A G E N D A

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METRO

MEETING: Solid Waste Advisory Committee

DAY: Wednesday

DATE: June 21, 1995

TIME: 8:30 - 10:30 a.m.

PLACE: Metro Regional Center, 600 NE Grand Avenue
Conference Room 370

5 min.	1. Approval of May 17, 1995 Minutes - Action Item	Kvistad
5 min.	2. Updates and Introductions	Shanks/Kvistad
10 min.	3 Multi-Family and Status Report	Ness
10 min.	4. Yard Debris Waste Reduction - Status Report	Goddard
20 min.	5. Licensing of Yard Debris Processors Action Requested: Forward recommendations to the Metro Executive Officer and Council	Metzler
10 min.	6. Survey of 1,000 Households Regarding Recycling, Disposal, and other Solid Waste Practices Report on Survey Results	Hossaini/Adams
50 min.	7. Regional Solid Waste Management Plan Action Requested: SWAC Vote to Accept the SWAC Planning Subcommittee's Recommendations and Release the draft Plan for Public Review and Comment	Nelson
10 min.	8. Other Business/Citizen Communications	Kvistad
	9. Adjourn	

Enclosures:
1. SWAC Minutes of April 19, 1995
3. Multi-Family and Status Report
4. Yard Debris Waste Reduction - Status Report
5 Licensing of Yard Debris Processors - Regional Work Group Recommendations
6. Household Survey - Memo summarizing project objectives, methods and findings
7. Regional Solid Waste Management Plan - Updates to the 5/17/95 Discussion Draft

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SOLID WASTE ADVISORY COMMITTEE
Meeting Summary of May 17, 1995

Members:
Jon Kvistad, Committee Chair, Metro Councilor

Anne McLaughlin, City of Portland (Alt.)	Dave Kunz, DEQ (Alt.)
Debbie Noah, E. Mult. Cities	Daryl Worthington, City of Troutdale
Lynne Storz, Washington County	Jeff Murray, Far West Fibers (Alt.)
Tom Miller, Washington Co. Haulers	Lexus E. Johnson, Oregon Hydrocarbon
Bruce Broussard, N-NE Citizen	Merle Irvine, Citizen
Loreen Mills, Wash. Co. Cities	Jeff Grimm, Grimms Fuel
Susan Ziolko, Clackamas County (Alt.)	Steve Miesen, BFI
Lynda Kotta, City of Gresham (Alt.)	Jeanne Roy, Citizen
Ralph Gilbert, East County Recycling	Bern Shanks, Metro Solid Waste Director

(Alt. = alternate member)

Metro Staff:

Terry Petersen	Jim Watkins
Scott Klag	Jennifer Ness
Debbie Gorham	Marie Nelson
Doug Anderson	Connie Kinney

Guests:
Debra Fromdahl, Sanifill Northwest
Ray Phelps, OWSI/WMO
Wendy Frizzaell, River City Resource Group
JoAnn Herrigel, City of Milwaukie

Chair Kvistad called the meeting to order. This being the day after elections, Chair Kvistad announced he was very pleased that the region's voters had approved the Metropolitan Greenspaces bond issue. He then introduced the new Metro Director of Solid Waste, Bern Shanks.

1. Approval of April 19, 1995 Minutes

Dave Kunz moved to approve the SWAC minutes from the April 19, 1995, SWAC meeting. The Committee unanimously approved the minutes.

2. Updates and Introductions

Terry Petersen responded to a recent Oregonian article which compared Portland area landfill tip fees to other parts of the country. Mr. Petersen pointed out that the "apples to oranges" comparison and had not compared local rates to cities with similar program costs (e.g., long-haul waste transfer, household hazardous waste collection, and high curbside recycling rates). When those factors were considered, Portland's rate compared favorably, he said. Staff distributed a fact sheet showing "apples to apples" rate comparisons and services included in those rates.

Bruce Broussard pointed out another article in the Oregonian, "Garbage Franchise Gold Mines." Copies of that article were distributed.

3. Year 6 Metro/Local Government Work Plan - Action Item

Debbie Gorham and Lynne Storz presented the sixth year work plan to the Committee for review and recommendation. Ms. Gorham explained that Metro would allocate $550,000 to the region's local governments to help implement the work plan.

Ms. Gorham reported that the proposed sixth year of Metro and Local Government cooperation would result in the most ambitious, regional waste reduction efforts implemented to-date. She reviewed the process by which the plan was developed, and explained that some terminology about program implementation strategy was not the same as used in the draft Regional Solid Waste Management Plan (RSWMP). However, she said, the actual programs were consistent with the RSWMP recommendations and next year's work plan would include consistent terminology. She requested that SWAC vote to recommend the full Council adopt the Sixth Year Work Plan.

Jeanne Roy commented that after observing the program for the previous six years, she was convinced it did not get the publicity it deserved considering how much money was involved. She then distributed a summary of recommended changes to the work plan (that written summary is part of the permanent meeting record). In particular, Ms. Roy thought the work plan needed to establish more specific work priorities, such as for commercial sector recycling efforts.

Susan Ziolko and Ms. Gorham responded, saying the work plan had been developed through a group process which had listened to all concerns and had tried to reach a balance. Ms. Gorham further explained that the work plan needed Council review and approval in July so that Metro and Local Governments could proceed with implementing the work.

Tom Miller wanted to make sure that local governments were given the option to complete either all or some tasks and receive partial funding if needed. Ms. Gorham said that was possible.

Ms. Roy commented that this started out as a "challenge" to local governments and has been turned into an entitlement program. She said the program should set regional standards in order for the local governments to receive funding to achieve those standards.

Dave Kunz commented that the original Metro/Local Government Work Plan concept was to create new programs and to ensure the resources to maintain them. He said an expansion component was added in order to achieve more. Mr. Kunz asked that the work plan should define the word "explore" so that the intent of work objectives was more clear.

There was continued discussion by Ms. Roy on the work plan. Chair Kvistad, upon unanimous concurrence from SWAC, asked that staff work with Ms. Roy to determine which of her suggestions could be incorporated into the work plan draft before it went on to the Council for final approval.

4. Regional Solid Waste Management Plan

Marie Nelson reported that the "May 17 Discussion Draft" of the Regional Solid Waste Management Plan (RSWMP) represented the SWAC Planning Subcommittee's recommendations to SWAC to date. She said the purpose of today's meeting was to review those recommendations and receive additional comments or instructions. Based on comments received at today's meeting as well as other staff and public comments, staff would return to SWAC on June 21 with appropriate revisions. At the June 21 meeting, SWAC would be asked to release the draft RSWMP for public review and comment.

Ms. Nelson, Scott Klag and Doug Anderson then reviewed the highlights of each draft RSWMP chapter and summarized key the Subcommittee's proposed recommendations. Subcommittee members, including Lynne Storz, Tom Miller, Susan Ziolko, Dave Kunz, Merle Irvine, Lynda Kotta, and Jeanne Roy provided further information about the process of developing RSWMP recommendations. A handout of summary recommendations was distributed to committee members and guests.

Jeanne Roy was concerned that during the last several months of developing recommended solid waste practices, some of the specific targets to be achieved had lost focus. She cited the business waste prevention evaluations as an example. Ms. Roy said this practice was once envisioned as in-person "waste audits" that would reach a specific number of businesses in the region. The practice was now described as "waste evaluations" and the targets were not specific.

Ms. Roy did not think that staff had not fully evaluated the estimated cost and tonnage impacts of practices described in the draft as "additional key elements." She reviewed other concerns and provided a written summary of suggested language changes, questions and comments to staff. Chair Kvistad asked that staff meet with Ms. Roy to see if middle ground could be achieved.

Merle Irvine explained that during the Subcommittee RSWMP development process he had expressed concerns about the practices to develop recycling options for construction and demolition materials for which there currently were no markets. He remained cautious about those markets. Staff responded that it was currently gathering more information from other communities about what could realistically be achieved. Those findings would be brought back to the Committee.

Chair Kvistad noted that Metro representatives and SWAC members were conducting public meetings and discussing the draft RSWMP with local government councils during the month of June. The results of those efforts would be reported back to SWAC.

5. Other Business / Citizen Communications

None.

The next meeting will be held June 21, 1995.

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STATUS OF MULTI-FAMILY RECYCLING IN THE METRO REGION
May 1995

Executive Summary

The Metro region has nearly 150,000 multi-family housing units. Since 1990 there has been an active program in the region to provide recycling services to the residents living in multi-family complexes. The goal for the program was to provide recycling opportunities for four or more materials to at least 85% of the multi-family units by July of 1995. Steady progress has been made toward this goal through the efforts of local governments and haulers and the assistance of matching grants by Metro. However, it appears that the 85% goal will not be reached as soon as expected. In May 1995, 70% of the multi-family units in the region had recycling services established.

The main reason for falling short of the original goal was the underestimation by one-third of the actual number of multi-family complexes in the region when the goal was originally established. This error was detected after a detailed inventory of multi-family complexes was conducted in fiscal year 1993-94 by Metro with assistance from local governments and haulers. This inventory showed that the number of units served by recycling systems had increased at a rate of 15,000 units per year. This rate would have been sufficient to reach the 85% goal by July 1995 with the original lower estimate of units in the region. It is currently estimated that it will take at least until December 1996 to reach 85% completion based on the number of units currently identified.

Local governments and haulers will continue to provide recycling services to multi-family units event though Metro matching funds for this program end in fiscal year 1994-95. Reaching 85% completion and maintaining that level have been included in the year-six Metro Challenge program and the revised Regional Solid Waste Management Plan. Metro will continue to provide non-financial assistance to the local governments through continuation of the multi-family inventory, education and regional promotion efforts.

Background

Metro has provided matching grant funds to local governments to assist with the implementation of multi-family recycling programs throughout the tri-county area since 1990. The goal of the program is to provide recycling services to substantially all multi-family complexes in the Metro area by July 1, 1995. For program clarity and measurement purposes, "substantially all" has been defined by mutual consent of Metro and local government staff as 85% of multi-family units.

Fiscal year 1994-95 is the last year grant funding will be provided by Metro. These funds provide assistance with the purchase of multi-family container systems on a 50% match basis. These systems include metal shelters containing individual bins for material collection,

shelf-racks with bins and roller cart systems. Recycling container systems are placed adjacent to the waste containers whenever possible. Some site improvements may be necessary to accommodate recycling systems. These include paving, and/or moving or rearranging garbage dumpster placement.

In addition to the 50% funding match, local governments have contributed significant time and labor for the implementation of multifamily recycling systems in their jurisdictions. They have developed and distributed extensive educational and promotional materials, held training and education workshops, performed site audits, and coordinated on-site assistance and delivery of systems with local waste haulers. Metro has provided additional support through the development and printing of training materials for owners and managers, coordination of regional promotion, and printing of signs and stickers for collection container systems.

State law, through the landlord tenant code (ORS 90.318), requires that multi-family owners and managers provide recycling to their tenants.[1] All of the region's local jurisdictions have implemented multi-family recycling programs. The City of Portland has adopted zoning codes that require inclusion of and specifications for multi-family recycling systems.

