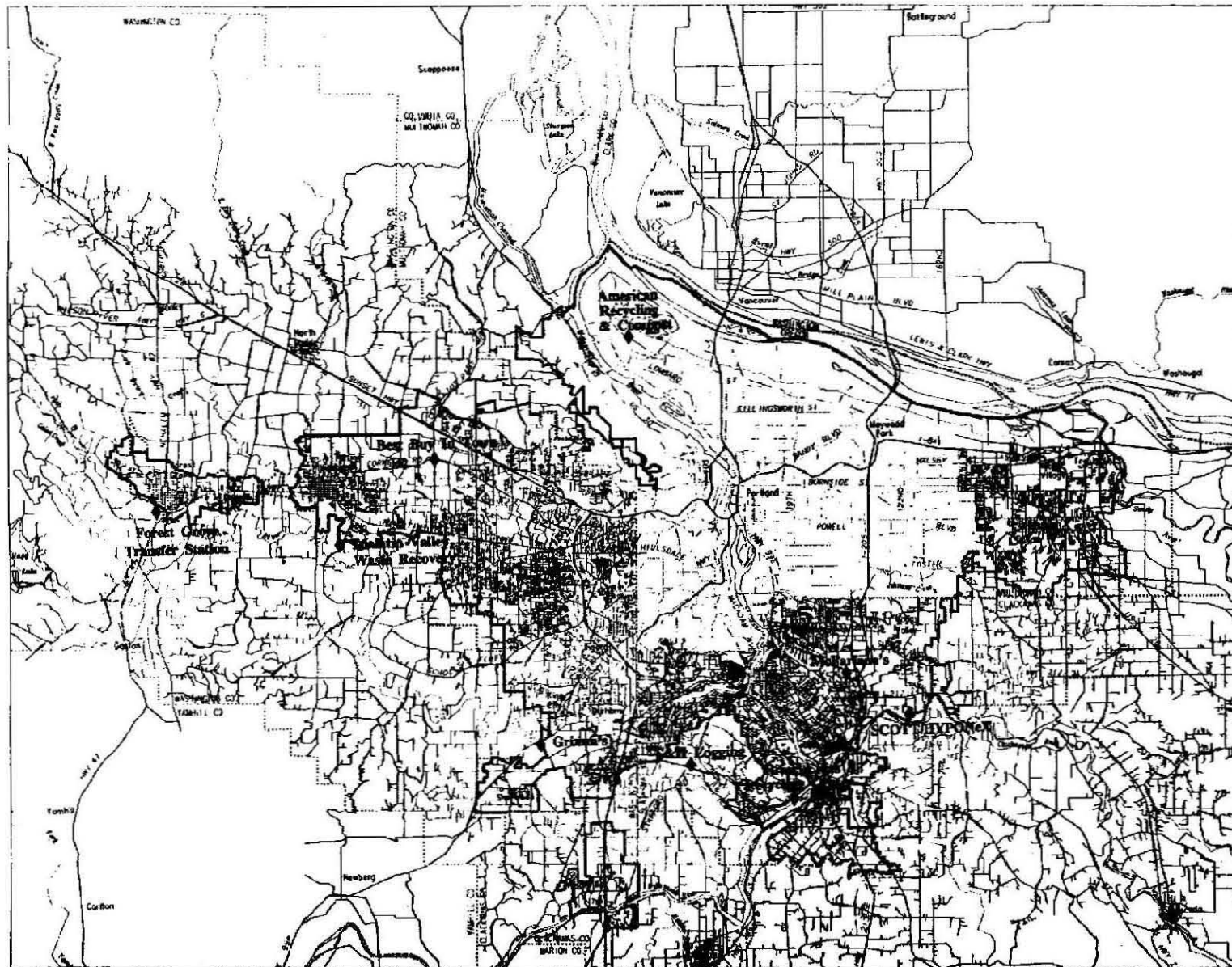
### **Washington County and Cities**

Washington County's yard debris program consists primarily of depots and an on-call fee-for-container service. In addition, there are three cities within the County that provide curbside collection of yard debris. Tualatin has implemented weekly collection using automatically tipped roller carts and no exemptions from the program. The cities of Durham and Sherwood also provide curbside collection.

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<sup>3</sup>Bureau of Maintenance Recycling Report, November, 1992.





R L I S

## Yard Debris

### Collection

Frequency of Pickup

Without Beaverton Depot

15 Minute Travel Time

30 Minute Travel Time

Weekly Pickup

Monthly Pickup

Metro Boundary

Urban Growth Boundary

County Line

Yard Debris Depots

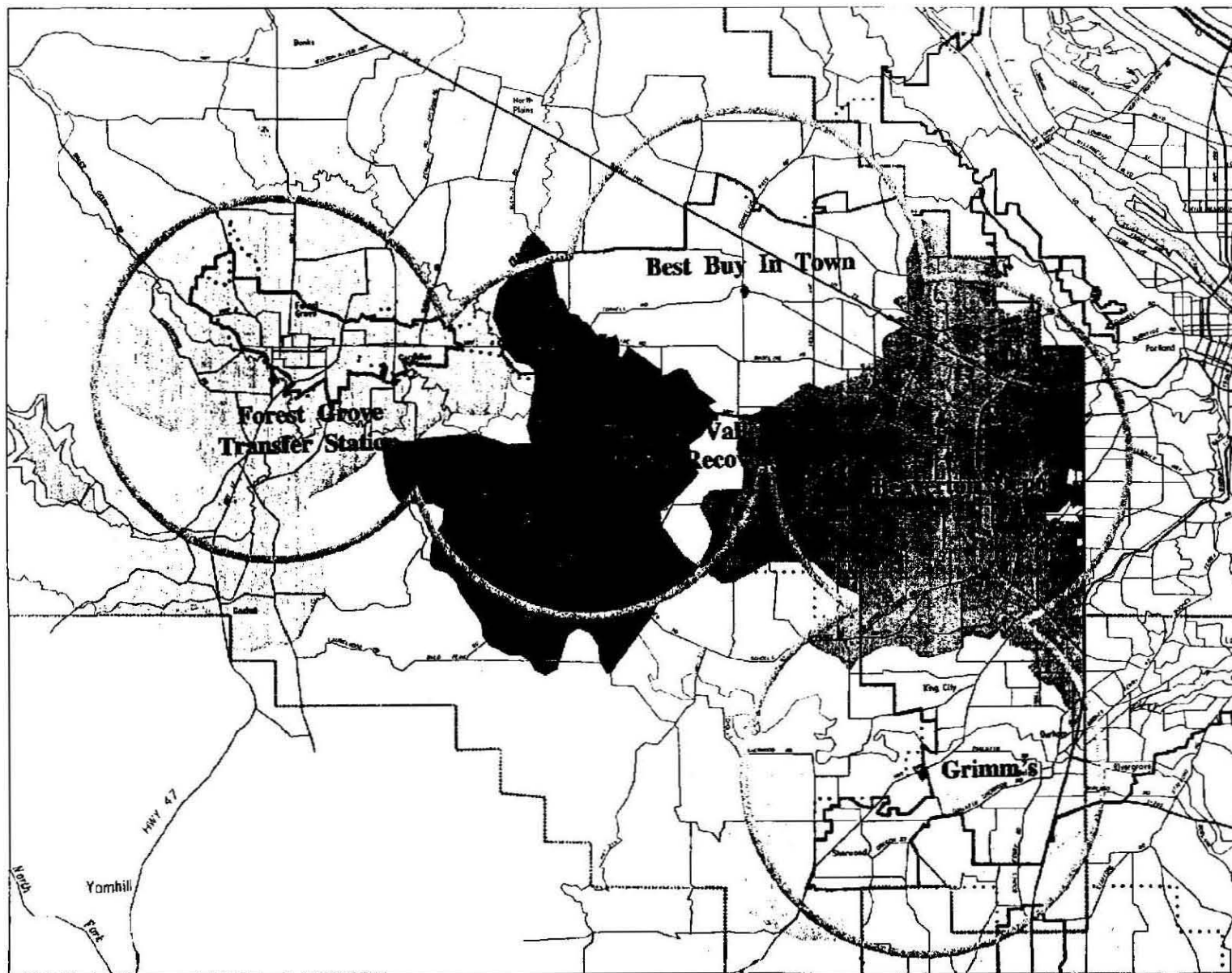
Travel times were calculated using an average travel speed 10% less than the posted speed limit.