The first multi-family complexes to receive systems were those easiest to reach. These complexes either requested the service or easily accepted it when offered. As with all recycling programs, enlisting participation from the last 20-25% is the most difficult. Local governments are now working with the remaining complexes that have not requested or welcomed recycling services. These complexes are characterized as hard to service for several reasons. Many do not have on-site managers and owners are indifferent or difficult to contact; this is especially true of out-of-state owners. Many on-site owners or managers are not receptive to the program as they feel that their tenants will not participate and are not confident that tenants will use the recycling system appropriately. Some managers resist a recycling program assuming it would be one more thing for them to maintain, police, and clean. Others think that they do not have adequate space to install a system. In these cases, it takes substantially more effort to put a system in place. The "one-size-fits-all" approach is not suitable to multi-family recycling programs. In contrast to single family recycling programs, multi-family programs require a much more tailored and hands-on approach to recycling provision and education programs.

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[1] "90.318 Criteria for landlord's provision of certain recycling services. (1) In a city or the county within the urban growth boundary of a city that has implemented multifamily recycling services, a landlord who has five or more residential dwelling units on a single premises or five or more manufactured dwellings in a single facility shall at all times during tenancy provide to all tenants: (a) A separate location for containers or depots for at least four principal recyclable materials or for the number of materials required to be collected under the residential on-route collection program, whichever is less, adequate to hold the reasonable anticipated volume of each material; (b) Regular collection service of the source-separated recyclable materials; and (c) Notice at least once a year of the opportunity to recycle with a description of the location of the containers or depots on the premises and information about how to recycle. New tenants shall be notified of the opportunity to recycle at the time of entering into a rental agreement."

An in-depth study conducted by Portland State University's Recycling Projects Office found a statistically significant correlation between income levels, education and positive recycling participation rates at multi-family complexes. This has led to changes in the manner in which managers and tenants are trained and the degree of attention paid to particular complexes. In a few instances, repeated education, special programs and routine visits have not remedied chronic cases of severe contamination of recyclables or vandalism of the recycling equipment. In situations where solutions cannot be found, recycling systems have been removed from the complex.

Another example of the complexity of establishing multi-family recycling programs is language barriers. A sizable amount of non English-speaking residents live in multi-family settings. Local governments provide multi-lingual educational materials as part of their programs, but are finding that translations are not always accurate and sometimes recycling as a concept is not always understood by other cultures. Local governments find that some of the languages prevalent in the metro area do not have a word for recycling. Increased efforts have been made in this area to find ways to reach non English-speaking tenants. Bin decals and educational materials have been redesigned to illustrate recyclables preparation with more graphics than text. Explanations of recycling as a concept and the reasoning behind it have been presented.

Current Status

Based on a 1993-94 inventory compiled by Metro with assistance from the region's local governments and haulers, the multi-family recycling container program has reached 103,902 units, or 70% of the complexes in the Metro region (Table 1).

TABLE 1
Summary of Multi-Family Units with Recycling Programs[1] as of May 1995

Local Government	Total Units	Units with Recycling Programs[1]	Percentage of Total Units	Units Remaining[2]	Units needed to reach 85%
Clackamas Co.	20,635	12,270	59.5%	8,365	5,270
Lake Oswego	4,427	3,875	87.6%	552	
Milwaukie	2,781	2,567	92.3%	214	
Portland	59,929	42,574	71%	17,355	8,365
Troutdale[3]	277	212	76.5%	65	23
Gresham	13,460	7,469	55.5%	5,991	3,972
Washington Co.	46,895	34,935	74.5%	11,960	4,926
TOTALS	148,494	103,902	70%	44,502	22,556

[1]*Recycling Programs* are defined as units with recycling systems that accept four or more materials. Due to the need to clarify the data further, the above numbers include units with recycling systems that accept three or more items. Figures will be updated as information becomes available.

[2]This figure reflects units remaining if jurisdictions were to provide recycling to 100% of units. It is expected that 85% provision will remain the standard measure for completion. Some units listed in this category may have recycling collection for one or two materials. Three or more materials must be collected for units to be placed in the "recycling" category.

[3]New numbers for the City of Troutdale were not available at the time this report was compiled. It is expected that Troutdale's completion levels will significantly increase.

Based on the inventory, it is expected that the region will not meet the 85% completion rate goal by July 1, 1995. There are many factors that have influenced this outcome. In fiscal year 1991-92, the total number of apartment units was estimated to be 100,306. This was based on 1990 census data and information provided by haulers and local governments. At that time, it was estimated that 41% of these units had recycling systems in place and the 85% by 1995 goal seemed reasonable. To reach that goal, 15,000 units per year would need to be provided with recycling services. The multi-family inventory undertaken in fiscal year 1993-94 to more accurately determine which complexes still needed services, revealed that the estimated number of units in the region was underestimated by one-third. Most of the difference in estimation was due to units that were missed in earlier estimates and the unreliability of census data. The net effect is that instead of needing to service 45,000 units over three years, 85,000 units would need to be serviced within the same time-frame if the 85% goal was to be reached.

Another factor that contributed to the under estimation was the growth of multi-family housing. Between 1991 and 1994 approximately 12,000 new units were built in the region. The strongest growth was in 1994.

Reaching Completion

The inventory not only illustrated that the earlier baseline figures for estimating completion levels had been underestimated, but that the number of units serviced annually had also been incorrect. The result of these findings is that by May 1995, 61,500 more units were served than in fiscal year 1991-92. This represents an average of 15,000 units per year which were provided with service through local government and hauler efforts and partial funding from Metro. This figure is right on track with the numbers estimated to reach the 85% goal. Unfortunately, with the increases in development and a greater than anticipated baseline amount, 15,000 units per year was not enough to go beyond the current 70% completion rate. It is estimated that the region will not reach the 85% completion goal until December 1996 if the same pace is maintained.

The cost to provide recycling services to multi-family residents varies widely (Table 2). The cost includes container systems, site set-up and system installation, provision of educational materials, manager training sessions, contractors, signage, and some staff/labor costs. The costs throughout the region run from a high of $62.96 per living unit to a low of $6.50. This

large cost differential is due to many factors including hauler participation and involvement, size of jurisdiction, program design and area demographics. The cost of reaching the 85% completion rate is estimated to be $740,758.

Metro has provided local jurisdictions with $547,977 in grant funds from fiscal year 1990-91 through fiscal year 1994-95. Due to the cessation of Metro multi-family container grant funding after June of 1995, costs of completion will be borne solely by local jurisdictions. Jurisdictions that have not met the 85% completion goal are required to continue to provide services. This stipulation is tied to the 1995-96 Metro Challenge grant program.

The inventory of multi-family complexes will be continued in order to assist local governments determine specific container system placement needs and allow Metro to assess the region's progress. The inventory will provide local governments with specific information about the multi-family complex including the name, address, manager, owner, phone number, and status of recycling if any. The inventory has also allowed the development of a more targeted approach for the local jurisdictions to pursue the 85% goal. This added information has enabled local jurisdictions and service providers to focus efforts on those complexes listed as having no or substandard recycling systems, and helped to identify complexes that were not previously known to be multi-family. Metro will continue to provide non-monetary support to local governments through data collection and analysis, public education and promotion programs, coordination assistance with region-wide needs such as container decal ordering, printing and distribution of the *Success With Multifamily Recycling* handbook, and other needs as they arise.

Conclusion

Although the region has not met its goal of providing recycling to 85% of multifamily residences by July 1, 1995, we have a comprehensive and well coordinated program despite the barriers. If the programs continue at the same pace as in past years, it is expected that the provision of recycling services to 85% all multi-family residences will be complete by December 1996.

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June 15, 1995

TABLE 2

FISCAL YEAR 1993-94 MULTI-FAMILY RECYCLING PROGRAM COSTS AND ESTIMATED PROGRAM COMPLETION COSTS

LOCAL GOVERNMENT	FY 1993-94 METRO FUNDING	LOCAL GOVERNMENT MATCHING FUNDS	TOTAL FUNDS SPENT 1993-94	UNITS SERVED 1993-94	COST PER UNIT	UNITS REMAINING (no recycling)*	ESTIMATED COMPLETION COST**
Clackamas Co.	$7,305	$12,347	$19,652[1]	1,630	$12.05	5,270	$63,504
Lake Oswego	$2,594	$3,918	$6,512[2]	1,002	$6.50	n/a	n/a
Milwaukie	$1,845	$1,845	$3,690[3]	174	$21.21	n/a	n/a
Portland	$49,625	$365,635	$415,260[4]	6,596	$62.96	8,365	$526,660
Gresham	$7,620	$19,878	$27,498[5]	2,148	$12.80	3,972	$50,842
Washington Co.	$28,661	$28,661	$57,322[6]	2,831	$20.25	4,926	$99,752
TOTALS	$97,650	$432,284	$529,934	14,831		19,155	$740,758

*This number includes units that have recycling for none, one or two materials. According to program standards, units must be provided recycling service for at least three materials to be considered recycling.

**Completion is considered to be 85% of units served.

[1]Of total: 78% container costs, 21% decal costs, .01% miscellaneous.

[2]Of total: 100% container costs.

[3]Of total: 48% decal/signage, 25% promotion costs, 17% container costs, 10% site preparation costs.

[4]Of total: 32% container costs, 54% PSU contract, 14% Portland Energy Office contract.

[5]Of total: 38% container costs, 35% staff costs, 20% promotion/printing costs, 6% decal costs.

[6]Of total: 49% promotion costs, 40% container costs, 6% promotion costs, 5% postage costs.

Analysis of Yard Debris Recycling System

Waste Reduction Division

June 1995

METRO

Enclosure #4 to SWAC 06/21/95 Agenda

Executive Summary

The yard debris recycling rate in the Metro region increased from 23% in 1987 to 70 percent (110,000 tons) in 1993. This recycling rate is even higher than the rate for cardboard. During that same period, the proportion of yard debris found in municipal solid waste dropped from 11% to 5% (47,000 tons). The dramatic success in diverting yard debris from the waste stream coincided with the initiation of effective yard debris curbside collection programs for virtually every house in the region. Curbside programs currently capture 35,000 tons of yard debris. About 20,000 tons per year continue to be disposed in residential garbage but this is expected to decrease as the effects of new yard debris collection programs are realized. It appears that the level of service provided by yard debris curbside collection programs is adequate. Improvements in program participation can be made through increased education as was shown in a 1995 program evaluation.

About 75,000 tons of yard debris were delivered directly to the 18 processors throughout the region from non-curbside sources. Still, about 26,000 tons of yard debris is disposed each year mixed with other non-residential waste. Three measures are proposed to reduce the amount of yard debris disposed in this manner. First, a service should be developed to allow for separation of yard debris from mixed waste when a single drop box is used. Second, self-haulers of mixed waste should be educated about the lower cost options for recycling yard debris available at most mixed waste facilities throughout the region. Third, yard debris collection should be provided to select businesses.

Yard debris diversion in the region developed differently than was projected in the Regional Yard Debris Recycling Plan adopted in 1991. The plan estimated that curbside collection of yard debris would capture about 80% of all yard debris diverted in 1996. Current experience shows that the plan's prescribed level of curbside collection service (weekly or equivalent) has been established throughout the region and accounts for 32% of all yard debris recycled. The plan did not anticipate the large quantity of yard debris that would be hauled directly to processors. Based on this, the goals stated in the Regional Yard Debris Recycling Plan should be revised to reflect the system as it has actually developed.