Metro  
600 NE Grand Avenue  
Portland, OR 97232-2776  
(503) 797-9650

**METRO**

Plot date: April, 1993





**R L I S**

**Nearest Depot**

**15 Minutes**

**Washington County**

- Beaverton
- Best Buy In Town
- Tualatin Valley
- Grimm's
- Forest Grove

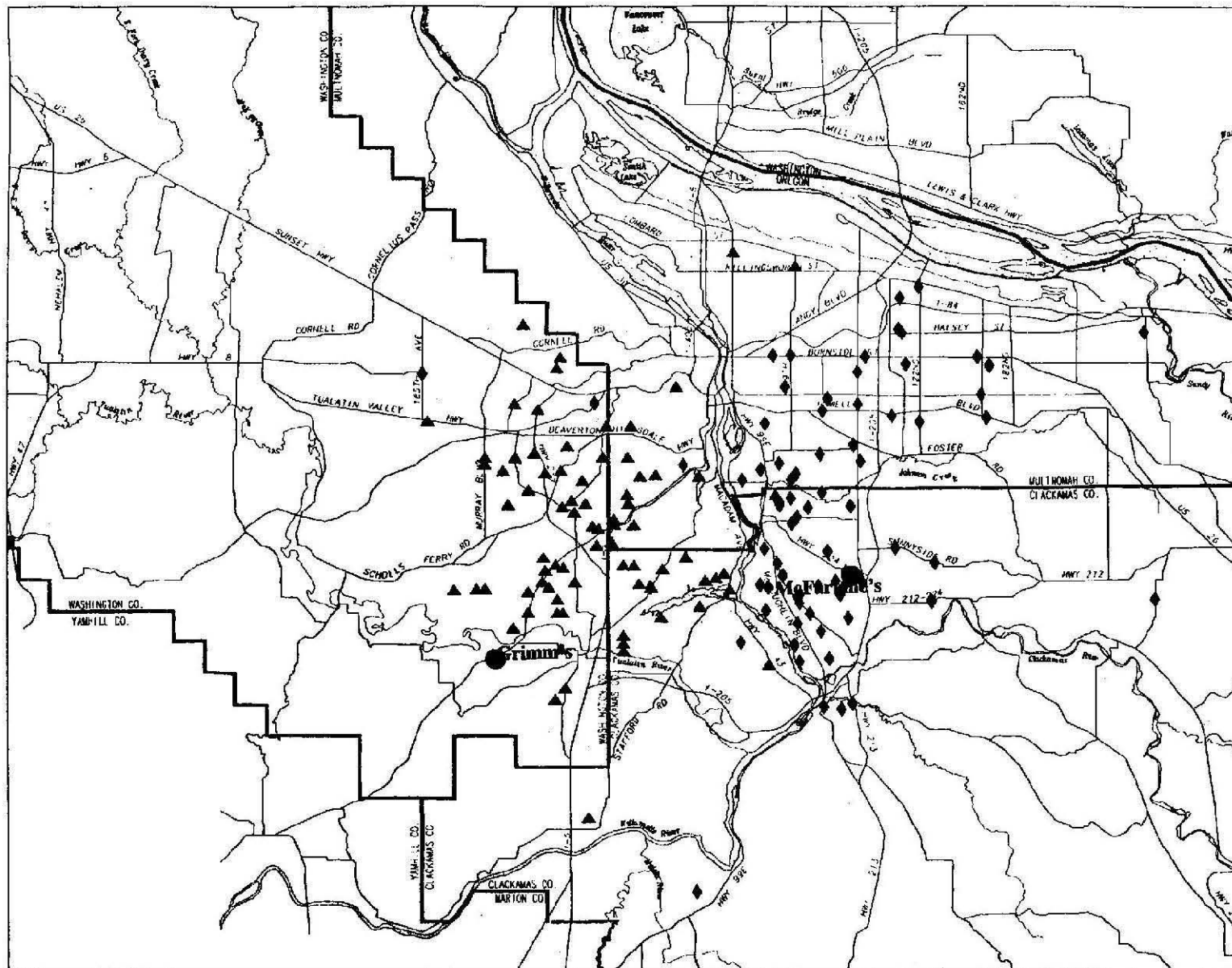
- Yard Debris Depots
- Metro Boundary
- Urban Growth Boundary
- County Line
- Four Mile Circle