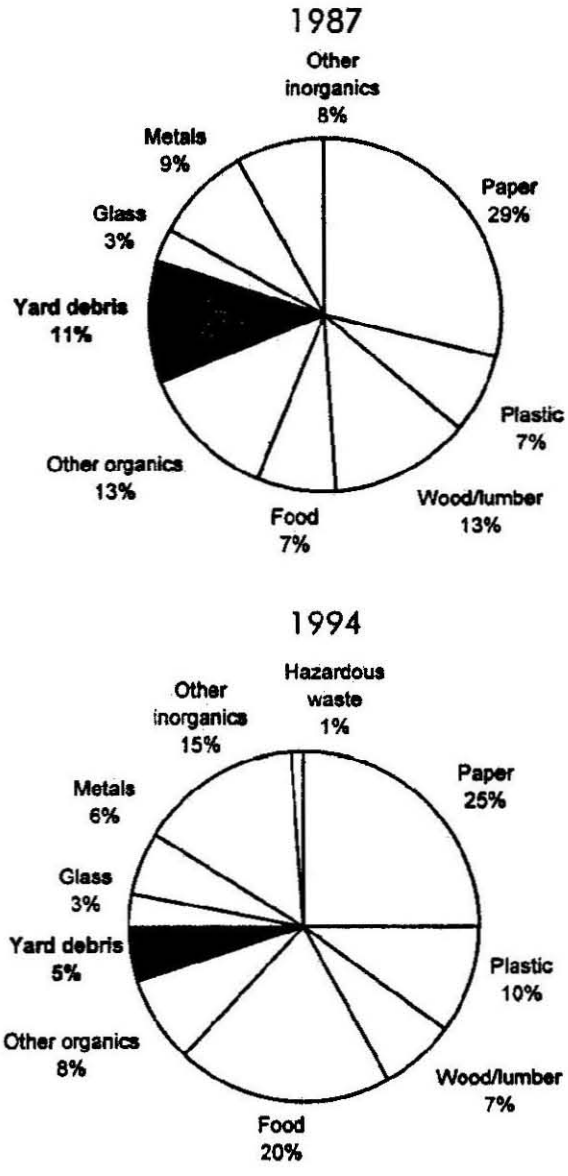
It is recommended that the residential weekly collection service standard (or equivalent) be maintained from the Regional Yard Debris Recycling Plan. This would limit yard debris disposal to 5% of residential garbage (based a weekly collection performance measured in 1994 and 1995). To meet this goal, an additional 5,000 tons of yard debris would need to be diverted based on 1994 disposal rates. Still 15,000 tons would be disposed in residential garbage. If the same 15,000 ton per year disposal goal was established for non-curbside yard debris, then an additional 12,000 tons would need to be diverted each year from these non-residential sources. These two goals would result in yard debris making up no more than 3% all solid waste landfilled. This is consistent with the actual experience Seattle and Minnesota Tri Cities Region. They both have aggressive yard debris programs that have reduced disposal of yard debris to 3% of all garbage. The yard debris recycling rate would be over 80%, which would be the highest rate of all principal recyclables. This goal should be attainable by the year 2000. Progress made toward meeting this goal would be measured during the next comprehensive waste characterization study scheduled for FY 1997-98.

1. Why should we be concerned about diverting yard debris from the landfill?

In the past, yard debris has been a significant portion of solid waste landfilled. As shown in *Figure 1*, yard debris was the third most prevalent single material in the wastestream in 1987. Yard debris was 11% (over 100,000 tons) of all waste disposed in landfills annually. By 1994[1] this amount had been reduced by over 50% to approximately 48,000 tons. This amount still represented 5% of all waste. During this same period, the amount of yard debris disposed has fallen from 185 pounds per person per year to 74 pounds per person per year.

The 1987 yard debris statistics were used as the basis for development of the Regional Yard Debris Recycling Plan. The plan directed the region to reduce the amount of yard debris in the garbage while promoting composting. This was adopted as part of the Regional Solid Waste Management Plan in January 1991. July 1994 was established as the target date for full implementation of yard debris diversion programs throughout the region.

Figure 1
Regional Major
Material Categories
as Disposed

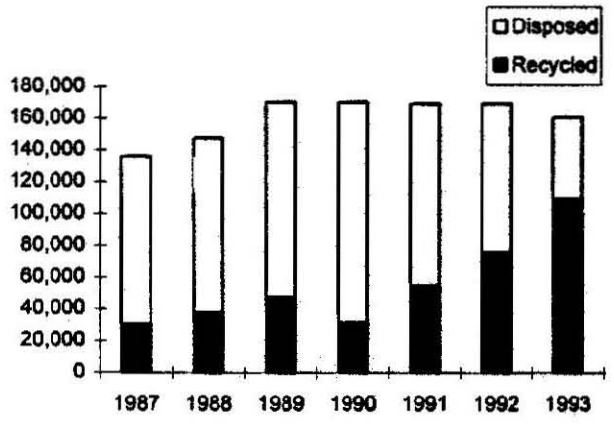


[1]The 1994 yard debris statistics were taken from the 1995 revision to the 1993-94 Waste Characterization Study. These tonnages differ from those in the Final Report of the Waste Characterization Study by about 9,000 fewer tons of yard debris. Improved information concerning post-collection recovery from regional disposal facilities resulted in a reduction in total tonnages landfilled. Changes in the profile of landfilled tonnages also resulted. The 1995 Revision is used throughout this report.

2. How much has yard debris recycling increased?

Yard debris diversion increased from 31,000 tons in 1987 to over 110,000 tons in 1993.[2] This represents a change in the yard debris recycling rate of 28% to 70% (*Figure 2*).

Figure 2
Yard Debris
Recycled vs. Disposed



Yard Debris Recycling Rate

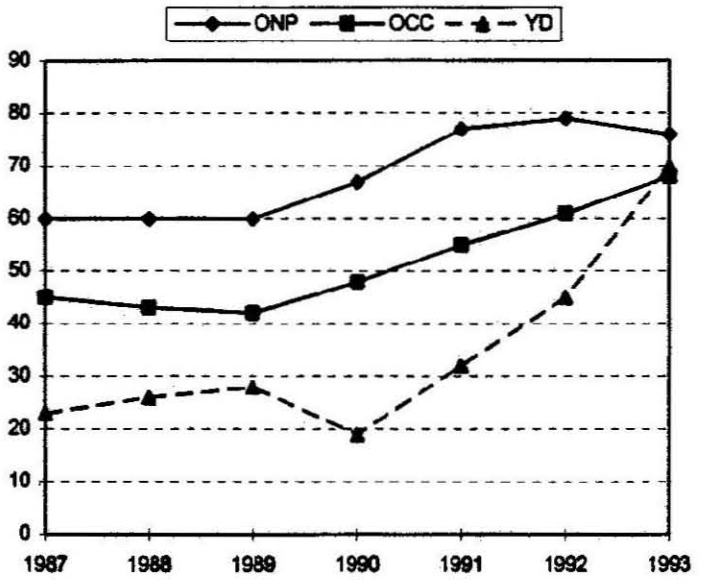
Year	DISPOSED Yard Debris	RECYCLED Yard Debris	Generated Yard Debris	Yard Debris Diverted from Landfill
1987	105,000	31,000	136,000	23%
1988	111,000	38,000	149,000	26%
1989	123,000	48,000	171,000	28%
1990	139,000	32,000	171,000	19%
1991	115,000	55,000	170,000	32%
1992	94,000	76,000	170,000	45%
1993	47,000	110,000	157,000	70%

3. How does yard debris recycling compare to other recyclable materials?

The yard debris recycling rate can be put into context by comparing it to other recyclable materials. Of the 10 principal recyclable materials collected in Oregon, only newspaper and colored container glass had higher recycling rates in 1993.

Other mateirals have a long history of being recycled *(Figure 3)*. As an example, in 1987 newspaper and corrugated cardboard had already established relatively high recycling rates of 60% and 45%, respectively. However, yard debris had only a 23% recycling rate. By 1993, the 70% recycling rate for yard debris had surpassed the corrugated cardboard recycling rate of 68%. Newspaper had risen to 76%. This demonstrates a tremendous improvement in yard debris recycling compared to other recyclables. This improvement occurred during the period of the development and implementation of the Regional Yard Debris Recycling Plan.

Figure 3
Recycling History of Newspaper, Corrugated Cardboard, and Yard Debris



[2]Based on Metro's Recycling Levels Surveys, 1987 through 1993.

A similar comparison can be made based on the amount of a recyclable material disposed in a landfill. As an example, *Figure 4* shows yard debris disposal compared to corrugated cardboard disposal.[3]

Figure 4
Comparison of Landfilled Yard Debris and Corrugated Cardboard

	% of Total Waste Landfilled		% of Residential Waste Landfilled	
	1989	1994	1989	1994
Yard debris	11%	5%	26%	7%
Corrugated cardboard	12%	6%	11%	6%

As a proportion of the total wastestream, yard debris and corrugated cardboard have both experienced similar drops in disposal of about 50% between 1984 and 1994. As a percentage of residential waste being landfilled, yard debris has decreased substantially from 26% to 7% while cardboard disposed in the residential wastestream only dropped from 11% to 6%.

Future improvements in the recovery of yard debris and other recyclables may require a more drastic policy such as a disposal ban, to achieve higher recovery.

4. What has been done to remove yard debris from the wastestream?

The primary focus of the Regional Yard Debris Recycling Plan was to divert yard debris from residential garbage. To this end, local governments implemented curbside collection programs in virtually all areas of the region. *Figure 5* shows where and when yard debris collection programs were implemented throughout the region.

Yard debris collection programs vary by jurisdiction, but the vast majority of the region's residents have curbside collection of yard debris. Of Metro's 1.25 million residents, approximately 1.2 million live in areas served by weekly or every-other-week yard debris recycling programs. Many of the programs were first implemented in 1994.

As yard debris collection programs were established, other programs were implemented to keep yard debris out of residential garbage. The most noteworthy was an extensive home composting program initiated by Metro with cooperation and assistance of local governments. Activities included establishing five permanent home composting demonstration sites, providing home composting workshops in the spring and fall, distributing compost bins, promoting composting at fairs and tradeshows, and providing regular how-to compost information through educational mailings to every resident in the region.

In addition, efforts have been made to promote the use of compost produced from yard debris. Programs include compost testing and standards, mitigation of stormwater runoff and erosion control with compost, and the use of compost as a biological filter medium.

Another ongoing effort is to determine if there is sufficient processing capacity for the yard debris and markets for yard debris compost. There currently appears to be a sufficient demand for compost products throughout the region, based on field visits and interviews with processors. There also appears to be adequate processing capacity since the number of privately developed processors has grown from nine in 1993 to 18 in 1995. There is also a regional effort to help improve the performance of compost facilities and develop siting standards.

[3] Based on Metro's Waste Characterization Studies, 1989 and 1993/94.