**Map:**  
 2000 SW Post Avenue  
 Portland, OR 97201-5398  
 (503) 221-1646

**METRO**

Plot date: 1993





R E L I S

**Waste Origin**

**Yard Debris**

**Sampling Period:**  
November 1991

**Grimm's**

◆ Self Haul - Residential

**McFarlane's**

▲ Self Haul - Residential

Map:  
500 NE Grand Avenue  
Portland, OR 97232-2736  
(503) 757-1650

**METRO**

Plot date: May, 1993

## SYSTEM PERFORMANCE

In general, comparisons among different jurisdictions using the same system may not be valid as average lot size and generation rates most likely differ from one jurisdiction to another. However, the substantial difference between the estimated recovery rates of different types of programs clearly indicate that jurisdictions which use weekly curbside collection as a major element of their programs have a significantly higher recovery rate than do jurisdictions with less-than-weekly collection and those that rely primarily on depots.

Depots are an element of each of the jurisdiction's programs. In 1991, Metro surveyed customers at Grimm's Fuel and McFarlane's Bark. The survey included questions about the kinds of material brought to the facilities (yard debris, land clearing debris, demolition wood waste, etc.) and the county of origin of each respondent. Table 3, below summarizes the survey results of those respondents self-hauling yard debris. I-205 was arbitrarily chosen as the dividing line between Multnomah County and East Multnomah County. For the purpose of this analysis, all Multnomah County yard debris is credited to the City of Portland and all E. Multnomah County yard debris is credited to the E. Multnomah County Cities of Gresham, Fairview, Wood Village and Troutdale.

**TABLE 3**  
**ORIGIN OF SELF-HAULED RESIDENTIAL YARD DEBRIS**

COUNTY OF ORIGIN	DEPOT			
	McFarlane's		Grimm's	
	No.	%	No.	%
Multnomah	23	29	21	24
E. Multnomah <sup>4</sup>	8	10	1	1
Clackamas	45	58	21	24
Washington	2	3	44	51
Total	78	100	87	100

The major yard debris processors estimate that about half of the yard debris tonnage they process comes from residential self-haul. The following table breaks out the estimated residential self-haul tonnage and allocates it to a county of origin in the same proportion as the number of respondents from Table 3.

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<sup>4</sup>Gresham, Fairview, Troutdale, and Wood Village, the East Multnomah County Cities, were credited with all of the Multnomah County self-haul yard debris that came from east of I-205.



**TABLE 4**  
**ALLOCATION OF SELF-HAULED RESIDENTIAL YARD DEBRIS**

County Of Origin	DEPOT						Total Self-Haul Tons
	McFarlane's			Grimm's			
	Total Tons <sup>5</sup>	Self-Haul Tons <sup>6</sup>	%	Total Tons	Self-Haul Tons	%	
Multnomah	8,306	4,153	29	5,754	2,877	24	7,030
E. Multnomah	2,864	1,432	10	239	120	1	1,552
Clackamas	16,613	8,306	58	5,754	2,877	24	11,183
Washington	860	430	3	12,226	6,113	51	6,543
Total	28,643	14,322	100	23,973	11,987	100	26,308

The numbers in the last column of Table 4 are the total tons of yard debris from each area's program estimated to be recovered at depots. In Table 5 on the following page, these figures are added to recovery from other program elements to arrive at a total recovery tonnage for each area's program.

**TABLE 5**  
**TONNAGE DIVERTED BY VARIOUS YARD DEBRIS**  
**COLLECTION PROGRAMS**

Program Elements	LOCAL JURISDICTION				
	Clackamas County and Cities (excl. River Cities)	Oregon City, West Linn, Gladstone	Portland	Gresham, Wood Village, Fairview, Troutdale	Washington County and Cities
Curbside	4,915	see Depots	5,595	3,089	719
Grimm's & McFarlane's	11,183	---	7,030	1,552	6,543
Other Depots	--	3,125	--	--	1,381
Fee-for-Container	194	N/A	339	479	2,008
City Leaf Program	None	None	5,200	None	None
TOTAL	16,292	3,125	18,164	5,120	10,651

<sup>5</sup>SWIS Report, Feb 15, 1993.

<sup>6</sup>Estimated to be half of total tonnage.