Figure 5
Metro Region Yard Debris Collection Programs

Service and Program Areas		Service Frequency: Weekly	Every other week	Other	Exemption Program[1]	Container: Hauler Provided	Customer Provided	Date Implemented
CLACKAMAS								
Clackamas County								
	Unincorporated area in USB, Happy Valley, Sandy, Molalla, Canby	X			X (annual fee)	X (60 gal)	X (32 gal)	1992
	Oregon City	X				X (60 gal)	X	1980
	Gladstone	X				X (60 gal)	X	1983
	West Linn	X		X[2]		X (60 gal)	X (32 gal)	1995
Johnson City		X					X (32 gal)	1989
Lake Oswego	Incorporated area	X			X (no fee)	X (60 gal)	X (32 gal)	1992
Milwaukie	Incorporated area	X				X (60 gal)	X (32 gal)	1992
MULTNOMAH								
Portland	Incorporated area plus USB		X	X[2]		Carts offered	X (32 gal)	1993
Maywood Park	Incorporated area	X[3]					X	
East Multnomah County Cities	Fairview	X			X (one time fee)	X (60 gal)	X (32 gal)	1992
	Gresham[4]	X		X[2]	X (one time fee)	X (60 gal)	X (32 gal)	1992
	Wood Village	X			X (one time fee)	X (60 gal)	X (32 gal)	1992
Troutdale	Incorporated area	X			X (one time fee)	X (60 gal)	X (32 gal)	1992
WASHINGTON								
Washington Co.								
	Unincorporated area in USB		X			X (60 gal)	X (32 gal)	1994
	Beaverton		X			X (60 gal)		Oct-94
	Hillsboro		X			X (60 gal)		1994
	Tigard		X			X (60 gal)		1994
	Tualatin	X				X (90 gal)		1991
	Forest Grove			X[5]				TBD
	Cornelius			X[5]				TBD
	Sherwood		X[6]					1994
	King City			X[5,7]				TBD
	Durham		X				X (60 gal)	1994
	Wilsonville[8]	X		X	X (no fee)	X (60 gal)	X (35 gal)	1994

[1]Allows customers to not pay for yard debris services. Most programs require that exempt participants demonstrate usage of home composting or landscaping services and pay a small yearly or one-time fee.

[2]City Collection and composting of street leaves from residential areas.

[3]Weekly yard debris curbside 7 months, on-call for other 5 months, 2 community collection events annually.

[4]A large percentage of the City of Gresham is located outside the metropolitan burn ban area.

[5]Yard debris in garbage found to be equivalent to weekly.

[6]Every other week collection or compost bin distribution option. Also has an annual collection event.

[7]King City holds two yard debris collection events annually. No other program is proposed.

[8]Charbonneau area has 3 programs: small lots= 35 gal. roll carts collected on 1st garbage day of month; larger lots= 60 gal. carts collected weekly; and no- fee exemption program w/approved landscape service. All others = 60 gal. serviced weekly.

TBD - To Be Determined

5. How effective have these programs been in diverting yard debris?

The Regional Yard Debris Recycling Plan placed the greatest emphasis on establishing yard debris collection from households. *Figure 6* shows hauler collected yard debris tonnage from 1992 through 1994.[4]

Figure 6
Hauler Residential Yard Debris Collection Trends

	1st Half Tons	2nd Half Tons	Total Tons
1992	5,000	6,000	11,000
1993	10,000	13,000	23,000
1994	16,000	19,000	35,000

The 1993 and 1994 tonnage accounted for approximately 22% and 32% of all yard debris recycled, respectively. Many programs did not come on-line until late1994 so their contribution would not be fully noted until 1995.

[4] Based on hauler reported tonnages provided to Metro.

It is obvious that curbside collection has made a big impact on yard debris diversion but it has not accounted for all of the improvement. Other generators of yard debris such as commercial, industrial, building industry and residential self-haul accounted for the remaining 75,000 tons diverted in the region in 1993.

The effectiveness of the home composting component of the program has not been tested to date. The best measure of composting activity has been telephone surveys about the composting practices of the public.

A 1994 survey[5] performed by the City of Portland showed that 47% of all city residents composted leaves and 49% composted grass clippings. Only 5% used disposal in the garbage can as their primary means of managing yard debris, 37% and 42% used the curbside collection of yard debris as their primary means of handling grass and leaves, respectively.

6. Where can additional yard debris be diverted from the wastestream in the future?

As shown in previous sections, the focus of yard debris diversion programs has been placed on curbside collection from residents. The Waste Characterization Study indicates that of the 47,000 tons of yard debris disposed in landfills annually, only 20,000 of those tons are received from garbage trucks carrying residential waste *(Figure 7)*.[6]

Figure 7
Generators of Yard Debris
Disposed in 1994

Commercially hauled residential	20,000
Residential self-haul	6,000
Commercial	12,000
Industrial	2,000
Building industry	7,000
TOTAL	47,000

There is obviously more yard debris that can be diverted from residential garbage and the programs already in place are diverting increasing amounts of yard debris from this source. Disposal of yard debris in residential garbage should continue to decrease.

The remaining 27,000 tons of disposed yard debris are spread between self-hauled residential, commercial business, industrial business and the building industry. The main diversion option available to these generators is to deliver a source-separated load of yard debris to any of the 18 processors in the region. This generator group already accounts for 75,000 tons of yard debris sent to processors even though there are currently no programs targeting these generators to increase source separation of yard debris. Some businesses that regularly produce small quantities may be well served with a collection program expanded from the residential program in their area.

Another way to look at yard debris disposal is to determine how it is delivered to a disposal site. *Figure 8* shows that drop boxes and self-haul account for 56% of yard debris disposed.[7]

Figure 8
Method of Delivery for
Disposed Yard Debris

Front/Rear/ Side Loaders	Drop Boxes	Self-Haul	Total Ton/Year
21,000	12,000	14,000	47,000

Currently, drop box haulers will provide a drop box for source-seperated yard debris on request. However, there is no service available where small amounts of yard debris could be separated with a single box. If this type of service is initiated, it would need to be tested to ensure a workable arrangement for both the hauler and the generator.

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[5] City of Portland Yard Debris/Scrap Paper Recyclintg Study, Gagen Research, Feb. 3, 1994.
[6] Based on the 1995 Revision of Metro's 1993/94 Waste Characterization Study
[7] Ibid.

Yard debris that is self-hauled for disposal requires different solutions than hauler-provided service since the generators load their own vehicle and take it to any of the region's disposal sites. Most of these disposal sites have a discounted rate for source-separated yard debris but this has not been enough of an incentive for the generator to keep the yard debris separated. More education, publicity, or more convenient arrangements at the facility would help capture this portion of the wastestream. This would also need to be tested to ensure that it had the intended effect and was workable at the facility.

One remaining observation about yard debris arriving for disposal is that approximately 70% of it is leaves and grass. Once these small pieces are mixed with other waste it is virtually impossible to separate. Recovery of leaves and grass from mixed waste is not likely to remove significant quantities. Source-separation is most likely to succeed.

7. How does yard debris diversion in the region compare to the diversion projected in the Regional Yard Debris Recycling Plan?

The Numbers

The Regional Yard Debris Recycling Plan projected that in 1996 approximately 160,000 tons of yard debris would enter the solid waste system though curbside collection, direct haul to processors and disposal as solid waste. This is very close to the actual generation of 157,000 tons in 1993 *(Figure 9)*. The sources of the yard debris that make up the total generation do not track with the plan.

Figure 9
Projected vs. Actual Yard Debris Tonnage

	Yard Debris Plan Tonnage Projection for 1996	Actual Yard Debris Tonnage
Curbside collection	117,000	35,000[8]
Direct haul to processors	30,000	75,000[9]
Disposal as solid waste	16,000	47,000
Generation	163,000	157,000
Recycling Rate	90%[10]	70%

The plan projected that 80% (117,000 tons) of all yard debris recycled would come from the curbside collection programs. Only 35,000 tons was collected curbside in 1994, however, all programs had not been implemented for the full year. Direct haul to processors accounted for the remaining 75,000 tons diverted while only 30,000 tons was projected. Part of the explanation for this is that large loads of residential yard debris are not set out for curbside collection. Instead, they are delivered to one of the of 18 processors distributed throughout the region. Few of these large yard debris loads are destined for the transfer stations since processors are generally more conveniently located and have lower prices for source-separated yard debris than transfer stations.

This is quite a shift from when the plan was written. At that time, now closed local landfills were convenient to most parts of the region and charged low tipping fees of about $15 per ton. Landfills attracted large quantities of the direct haul yard debris. Also at that time, there were not as many recycling options with only two large yard debris processors in the region and six small processors. The plan projected a shift from direct haul for disposal or recycling to use of curbside collection. This shift has not materialized to the extent expected.

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[8] Based on hauler reported tonnages for 1994.
[9] Based on Metro's 1993 Recycling Levels Survey.
[10] Metro's Regional Yard Debris Recycling Plan included tonnage from chipping services and home composting to project a total recycling level of 93%.

The plan projected that chipping services and home composting, which prevent yard debris from entering the solid waste system, would lose tonnage to curbside collection. It is not known if this happened since activity in these areas has not been measured. Diversion through home composting will be measured in FY 1995-96.

The plan established a 67% and 93% recycling goal for yard debris in 1993 and 1996 respectively. These goals were based on implementation of yard debris collection programs plus chipping services and home composting. The 1993 goal was met based only on recycling activity while not taking credit for contributions made by home composting and chipping services. The 1996 goal relied heavily on the curbside collection programs to supply almost all of the increase in recycling. This now appears to be an erroneous assumption. It may be better to revise the goal based on the experience gained since the plan was written.

The Level of Service

Another goal of the Regional Yard Debris Recycling Plan was to ensure that all areas of the region had weekly collection of yard debris or an equivalent alternative. A number of jurisdictions chose alternative programs. The effectiveness of these alternatives at keeping yard debris out of residential garbage was tested in the Spring of 1994 and 1995. Results from both years show that areas with weekly curbside yard debris collection had about 5% yard debris in their residential garbage. This is equivalent to a little under 1-1/2 pounds per household per week. If all households had this level of service, there would be about 15,000 tons of yard debris disposed in residential waste instead of 20,000 tons currently disposed in 1994.

The 1994 study showed that the weekly programs were more effective than the non-weekly programs tested. The City of Portland and West Linn were informed that their programs had to improve by the spring of 1995 or they would be required to provide weekly curbside yard debris collection. West Linn went to weekly curbside collection and Portland implemented enhanced programs.

The 1995 study showed that the enhanced programs tested by Portland were as effective at keeping yard debris out of the garbage as weekly programs. In fact, all areas tested in the 1995 study indicate that the region's non-weekly 32-gallon collection programs are equivalent to weekly 32-gallon collection. There is some room for improvement through increased education, particularly where one 32 gallon container is collected every-other-week.

A number of yard debris collection programs exceed the 32-gallon weekly collection standard. Jurisdictions are encouraged to exceed the minimum standard and divert as much yard debris as possible. As an example, every-other-week 60-gallon roller carts were found to be significantly better than weekly 32-gallon curbside collection in the 1995 study. The added volume of the 60 gallon container and the convenience of a wheeled cart are apparently attractive for the residents to use. The roller carts were implemented where semi-automated garbage collection equipment is used. As more areas of the region begin automated or semi-automated garbage collection, it is expected that yard debris service will be provided in roller carts which should further improve the residential yard debris diversion.

Overall, the region has met the standard established by the Regional Yard Debris Recycling Plan of having weekly curbside collection to all residents of the region or an equivalent alternative. This shows the tremendous progress that has been made in the diversion of yard debris. However, it does not mean that there will not be any yard debris in the garbage. Even newspaper, with a 76% recovery rate, had 24,000 tons disposed of the 101,000 tons generated in 1993.

8. How does yard debris diversion in the Metro region compare to other areas of the country?

Many cities have banned yard debris from the landfill in concert with implementation of diversion programs. The September 1994 issue of *Biocycle*

indicates that yard debris is still present in garbage even where yard debris has been banned. Yard debris in Seattle residential garbage dropped from 14% to 3% with implementation of diversion programs and a ban. The Metro region has already experienced a drop from 25% to 7% yard debris in residential cans. This drop was measured before all of the region's yard debris collection programs were in place. It can be expected that this will continue to drop as the effects of new programs are realized.

The Minnesota's Twin Cities area determined that yard debris accounted for 11% of residential and commercial garbage before diversion programs and a ban was put in place. After that time, yard debris dropped to 3% of the garbage. Yard debris in all of Metro area garbage has dropped from 11% to 5%. In both Minnesota and Seattle, the diversion and collection programs were given credit for the dramatic drop in yard debris disposal. The ban was largely considered a symbolic measure to get people to use the services .

At current disposal rates, the Metro region could match Minnesota's performance and still send approximately 30,000 tons of yard debris to the landfill. The Regional Yard Debris Recycling Plan goal of landfilling only 16,000 tons of yard debris per year is equivalent to less than 2% of landfilled waste.

9. Where do we go from here?

Yard debris diversion programs have been very successful at reducing the amount of yard debris disposed in garbage. In 1993, 70% of all yard debris entering the solid waste and recycling system was diverted from landfills. This places yard debris diversion on par with other recyclable materials. The special attention yard debris has received in the past is no longer warranted. The question is how much effort should be made to remove a portion of the 47,000 tons landfilled each year?.

Curbside Collection

The Regional Yard Debris Recycling Plan was very successful at ensuring that curbside recycling of yard debris was made available to virtually all residents of the region. It was determined in the spring of 1995 that all of the region's curbside collection programs were equivalent to weekly service, as prescribed by the plan.

Tonnage diverted through the curbside programs is expected to continue to increase as the programs mature and improve. Hauler data should be used to monitor these trends. The Regional Yard Debris Recycling Plan goals for collection tonnage are no longer appropriate since they expected almost all residential yard debris to be captured through curbside collection. Experience has shown that curbside programs do divert significant amounts of yard debris, but large quantities will also be delivered directly to processors.

Measurement of yard debris disposed in residential garbage cans is the most direct measure of residential program effectiveness. It is recommended that yard debris in garbage cans be measured in 1996 as it was in 1994 and 1995. This should confirm that the collection programs continue to be on track. If the measurement indicates otherwise, a recommendation about follow-up action should be made. It is expected that the time and expense required to make this measurement will not be warranted after 1996.

Overall there are no major deficiencies in the level of service that need to be addressed in the region's yard debris curbside collection programs. Instead, educating the public about use of the yard debris collection services should be a major focus to improve residential diversion rates. The 1995 yard debris study showed this to be effective at reducing yard debris disposal. Continued home composting education should also be included to prevent yard debris from entering the solid waste system in the first place.

Non-Curbside Programs

Non-curbside yard debris diversion was given less emphasis in the Regional Yard Debris Recycling Plan. While 75,000 tons of source separated yard debris is hauled directly to processors , a significant amount is still mixed with garbage in drop boxes and in self-haul loads. It is recommended that methods be developed to provide the opportunity to separate yard debris (or other recyclables) from mixed waste when a single drop box is rented. This will require cooperation by haulers, processors, local governments and Metro to develop effective methods and equipment to accomplish this.

Similarly, a cooperative approach should be developed to reduce the amount of yard debris disposed in self-hauled garbage. It appears education and publicity is needed to make the public aware that the majority of facilities that accept mixed garbage also accept source separated yard debris at a lower fee. It is also possible that a more convenient arrangement for self-haul drop-off of yard debris at the facilities is needed.

Another option is to provide collection to businesses that regularly generate smaller quantities of yard debris. This may be most practical for businesses located near established curbside collection areas. This option would most likely be applied to individual businesses based on their need for the service rather than a blanket approach.

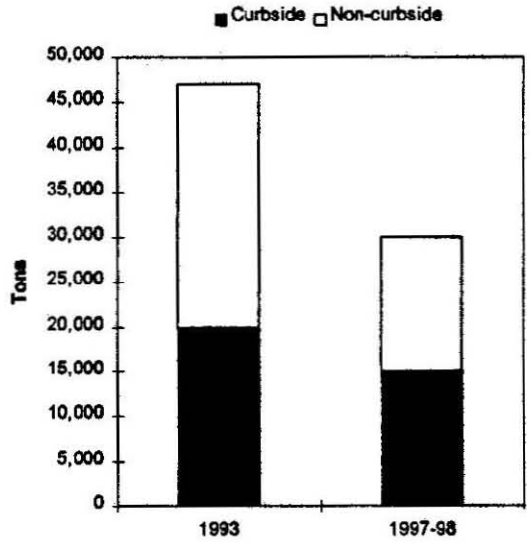
Revised goals

It would be reasonable to expect that the yard debris disposed in the landfill can be reduced to 3% of all solid waste (levels observed in Seattle and Twin Cities). In terms of current tonnage, this translates to 30,000 tons per year or a yard debris recycling rate of about 80%. This would require diversion of an additional 17,000 tons of yard debris from the 1993 levels. If residential curbside programs reduce disposal to 5% of garbage region-wide (based on the weekly collection service standard), then 15,000 tons would be disposed in household garbage instead of the current 20,000 tons. Non-curbside programs would account for the remaining 15,000 tons disposed per year or a drop of 12,000 tons from 27,000 tons *(Figure 10)*.

These goals should be attainable by the year 2000. The effects of improvements made in recycling yard debris should be evident in the next waste characterization study scheduled for FY 1997-98. If these goals are not met, more drastic measures could be taken, such as a ban on yard debris disposal. This step is not considered necessary currently since tremendous progress has been made in the past few years. Continued progress toward the above goals is expected if the recommendations from this report are implemented throughout the region.

Figure 10

Projected Yard Debris Disposal



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M E M O R A N D U M

METRO

DATE: June 14, 1995

TO: The Solid Waste Advisory Committee

FROM: Bill Metzler, Associate Solid Waste Planner

RE: Metro Licensing Program for Landscape Waste and Yard Debris Processing and Reload Facilities

The Yard Debris Processing Facility Discussion Group voted on May 18, 1995, to forward a recommendation that the Metro Solid Waste Advisory Committee consider the adoption and implementation of a program for licensing landscape waste and yard debris processing and reload facilities.

PURPOSE

The purpose of the licensing program is to:

1. Establish regional performance standards to help ensure the stability of the regional yard debris recycling system.

2. Assist local governments in managing the impacts of landscape waste and yard debris processing facilities through a licensing program.

3. Increase the confidence that citizens and local governments have in these facilities by minimizing the potential for nuisance complaints and preventing negative public perception of these facilities.

RECOMMENDED PROGRAM ELEMENTS

The licensing program would consist of the following major program elements:

Metro

1. Metro implements a licensing program for new and existing facilities located within the Metro boundary. See the attached draft Licensing Standards for Landscape Waste and Yard Debris Processing and Reload Facilities and the Regulatory Concerns table.

2. Facilities located outside the Metro boundary could also apply for a Metro license. Local government zoning codes may require (as a condition of land use approval) that facilities locating outside the Metro boundary apply for a Metro license and comply with the licensing program standards.

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3. Metro will work with processors and local governments to ensure a coordinated program where information and technical assistance is shared in a cooperative problem solving manner. Technical assistance may include teams consisting of local government and Metro staff (e.g. land use and solid waste planners), DEQ, and others with special expertise. These coordinated efforts will provide a forum for communication and problem solving measures that address both local and regional concerns related to these facilities.

Local Governments

1. Local governments amend zoning ordinances and development codes, as needed, to include clear and objective facility siting standards.

2. Local governments amend zoning ordinances and development codes to require all new facilities to apply for a Metro license and participate in the licensing program.

3. Local governments to amend collection franchises to require all yard debris collected through curbside programs be delivered to only licensed facilities.

Processors

1. Processors apply for a Metro license, make use of available technical assistance (if needed), and comply with licensing standards.

2. Processors continue to participate in program evaluation to ensure that the licensing program is effective.

BACKGROUND

During the past year, local government representatives, yard debris processors, and the DEQ have been meeting with Metro to explore options to help reduce siting and operational concerns associated with yard debris compost facilities.

This regional discussion group, known as the Yard Debris Processing Facility Discussion Group, has explored two approaches: 1) a "model ordinance" for local government adoption, consisting of facility siting and operational standards; and 2) a Metro licensing program.

A review by local government planners revealed that the model ordinance approach may be ineffective and very difficult to implement at the local level. In addition, the model ordinance approach would not be applicable to existing facilities. The group then discussed and proposed a more effective, regional approach that involves a Metro licensing program. The discussion group voted unanimously to forward the conceptual licensing approach to the Metro SWAC for their consideration. SWAC reviewed the concept (November 16, 1994) and sent it back to the discussion group for further refinement.

Since then, the discussion group has worked on refining the licensing proposal. The attached draft Licensing Standards for Landscape Waste and Yard Debris Processing and Reload Facilities is the result of the group work.

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On May 18, 1995 the regional discussion group recommended that the Metro licensing program proposal and licensing standards be sent to the Metro SWAC for their consideration. The proposal was supported by a majority of the processors and local governments in attendance, with the Washington County recycling representative opposed to the proposal.

Washington County explained (at the June 9th group meeting) their vote in opposition for the following reasons: 1) There is significant land outside the Metro boundary in Washington County, and 2) There is concern regarding local government ability to have franchised haulers take curbside yard debris to only licensed facilities. The Washington County representative preferred that zoning issues be addressed with local government land use planners, and that jurisdictions volunteer to be in the regional licensing program.

The discussion group advised that a future workgroup be assembled by Metro to bring together local government land use and solid waste planners and processors to more closely explore zoning and land use issues that impact yard debris processors. This should be done as an element in the licensing program to implement the recommendation to adopt clear and objective local government zoning standards.

The following is a list of the Yard Debris Processing Facility Discussion Group participants:

Processors
Don Chappel, American Compost
Charles Danner, Danner Nursery
Dan Davis, River Cities One Stop Recycling
Ralph Gilbert, East Co. Recycling
Howard Grabhorn, Lakeside Reclamation
Jeff Grimm, Grimm's Fuel
Dan Holcomb, Oregon Soils Corp.
Steve Jessop, Scott's Hyponex
Jim Lackey, American Waste Recovery
Dan McFarlane, McFarlane's Bark
Chuck Minsinger, Minsinger's Floral Nursery
Rod Oakes, Wilsonville Wood Waste
Tim Perri, Best Buy In Town
Randy Wubben, All-Wood Recycling
Loretta and Duane Stroup, S&H Logging
Greg White, Tualatin Valley Waste Recovery
Lainy Zehr, Universal Wood Recycling

Local Government
Lynda Kotta, Gresham
Mark Schoening, Lake Oswego
JoAnn Herrigal, Milwaukie
Lee Barrett, Portland
Randy Johnson, Portland
Daryl Worthington, Troutdale
William Harper, Tualatin
Dennis Koellermeier, West Linn
Ron Oberg, Clackamas Co.
Ken Spiegel, Clackamas Co.
Susan Ziolko, Clackamas Co.
Kathy Kiwala, Washington Co.
Lynne Storz, Washington Co.
Andrea Friedrichsen, Clark Co.

DEQ
Dave Kunz

Haulers
Tom Miller, Miller's Sanitary
Dave White, ORRA

Industry
Barry Naone, Fred Meyer
Steven Diddy, BFI

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Licensing Program Regulatory Concerns

The following table summarizes the key regulatory concerns regarding the proposed Metro licensing program.