## YARD DEBRIS GENERATION RATES

Since this evaluation is specified in the Regional Yard Debris Recycling Plan and focuses on the residential sector, the generation estimates used were based on the Metro Regional Yard Debris Plan estimate of 5.8 cubic yards per household per year. It should be noted that this methodology is different from that used for the Metro Recycling Level Survey. The Recycling Level Survey calculated generation as the sum of yard debris tonnage recycled at commercial processors and tonnage disposed. This analysis, however, based generation on the 5.8 cubic yards per household estimated in the Regional Yard Debris Plan and includes material burned home composted, chipped or hauled by landscape services. As a result, the regional weighted average recovery percent from Table 6 will be different from the figure calculated for the Recycling Level Survey.

Though this may be an accurate regional average, it should be recognized that the lot sizes and yard debris generation rates differ from one municipality to another. On an individual basis, yard debris diversion rates may tend to be overestimated for jurisdictions with many greater-than-average size lots and underestimated for jurisdictions with many less-than-average size lots.

TABLE 6  
DIVERSION RATES OF VARIOUS YARD DEBRIS  
COLLECTION PROGRAMS

Jurisdiction	Number of Occupied Households <sup>7</sup>	Generated Tonnage <sup>8</sup>	Collected Tonnage	Avg. lbs Per Hsld/Week	Percent Recovery
Clackamas Cnty UGB (excl. River Cities)	34,288 <sup>9</sup>	24,859	16,292	18.36	66
Oregon City, West Linn, Gladstone	10,605	7,689	3,125	11.3	41
Portland UGB, Maywood Park	138,884	100,690	18,164	5.0	18
Gresham, Fairview, Troutdale, Wood Village	19,599	14,209	5,120	10.0	36
Washington County and Cities	73,872	53,557	10,651	5.3	20

The figures presented in Table 6 must be interpreted with caution. Clackamas County does have a very effective curbside collection program, however, its high recovery rate is due, in large part, to the proximity of McFarlane's Bark, a major depot near a densely populated area.

<sup>7</sup> Figures from 1990 census, updated with building permit information. Census categories used were "One Detached", "One Attached", and "Other." Includes customers exempted from the curbside program.

<sup>8</sup> Number of households multiplied by 0.725 tons/year. Generation figures are from the Regional Yard Debris Recycling Plan and include the amount of yard debris estimated to be home composted and chipped by landscape services.

<sup>9</sup> Combined population of Unincorporated County and the cities of Happy Valley, Lake Oswego, and Milwaukie.

The E. Multnomah County Cities, are not serviced by a convenient depot, yet they have a very good diversion rate. In contrast to all of the other jurisdictions, which divert more yard debris from depots than from curbside collection, two-thirds of this area's diversion is attributable to a very effective curbside collection program. Portland and Washington County, without effective curbside collection are not diverting yard debris at a very high rate.

## **WASHINGTON COUNTY'S CONDITIONAL APPROVAL**

When the EQC listed yard debris as a principal recyclable material in the fall of 1988, curbside collection became the service standard for cities over 4,000 and the areas within their urban growth boundaries. In response, Washington County local governments jointly developed a yard debris plan characterized by a low density depot system supplemented by an on-call fee-for-container service. This plan was advanced under EQC administrative rules which permitted local governments to develop such alternatives - as long as they could be shown to be as effective as curbside. In January of 1990, the Dept. of Environmental Quality granted conditional approval to the plan. One of the conditions of the approval was that, should the system fail to perform adequately, Washington County and the cities within it would be required to conform to the Regional Yard Debris Recycling Plan and implement curbside collection if warranted by the regional processing and marketing capacity.

While DEQ allowed the plan to proceed, the approval was strongly conditioned on acceptable performance. Though the administrative rules in effect at the time allowed alternatives to on-route collection, their intent was clearly to insure collection of as much material as a curbside system.

The plan as published called for five depots - three operating daily year round and two operating every Saturday. This low density system was argued by Washington County to be as effective as the "a bi-weekly collection depot for every 25,000 population" allowed under the administrative rules. Strictly interpreted, the rule would have required 11 depots to cover the county's population. However, Washington County argued that the large number of total operating hours and addition of fee for container service provided an equivalent service level.

It is important to recognize that the one depot per 25,000 persons service standard was the less restrictive of two methods set out in the EQC alternative the plan was attempting to comply with. The rule actually stated:

*A biweekly or more often yard debris collection depot within one mile of the yard debris generators, or such that there is at least one conveniently located depot for every 25,000 population. [OAR 340-60-125]*

Allowing for "conveniently located" depots instead of depots with 1 mile radius service areas was intended to allow local flexibility in developing solutions where population densities were low. It should be noted, however, that population densities within the urban portions of Washington County are very similar to other cities in the region which have implemented curbside systems (e.g. Beaverton at 3,231 vs. Portland at 3,223 persons/sq. mile).

According to the terms of the approval, it was conditioned on successful implementation of six elements, each of which was taken from the Washington County Wasteshed yard debris recycling plan. In addition, the approval makes several references to the need for Washington County's yard debris collection system to be intensified as warranted by the ability of the region to process and market more material.

### **Compliance with Conditional Approval**

One of the key findings of this study is that Washington County has not completely fulfilled the basic six elements upon which its original DEQ was conditioned. Below is a list of these elements along with a brief analysis of the degree to which each was implemented.

#### **1. Yard Debris Collection Depots**

There are five depots in the County. For names and locations see the attached maps. According to the Washington County Plan, the depot system was to include two depots in Beaverton, one of which was to be open six days a week. Since that depot would be located in the County's major population center, this was a key element of the plan. However the depot system was never fully implemented as planned. The single depot actually sited in Beaverton is open only one day per month.

The Population Density Map shows the area surrounding the Beaverton Depot to be the most densely populated part of the County. The Nearest Depot Map shows a colored polygon surrounding each of the five Washington County Depots. Each polygon envelops the area for which its respective depot is the nearest one in terms of driving time. Table 4 shows the number of occupied single family homes within each polygon. It indicates that 41,174 homes are served by the Beaverton Depot.

**TABLE 7**  
**HOUSEHOLDS SERVED BY NEAREST DEPOT**

Nearest Depot	Single Family Households, 1990 Census	Additional Through 12/31/92	Total No. Single Family Households
Beaverton	39,310	1,864	41,174
Grimm's	9,239	958	10,197
Best Buy in Town	13,056	1,557	14,613
Tualatin Valley	6,104	181	6,285
Forest Grove	5,436	169	5,605
Totals	73,145	4,729	77,874

The Collection Maps show 15 and 30 minute travel times from the Washington County depots. With the Beaverton depot omitted, the large red patch shows the area that is more than a 15 minute drive from a yard debris depot offering more than monthly service.

## **2. Yard Debris Collection Service**

The original intent was to provide a yard debris recycling option for residents who lack access to a pickup truck or are physically unable to load and transport their yard debris. The Plan also states that "Rates will be set to provide incentive to recycle versus disposal at the landfill and in accordance with State law requiring source separated material to be collected at a lower cost than solid waste." The drop box service rate structure for yard debris in Washington County is the same as for mixed solid waste. The charge is the sum of the drop box rental and the disposal fee. The charge for a ten yard drop box in Washington County (generally this is the minimum size available) is about \$93. There is no provision in the rate structure to provide residents with a reasonable opportunity to recycle yard debris in the quantities typically generated by residential households.

## **3. Education And Promotion**

Based on copies of its educational and promotional materials provided to Metro by the County, it appears that the County has made a vigorous effort to promote the recycling of yard debris.

## **4. Funding Base**

The conditional approval specifies that "a rate differential will be established by local and regional rate setting authorities so the rate structure will encourage recycling and discourage disposal of yard debris." At present, yard debris recycling charges are established by the private sector haulers and depots which provide yard debris recycling services.

## **5. Local Government Involvement**

The conditional approval specifies that "Local governments will use their franchise authority to regulate the collection, disposal and recycling of yard debris. Local government will use their rate regulation to encourage the recycling of yard debris." No rate structure or other regulatory devices are being used by the County to provide an incentive to recycle yard debris. However, when haulers collect clean yard debris that they take to a processor, they do pass along the savings on disposal to their customers.

## **6. On-Going Evaluation And Modification**

The conditional approval specifies that "The Washington County Wasteshed Planning Committee will evaluate the success of the ... programs and will obtain necessary information to determine the future direction for yard debris recycling in the Washington County Wasteshed." At present the County does not have a system in place to collect primary data for use in evaluating the depot system.