ISSUES	METRO	LOCAL GOVERNMENT	DEQ
Siting	Siting by private initiative. Metro sets up regional workgroup to review zoning issues.	Siting by private initiative. Local governments work with regional workgroup to review and discuss zoning issues.	None
Licensing	Metro license required for all facilities within Metro boundary. Voluntary outside boundary. The program will include problem resolution through intergovernmental cooperation, technical assistance and enforcement measures (see next page for details).	Land use permit process - ensure that zoning ordinances and development codes do not effectively prohibit these facilities. Facility designation - haulers take curbside yard debris to only licensed facilities or reload operations.	None
Operational Standards	Addressed through the license agreement.	Many operational concerns are not addressed through the land use permit process.	None
License Fees	Fees are set by Metro Council. Recomendations in the draft licensing standards are that fees should not exceed $300 per year.	NA	NA
Collection	Metro will not direct yard debris to processing facilities.	Local governments provide franchised haulers with a list of approved, licensed facilities where they may take curbside yard debris for processing or reload.	NA

ISSUES	Inside Metro Boundary	Outside Metro Boundary	DEQ
Problem Resolution and Enforcement	<u>Intergovernmental Coordination</u> Metro, local governments, DEQ share information on facilities. If nuisance complaints warrant Metro action, local governments can request assistance from Metro. Metro may independently monitor facilities and take appropriate action in cooperation with the local jurisdiction. Processor will be closely involved. <u>Technical Assistance</u> Metro, local governments, DEQ and the processor work together to resolve issues through a facility and operational review. <u>Enforcement</u> If issues can not be resolved, Metro can take enforcement action as follows: • Request corrective action • Notice of intent to assess fines. • Contested case proceeding. • Findings of compliance/noncompliance. • Temporary restraining order (emergency action). • Injunction. • Suspend or revoke the license.	<u>Conditional Use Permit</u> As a condition for land use approval, zoning and development ordinances may require new facilities to participate in the Metro licensing program. If facilities do not comply with the licensing agreement, the local government can find them in violation of their conditional use permit. <u>Zoning</u> Typical land use zones outside Metro are Rural and Exclusive Farm Use zones (EFU). These zoning designations typically have restrictions on either feedstocks or product. These restrictions do not encourage the siting of municipal yard debris processing operations that sell a product to the public. • **Rural zones** - Facilities are subject to significant restrictions of the rural zone designation and other conditions of approval. • **EFU zones** - Facilities are not allowed in EFU zones, except when permitted by the local land use authority as a commercial activity in conjunction with a farm. Subject to statutory and Goal limits. Counties may define commercial activities more restrictively than state law.	Complaint driven process. Odor, air, and water quality issues. Enforcement includes a DEQ Compliance Order. DEQ has indicated support for the Metro licensing program and is willing to participate in a cooperative problem resolution process.

PROPOSED LICENSING STANDARDS
FOR LANDSCAPE WASTE AND YARD DEBRIS PROCESSING AND RELOAD FACILITIES
6/14/95

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PROPOSED LICENSING STANDARDS FOR LANDSCAPE WASTE AND YARD DEBRIS PROCESSING AND RELOAD FACILITIES

1. Purpose, Authority and Scope

1.1 Purpose

A. The purpose of this Chapter is to establish performance standards for landscape waste, yard debris processing and reload facilities operating in the District through a regional licensing program. The program will include problem resolution through intergovernmental cooperation, technical assistance, and enforcement measures.

B. The Council finds that the District has limited land and resources for the disposal of solid waste. It is the responsibility of the Council to provide and protect such resources and to do so requires that the Council Franchise, License, or Permit disposal sites, transfer stations, processing facilities and resource recovery facilities.

C. To protect the health, safety, and welfare of the District's residents, the Council declares it to be the public policy of the District and purpose of this chapter to establish a licensing program for facilities that process and reload landscape waste and yard debris in the District in order to:

1. Establish standards that are implementable on a regional level to help ensure the stability of the regional yard debris recycling system.

2. Assist local governments in managing the impacts of landscape waste and yard debris processing facilities through a licensing program that is responsive to the risks and benefits associated with these facilities.

3. The licensing program is intended to increase the confidence that citizens and local governments have in these facilities by minimizing the potential for nuisance complaints and alleviating negative public perception of these facilities.

1.2 Authority and Scope

A. This document will implement those provisions of the Code relating to licensing of landscape waste, yard debris processing and reload facilities. Nothing in this Chapter is intended to limit the power of any federal, state, or local agency to enforce any provision of the law that it is authorized or required to enforce or administer.

B. The provisions in this Chapter apply to all landscape waste, yard debris processing and reload facilities operating in the District, except those expressly exempted pursuant to Section 4 - Excluded Operations and Facilities.

C. Landscape waste and yard debris reload facilities and operations are subject only to the licensing standards in Section 3; Sections 4 and 5, Section 6B (1,2,3 and 4), 6E, and 6G; Section 7 A, B, C, D, G, I, L, M, N, and O; Section 8 A, B, C, D, E, F, and H; Section 9 A (1, 2, and 5); and Section 10 through Section 20.

D. Biological decomposition of organic material can be either a naturally occurring or artificially controlled process. Nothing in this Chapter is intended to establish standards or other regulatory requirements for inadvertent composting resulting from the storage of organic materials. An activity that produces material that will be sold or given-away based on biological decomposition that has occurred to the material shall not be considered inadvertent composting.

E. Nothing in these standards shall be construed as relieving any owner, operator, or designee from the obligation of obtaining all required permits, licenses, or other clearances and complying with all orders, laws, regulations, reports or other requirements of other regulatory agencies, including but not limited to, local health departments, regional water quality control boards, local land use authorities, and fire authorities.

F. Licensed facilities shall processes yard debris in accordance with state regulations regarding principle recyclable materials (OAR 340-90-060).

2. Definitions

2.1 "Code" means the Metro Code.

2.2 "Compost" means the stabilized and sanitized product of composting, which should be suitable for plant growth. It has undergone an initial rapid stage of decomposition and is in the process of humification (curing).

2.3 "Composting" means the biological treatment process by which microorganisms decompose the organic fraction of the waste, producing compost.

2.4 "Hazardous waste" means useless or unwanted materials or residues and other wastes which are defined as hazardous waste pursuant to ORS 466.005;

2.5 "Landscape waste" means yard debris and all residential and commercial accumulations of grass or shrubbery, cuttings, leaves, tree limbs and other materials accumulated as the result of the care of lawns, shrubbery, vines and trees. Includes stumps and bulky wood materials. Does not include construction and demolition debris, painted or treated wood.

2.6 "Mixed solid waste" means solid waste containing a variety of waste material, some of which may or may or may not be considered recyclable.

2.7 "Processing" means the controlled method or system of altering the form, condition or content of yard debris and landscape waste utilizing both mechanical and biological methods. Includes composting (aerobic and anaerobic methods), fermentation, and vermicomposting (of only yard debris and landscape waste).

2.8 "Solid waste" means all putrescible and nonputrescible wastes, including without limitation, garbage, rubbish, refuse, ashes, waste paper and cardboard; discarded or abandoned vehicles or parts thereof; sewage sludge, septic tank and cesspool pumpings or other sludge; commercial, industrial, demolition and construction waste; discarded home and industrial appliances; asphalt, broken concrete and bricks; manure, vegetable or animal solid and semi-solid wastes, dead animals, infectious waste as defined in ORS 459.387, petroleum-contaminated soils and other wastes; but the term does not include:

1) Hazardous wastes as defined in ORS 466.005;
2) Radioactive wastes as defined in ORS 469.300;
3) Materials used for fertilizer or for other productive purposes or which are salvageable as such or materials which are used on land in agricultural operations and the growing or harvesting of crops and the raising of fowls or animals; or
4) Explosives

2.9 "Reload" means an operation or facility that receives yard debris and/or landscape waste for temporary storage, awaiting transport to a processing facility.

2.10 "Yard debris" means vegetative and woody material generated from residential property or from commercial landscaping activities. Includes grass clippings, leaves, hedge trimmings and other similar vegetative waste, but does not include stumps or similar bulky wood materials. (state definition: OAR 340-90-010 (45).

3. Licensing Application Compliance Dates

3.1 All operators of proposed facilities, subject to the Metro Code, shall submit applications for licensing and shall comply with the licensing standards and requirements, by the effective date of these standards.

3.2 All operators of existing facilities, subject to the Metro Code, submit an application for Licensing, and demonstrate compliance with the applicable standards and requirements within eighteen months after the effective date of these licensing standards.

4. Excluded Operations and Facilities

4.1 The following operations do not constitute landscape waste and yard debris processing operations or facilities and are not required to meet these licensing requirements. Residences, parks, community gardens and homeowner associations are excluded operations. In addition, universities, schools, hospitals, golf courses, industrial parks, and other similar facilities are excluded operations if the landscape waste or yard debris was generated from the facility's own activities, the product remains on the facility grounds, and the product is not offered for off-site sale or use.

4.2 Chipping and grinding of wood wastes (e.g. untreated lumber, wood pallets) are excluded operations, unless subject to Section 1.2 (D).

4.3 Solid waste transfer stations and Metro franchised material recovery facilities are excluded facilities.

4.4 Nothing in this Section precludes Metro from inspecting an excluded operation to verify that the operation is being conducted in a manner that qualifies as an excluded activity or from taking any appropriate enforcement action.

5. Authorized and Prohibited Solid Wastes

5.1 Licensee is authorized to accept loads of landscape waste and yard debris for processing at the Facility. The licensee may also take in other source separated material if in compliance and consistent with other federal, state and local regulations.

5.2 Licensee shall not accept hazardous waste. Any hazardous waste inadvertently received shall be handled, stored, and removed pursuant to state and federal regulations.

5.3 Licensee is prohibited from accepting mixed solid waste, but may accept loads of mixed yard debris, landscape waste, and wood wastes (e.g. untreated lumber, wood pallets).

6. General Facility Design Requirements & Design Plan

A. Landscape waste and yard debris processing facilities shall be designed and constructed to comply with the Facility Design Plan and the operational requirements set forth in Section 7 - General Operating Requirements, and Section 8 - Processing Operations Plan

B. The Facility Design Plan shall include:

1. Site plan showing dimensions and details of the proposed receiving, processing, production, curing and storage areas.

2. Landscape plan showing the location, size and type of plantings, fences, berms, and existing trees to remain and/or to be removed.

3. Drawings of the site that indicate location of initial and permanent roads; buildings and equipment to be installed; sewer and water lines; and storm water system. The drawings shall show final grade contours (required for only new or relocating facilities).

4. The facility must be designed, constructed and, suitable for maintenance and processing operations, visual inspection of piling areas and fire fighting operations.

C. Facility design plan shall address management of storm water:

1. The facility must be designed and constructed so that precipitation run-on is diverted around the processing area. The run-off from the facility resulting from precipitation shall be controlled. Methods must be consistent with storm water system standards of the controlling agency (local jurisdiction).

D. The facility design plan shall address methods for achieving odor control (see requirements for Odor Minimization Plan in Section 9).

E. Facility design plan shall address:

1. Effective barriers to unauthorized entry and dumping (fencing, gates, locks);
2. All-weather access roads to the site;
3. Appropriate signs (at facility entrance, directing traffic flow, public information);
4. Access to scales, if applicable;
5. Noise control;
6. Dust control;
7. Vector and litter control; and
8. Fire protection and control features.

F. Facility shall have sufficient processing capacity to handle projected incoming volumes of landscape waste and yard debris.

G. Facility design shall address specific storage issues, including:

1. Capacity for incoming wastes waiting to be processed;
2. Capacity for proper handling, storage, and removal of hazardous or other non-permitted wastes delivered to or generated by the facility; and
3. Capacity for finished product storage.

7. General Operating Requirements

A. All activities shall be conducted in a manner that minimizes or prevents vectors, odor impacts, dust, and noise impacts.