Since counts are not kept, It is difficult to estimate how many Washington County residents make use of the depot system. The major part of Beaverton is serviced by a depot that operates only one Saturday per month. It may be that Beaverton residents also make use of more distant depots such as Grimm's Fuel Co. However, the inconvenience, need for access to a truck or trailer, and relatively long travel time, make it seem unlikely that Beaverton residents are recycling yard debris at a very high rate at distant depots.

#### Projected vs. Actual Performance

The Washington County plan appears to establish a "baseline" collection for their system in 1988 and 1989 at about 9,600 tons (p. 33 of the Plan uses a figure of 9,490 while the figure given on p. 38 is 9,623.) Over four years, recovery was forecast to grow by 53% to over 14,000 tons. Figures for 1992 indicate that the Washington County yard debris collection system as a whole is only 11% greater than the estimated 1988-9 baseline of 9,600 tons.

**TABLE 8**  
**PROJECTED AND ACTUAL TONS FOR WASHINGTON COUNTY**

System as Implemented	Actual Tons (1992)	System as Planned	Projected Tons (1992)
Grimm's & McFarlane's	6,543	Grimm's	4,215
West Beaverton	330	Garden Home\Beaverton	1,771
Forest Grove	27	Forest Grove	553
Best Buy	24	Beaverton	3,932
Hillsboro	1,000 (Metro estimate)	Hillsboro	3,485
Tualatin wkly curbside	661	Tualatin curbside	526
Sherwood qtly curbside	33	Sherwood curbside	188
Durham wkly curbside	25	Durham curbside	49
"Fee for Container"	2,008		
<b>TOTAL</b>	<b>10,651</b>	<b>TOTAL</b>	<b>14,719</b>

Metro believes that the figure supplied to Washington County by Hillsboro Landfill (3,797 tons for the first six months of 1992) overestimates the amounts of material brought to that facility by residential self-haul. Metro believes the actual amount to be perhaps one tenth that amount. However, for this analysis, Hillsboro has been credited with a full 1,000 tons.

It should be noted that in Table 5 *all* of the self-haul yard debris that has been estimated to come from Washington County is being counted as attributable to the "system", despite evidence that most of that tonnage is baseline self-haul that would be flowing there in any case. Thus, the total of 10,438 tons considerably overstates the system's performance.



## CONCLUSIONS

Depots exist throughout the Metro region, even where residents are served by weekly or monthly collection systems. Washington County's depot program was approved with the understanding that it would expand usage of the depots to compensate for the absence of a regularly scheduled curbside collection system.

Washington County depots do not divert yard debris at as high a rate as do the region's curbside programs nor is it keeping pace with the region's expanded processing and marketing capacity. Therefore, the conclusion of this analysis is that the Washington County depot system does not meet the conditions of DEQ's conditional approval or Metro's Regional Yard Debris Recycling Plan.

## RECOMMENDATIONS

DEQ rules and Metro's Regional Yard Debris Recycling Plan specify that if the regional processing and marketing capacity are found to be adequate to absorb the supply of yard debris, local jurisdictions will be required to provide weekly on-route yard debris collection in 1994. The analysis shows that there is clearly a surplus of processing capacity in the region and that, by all indications, there is also enough market demand to absorb additional compost.

Clearly curbside collection of yard debris is more effective than depots in diverting yard debris from the solid waste stream. It is therefore recommended that Washington County and the City of West Linn include curbside yard debris collection their programs.

According to both the DEQ rules and the Regional Yard Debris Recycling Plan, these jurisdictions should be required to implement weekly curbside collection. This analysis has not been able to make a clear determination that weekly collection will necessarily result in a higher diversion rate than less frequent collection (such as every other week) bolstered by other measures such as hauler supplied roller carts (as in Tualatin), strong rate incentives to recycle (as in Lake Oswego), Municipal leaf collection (as in Portland), bans on yard debris in garbage cans, or other measures.

This report recommends that Portland increase the frequency of its collection to at least every other week and that at least every other week curbside yard debris collection be implemented in that part of Washington County that lies within the Urban Growth Boundary. It is also recommended that the City of West Linn implement a curbside collection system.

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# LLOYD DISTRICT POINTS OF INTEREST MAP AND GUIDE