B. Facility grounds shall be cleaned of litter at least weekly.

C. Random load checks of feedstocks for contaminants shall be conducted.

D. Storage and handling capacities shall not be exceeded.

E. Compost piles and windrows shall be spaced to facilitate mixing and aeration.

F. Windrow, compost pile, and/or active processing area dimensions shall not exceed the design specifications of the facility's equipment.

G. Incidental non-compostables shall be properly stored and removed from the facility on a regular basis to avoid nuisance conditions, or at a frequency approved in the license agreement.

H. Incidental wastes and feedstocks shall be stored separately from active, stabilizing, stabilized, curing, cured feedstock areas.

I. Surrounding fencing, gates, and/or other natural or artificial barriers shall be maintained to discourage unauthorized human or animal access to the facility.

J. The operator shall provide fire prevention, protection, and control measures, including but not limited to, temperature monitoring of windrows, adequate water supply for fire suppression, and the isolation of potential heat sources and/or flammables from the composting pad/processing area.

K. The operator shall begin processing incoming feedstocks in a time frame that does not create potential for a nuisance, odor, fire, or vectors, or as specified in the license agreement.

L. All drainage, leachate control, and diversion systems shall be managed and maintained in good working order.

M. All facility road surfaces and traffic control signs shall be maintained.

N. Vehicles containing landscape waste or yard debris feedstock/waste shall not be parked on public streets or roads except under emergency conditions. Adequate off-street parking facilities for transport vehicles shall be provided.

O. Signs at all public entrances to the facility shall be posted, legible, and include the following information:

1. name of the facility,
2. name of the operator,
3. facility hours of operation
4. materials that will and will not be accepted, if applicable,
5. schedule of charges, if applicable
6. phone number where operator or designee can be reached in case of an emergency, and
7. any other information as required by the license agreement and/or local government sign code.

8. Processing Operations Plan

All activities at a licensed facility must be conducted in accordance with the Processing Operations Plan containing, at a minimum, the following information:

A. Designation of personnel, by title, responsible for operation, control and maintenance of the facility;

B. A description of the anticipated quantity and variation throughout the year of waste to be received;

C. Methods for measuring incoming waste and recordkeeping;

D. Methods for encouraging waste delivery in covered loads;

E. Methods to control the types of waste received, and methods for removing, recovering and disposing of non-compostables;

F. Designation of disposal sites for non-compostable wastes;

G. Management procedures that will be used in processing, which must include:

1. A general description of any treatment the wastes will receive prior to processing (e.g., chipping, shredding) and the maximum length of time required to process each day's receipt of waste into windrows or other piles;

2. The specifications to which the windrows or other piles will be constructed (width, height, and length) and calculation of the capacity of the facility;

3. An estimate of the length of time necessary to complete the process.

4. Metro may request additional process management procedures. Proprietary information will be submitted on a confidential basis.

H. Methods to control noise, vectors, dust and litter.

I. Methods for monitoring and adjusting temperature, oxygen level and moisture level of the material during processing.

J. General plans for marketing the finished product.

9. Odor Minimization Plan.

The operator shall take specific measures to control odors so as not to cause or contribute to a violation of the License Agreement. Specific measures an operator should take to control odor include but are not limited to adherence to the contents of the Odor Minimization Plan required below.

A. The operator shall have an Odor Minimization Plan . The plan must include methods to minimize, manage and monitor all odors, including odors produced by grass clippings. The plan must include:

1. A management plan for malodorous loads;

2. Procedures for receiving and recording odor complaints, immediately investigating any odor complaints to determine the cause of odor emissions, and remedying promptly any odor problem at the facility;

3. Additional odor-minimizing measures, which may include the following:

a. Avoidance of anaerobic conditions in the composting material;
b. Use of mixing for favorable composting conditions;
c. Formation of windrow or other piles into a size and shape favorable to minimizing odors; and
d. Use of end-product compost as cover to act as a filter during early stages of composting.

4. Specification of a readily-available supply of bulking agents, additives or odor control agents;

5. Procedures for avoiding delay in processing and managing landscape waste and yard debris during all weather conditions;

6. Methods for taking into consideration the following factors prior to turning or moving composted material:

   a. Time of day;
   b. Wind direction;
   c. Percent moisture;
   d. Estimated odor potential; and
   e. Degree of maturity.

B. Grass clippings must be processed in a timely manner to avoid nuisance conditions. Incoming leaves, brush or woody landscape waste may be stored in designated areas for use as a carbon source and bulking agent, rather than being processed into windrows or other piles.

C. If odors become a significant source of nuisance complaints, processor shall work with a Metro appointed odor complaint panel. The odor complaint panel will investigate odor complaints to determine their validity and sources and will help the processor with solutions to the nuisance complaints. The odor complaint panel may consist of representatives from Metro, DEQ, the local government, and the processing industry.

10. Operation and Facility Records

Licensee shall effectively monitor Facility operation and maintain accurate records of the following information:

A. Estimated amount of feedstock received and quantity of product produced at the Facility. Records shall be reported to Metro no later than thirty (30) days following the end of each quarter. The report shall be signed and certified as accurate by an authorized representative of Licensee.

B. The operator shall record any special occurrences encountered during operation and methods used to resolve problems arising from these events, including details of all incidents that required implementing emergency procedures.

C. The operator shall record ~~any~~ public nuisance complaints (e.g. noise, dust, vibrations, litter) received by the operator, including:

   1. the nature of the complaint;

   2. the date the complaint was received;

3. the name, address, and telephone number of the person or persons making the complaint; and

4. any actions taken to respond to the complaint.

D. For every odor complaint received, the Licensee shall record the date, time, and nature of any action taken in response to an odor complaint, and record such information within one business day after receiving the complaint. Records of such information shall be made available to Metro and local governments upon request.

E. The Licensee shall submit to Metro duplicate copies of regulatory information submitted to the DEQ and local jurisdictions pertaining to the Facility, within thirty (30) days at the same time of submittal to DEQ and/or local jurisdiction.

11. Closure

11.1 Unless otherwise authorized in a facility license, all landscape waste, yard debris, composting material, end-product, and other solid wastes must be removed from the facility within 180 days following the beginning of closure.

11.2 The facility operator shall close the facility in a manner which eliminates the release of landscape waste, landscape waste leachate, and composting constituents to the groundwater of surface waters or to the atmosphere to the extent necessary to prevent threats to human health or the environment.

11.3 Within 30 days of completion of closure, the operator shall file a report with Metro verifying that closure was completed in accordance with this Section.

12. ~~Financial Assurance~~ (this section is being revised or deleted)

~~12.1 Financial Assurance Plan~~

~~The operator shall develop and have at the facility, and submit to Metro, a financial assurance plan containing a written cost estimate covering the maximum cost of premature final closure of the operation and retain a copy.~~

~~12.2 The written cost estimate must be based on the steps necessary to complete closure and must include an itemization of the cost to complete each step.~~

~~12.3 The operator shall revise the current cost estimate whenever a change in circumstances relating to the closure plan increases the cost estimate.~~

~~12.4 Financial Assurance Bond~~

~~Applicants must submit the following:~~

~~A. Proof that the applicant can obtain and will be covered during the term of the license by a corporate surety bond guaranteeing full and faithful performance by the applicant of the duties and obligations of the license agreement. In determining the amount of bond to be required, the Executive Officer may consider the size of the site, facility or station, the population to be served, adjacent or nearby land uses, the potential danger of failure of service, and any other factor material to the operation of the franchise;~~

13. Annual License Fees

Licensee shall pay an annual license fee, as established under Metro Code Section 5.03.030. In order to keep costs at a minimum, and so as to not encourage deliveries outside the district, the fee shall be based on a minimum cost for service basis and shall not exceed $300 per year. The fee shall be delivered to Metro within thirty (30) days of the effective date of this License and each year thereafter.

14. Insurance

14.1 Licensee shall purchase and maintain the following types of insurance, covering Licensee, its employees, and agents:

A. Broad form comprehensive general liability insurance covering personal injury, property damage, and personal injury with automatic coverage for premises, operations, and product liability. The policy must be endorsed with contractual liability coverage; and

B. Automobile bodily injury and property damage liability insurance.

14.2 Insurance coverage shall be a minimum of $500,000 per occurrence, $100,000 per person, and $50,000 property damage. If coverage is written with an annual aggregate limit, the aggregate limit shall not be less than $1,000,000.

14.3 Metro, its elected officials, departments, employees, and agents shall be named as ADDITIONAL INSUREDS. Notice of any material change or policy cancellation shall be provided to Metro thirty (30) days prior to the change or cancellation.

14.4 Licensee, its contractors, if any, and all employers working under this License are subject employers under the Oregon Workers' Compensation Law and shall comply with ORS 656.017, which requires them to provide Workers' Compensation coverage for all their subject workers. Licensee shall provide Metro with certification of Workers' Compensation insurance including employer's liability.

15. Indemnification (this Section is being revised)

~~Licensee shall indemnify and hold METRO, its agents, employees, and elected officials harmless from any and all claims, demands, damages, actions, losses and expenses, including attorney's fees, arising out of or in any way connected with Licensee's performance under this License, including patent infringement and any claims or disputes involving subcontractors.~~

16. Compliance With Law

Licensee shall fully comply with all federal, state, regional and local laws, rules, regulations, ordinances, orders and permits pertaining in any manner to this License. All conditions imposed on the operation of the Facility by federal, state or local governments or agencies having jurisdiction over the Facility are part of this License by reference as if specifically set forth herein. Such conditions and permits include those attached as exhibits to this License, as well as any existing at the time of issuance of this License and not attached, and permits or conditions issued or modified during the term of this License.

17. Metro Enforcement Authority (this Section is being revised)

~~17.1 The Executive Officer may, upon sixty (60) days prior written notice, direct solid waste away from the Licensee or limit the type of solid waste that the Licensee may receive. Such action, or other necessary steps, may be taken to abate a nuisance arising from operation of the Facility or to carry out other public policy objectives. Upon receiving such notice, the Licensee shall have the right to a contested case hearing pursuant to Code Chapter 2.05. A request for a hearing shall not stay action by the Executive Officer. Prior notice shall not be required if the Executive Officer finds that there is an immediate and serious danger to the public or that a health hazard or public nuisance would be created by a delay.~~

17.2 Authorized representatives of Metro shall be permitted access to the premises of the Facility at all reasonable times for the purpose of making inspections and carrying out other necessary functions related to this License. Access to inspect is authorized during all business hours.

~~A. During all working hours;~~
~~B. At other reasonable times with notice; and~~
~~C. At any time without notice when, in the opinion of the Metro Solid Waste Department Director, such notice would defeat the purpose of the entry.~~

17.3 The power and right to regulate, in the public interest, the exercise of the privileges granted by this License shall at all times be vested in Metro. Metro reserves the right to establish or amend rules, regulations or standards regarding matters within Metro's authority, and to enforce all such legal requirements against Licensee.

18. Disposal Rates and Fees

18.1 In accordance with the variance granted by the Metro Council, the rates charged at this Facility shall be exempt from Metro rate setting.

18.2 Licensee is exempted from collecting and remitting Metro Fees on waste received at the Facility. Licensee is fully responsible for paying all costs associated with disposal of residual material generated at the Facility. Licensee shall obtain a non-system license prior to disposal of residuals at any facility not designated by Metro.

18.3 The Licensee shall adhere to the following conditions with regard to disposal rates charged at the Facility:

A. Licensee may modify rates to be charged on a continuing basis as market demands may dictate. Metro shall be notified no later than ten (10) days after any rate changes.

B. All rates charged at the Facility shall be posted on a sign near where fees are collected. All customers within a given disposal class shall receive equal, consistent, and nondiscriminatory treatment in the collection of fees.

19. **Revocation** (this section being revised)

19.1 This License may be revoked for violation of the conditions of this License or the Metro Code.

19.2 This License Agreement is subject to suspension, modification, revocation, or non-renewal upon finding that:

A. The Licensee has violated the terms of this License, the Metro Code, ORS chapter 459, or the rules promulgated thereunder or any other applicable law or regulation; or

B. The Licensee has misrepresented material facts or information in the License Application, Annual Operating Report, or other information required to be submitted to Metro; or

20. General Conditions

20.1 Licensee shall be responsible for ensuring that its contractors and agents operate in compliance with the terms and conditions of this License.

20.2 The granting of this License shall not vest any right or privilege in the Licensee to receive specific quantities of solid waste during the term of the License.

20.3 This License may not be transferred or assigned without the prior written approval of Metro, and will not be unreasonably withheld.

20.4 To be effective, a waiver of any term or condition of this License must be in writing, signed by the Executive Officer. Waiver of a term or condition of this License shall not waive nor prejudice Metro's right otherwise to require performance of the same term or condition or any other term or condition.

20.5 This License shall be construed, applied, and enforced in accordance with the laws of the State of Oregon.

20.6 If any provision of the License shall be invalid, illegal, or unenforceable in any respect, the validity of the remaining provisions contained in this License shall not be affected.

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M E M O R A N D U M

METRO

DATE: June 14, 1995

TO: The Solid Waste Advisory Committee

FROM: Bill Metzler, Associate Solid Waste Planner

RE: Metro Licensing Program for Landscape Waste and Yard Debris Processing and Reload Facilities

The Yard Debris Processing Facility Discussion Group voted on May 18, 1995, to forward a recommendation that the Metro Solid Waste Advisory Committee consider the adoption and implementation of a program for licensing landscape waste and yard debris processing and reload facilities.

PURPOSE

The purpose of the licensing program is to:

1. Establish regional performance standards to help ensure the stability of the regional yard debris recycling system.

2. Assist local governments in managing the impacts of landscape waste and yard debris processing facilities through a licensing program.

3. Increase the confidence that citizens and local governments have in these facilities by minimizing the potential for nuisance complaints and preventing negative public perception of these facilities.

RECOMMENDED PROGRAM ELEMENTS

The licensing program would consist of the following major program elements:

Metro

1. Metro implements a licensing program for new and existing facilities located within the Metro boundary. See the attached draft Licensing Standards for Landscape Waste and Yard Debris Processing and Reload Facilities and the Regulatory Concerns table.

2. Facilities located outside the Metro boundary could also apply for a Metro license. Local government zoning codes may require (as a condition of land use approval) that facilities locating outside the Metro boundary apply for a Metro license and comply with the licensing program standards.

Enclosure #5 to SWAC 06/21/95 Agenda

3. Metro will work with processors and local governments to ensure a coordinated program where information and technical assistance is shared in a cooperative problem solving manner. Technical assistance may include teams consisting of local government and Metro staff (e.g. land use and solid waste planners), DEQ, and others with special expertise. These coordinated efforts will provide a forum for communication and problem solving measures that address both local and regional concerns related to these facilities.

Local Governments

1. Local governments amend zoning ordinances and development codes, as needed, to include clear and objective facility siting standards.

2. Local governments amend zoning ordinances and development codes to require all new facilities to apply for a Metro license and participate in the licensing program.

3. Local governments to amend collection franchises to require all yard debris collected through curbside programs be delivered to only licensed facilities.

Processors

1. Processors apply for a Metro license, make use of available technical assistance (if needed), and comply with licensing standards.

2. Processors continue to participate in program evaluation to ensure that the licensing program is effective.

BACKGROUND

During the past year, local government representatives, yard debris processors, and the DEQ have been meeting with Metro to explore options to help reduce siting and operational concerns associated with yard debris compost facilities.

This regional discussion group, known as the Yard Debris Processing Facility Discussion Group, has explored two approaches: 1) a "model ordinance" for local government adoption, consisting of facility siting and operational standards; and 2) a Metro licensing program.

A review by local government planners revealed that the model ordinance approach may be ineffective and very difficult to implement at the local level. In addition, the model ordinance approach would not be applicable to existing facilities. The group then discussed and proposed a more effective, regional approach that involves a Metro licensing program. The discussion group voted unanimously to forward the conceptual licensing approach to the Metro SWAC for their consideration. SWAC reviewed the concept (November 16, 1994) and sent it back to the discussion group for further refinement.

Since then, the discussion group has worked on refining the licensing proposal. The attached draft Licensing Standards for Landscape Waste and Yard Debris Processing and Reload Facilities is the result of the group work.

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On May 18, 1995 the regional discussion group recommended that the Metro licensing program proposal and licensing standards be sent to the Metro SWAC for their consideration. The proposal was supported by a majority of the processors and local governments in attendance, with the Washington County recycling representative opposed to the proposal.

Washington County explained (at the June 9th group meeting) their vote in opposition for the following reasons: 1) There is significant land outside the Metro boundary in Washington County, and 2) There is concern regarding local government ability to have franchised haulers take curbside yard debris to only licensed facilities. The Washington County representative preferred that zoning issues be addressed with local government land use planners, and that jurisdictions volunteer to be in the regional licensing program.

The discussion group advised that a future workgroup be assembled by Metro to bring together local government land use and solid waste planners and processors to more closely explore zoning and land use issues that impact yard debris processors. This should be done as an element in the licensing program to implement the recommendation to adopt clear and objective local government zoning standards.

The following is a list of the Yard Debris Processing Facility Discussion Group participants:

Processors
Don Chappel, American Compost
Charles Danner, Danner Nursery
Dan Davis, River Cities One Stop Recycling
Ralph Gilbert, East Co. Recycling
Howard Grabhorn, Lakeside Reclamation
Jeff Grimm, Grimm's Fuel
Dan Holcomb, Oregon Soils Corp.
Steve Jessop, Scott's Hyponex
Jim Lackey, American Waste Recovery
Dan McFarlane, McFarlane's Bark
Chuck Minsinger, Minsinger's Floral Nursery
Rod Oakes, Wilsonville Wood Waste
Tim Perri, Best Buy In Town
Randy Wubben, All-Wood Recycling
Loretta and Duane Stroup, S&H Logging
Greg White, Tualatin Valley Waste Recovery
Lainy Zehr, Universal Wood Recycling

Local Government
Lynda Kotta, Gresham
Mark Schoening, Lake Oswego
JoAnn Herrigal, Milwaukie
Lee Barrett, Portland
Randy Johnson, Portland
Daryl Worthington, Troutdale
William Harper, Tualatin
Dennis Koellermeier, West Linn
Ron Oberg, Clackamas Co.
Ken Spiegel, Clackamas Co.
Susan Ziolko, Clackamas Co.
Kathy Kiwala, Washington Co.
Lynne Storz, Washington Co.
Andrea Friedrichsen, Clark Co.

DEQ
Dave Kunz

Haulers
Tom Miller, Miller's Sanitary
Dave White, ORRA

Industry
Barry Naone, Fred Meyer
Steven Diddy, BFI

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Licensing Program Regulatory Concerns

The following table summarizes the key regulatory concerns regarding the proposed Metro licensing program.

ISSUES	METRO	LOCAL GOVERNMENT	DEQ
Siting	Siting by private initiative. Metro sets up regional workgroup to review zoning issues.	Siting by private initiative. Local governments work with regional workgroup to review and discuss zoning issues.	None
Licensing	Metro license required for all facilities *within Metro boundary*. Voluntary outside boundary. The program will include problem resolution through intergovernmental cooperation, technical assistance and enforcement measures (see next page for details).	Land use permit process - ensure that zoning ordinances and development codes do not effectively prohibit these facilities. Facility designation - haulers take curbside yard debris to only licensed facilities or reload operations.	None
Operational Standards	Addressed through the license agreement.	Many operational concerns are not addressed through the land use permit process.	None
License Fees	Fees are set by Metro Council. Recomendations in the draft licensing standards are that fees should not exceed $300 per year.	NA	NA
Collection	Metro will not direct yard debris to processing facilities.	Local governments provide franchised haulers with a list of approved, licensed facilities where they may take curbside yard debris for processing or reload.	NA

ISSUES	Inside Metro Boundary	Outside Metro Boundary	DEQ
Problem Resolution and Enforcement	<u>Intergovernmental Coordination</u> Metro, local governments, DEQ share information on facilities. If nuisance complaints warrant Metro action, local governments can request assistance from Metro. Metro may independently monitor facilities and take appropriate action in cooperation with the local jurisdiction. Processor will be closely involved. <u>Technical Assistance</u> Metro, local governments, DEQ and the processor work together to resolve issues through a facility and operational review. <u>Enforcement</u> If issues can not be resolved, Metro can take enforcement action as follows: • Request corrective action • Notice of intent to assess fines. • Contested case proceeding. • Findings of compliance/noncompliance. • Temporary restraining order (emergency action). • Injunction. • Suspend or revoke the license.	<u>Conditional Use Permit</u> As a condition for land use approval, zoning and development ordinances may require new facilities to participate in the Metro licensing program. If facilities do not comply with the licensing agreement, the local government can find them in violation of their conditional use permit. <u>Zoning</u> Typical land use zones outside Metro are Rural and Exclusive Farm Use zones (EFU). These zoning designations typically have restrictions on either feedstocks or product. These restrictions do not encourage the siting of municipal yard debris processing operations that sell a product to the public. • **Rural zones** - Facilities are subject to significant restrictions of the rural zone designation and other conditions of approval. • **EFU zones** - Facilities are not allowed in EFU zones, except when permitted by the local land use authority as a commercial activity in conjunction with a farm. Subject to statutory and Goal limits. Counties may define commercial activities more restrictively than state law.	Complaint driven process. Odor, air, and water quality issues. Enforcement includes a DEQ Compliance Order. DEQ has indicated support for the Metro licensing program and is willing to participate in a cooperative problem resolution process.

M E M O R A N D U M

METRO

DATE: June 14, 1995

TO: Solid Waste Advisory Committee

FROM: Kelly Shafer Hossaini
Deborah Adams

SUBJECT: 1995 Household Survey

As part of a larger public involvement effort for the Regional Solid Waste Management Plan update, Metro contracted with the Gilmore Research Group to conduct a survey of single-family households. Approximately 1,000 of the region's single-family households were asked various questions about garbage and recycling services.

Objectives

The objectives of the survey were as follows:

1. To solicit opinions from a broad cross-section of the region's citizens, particularly those not normally involved in solid waste issues.

2. To receive feedback on general questions relating to Metro's current update of the Regional Solid Waste Management Plan.

3. To compare the results from a previous survey[1] completed in 1990.

4. To gather information that will be helpful in designing education and promotional programs.

The results of the survey are being used to help define the public's attitudes and perceptions about the indirect costs and benefits of specific programs. This information will be used to complete the analysis of potential solid waste practices.

Methodology

A representative cross-section of respondents living in single-family housing (one to four units) were interviewed in the three-county area. The actual phone contacts took place during May 1995. For data analysis, the sample was divided into four areas: Portland, All Other Multnomah County, Clackamas County, and Washington County. A total of 1,002 completed interviews were collected,.

[1]1990 Recycling Attitude and Awareness Survey, Gargan & Associates, 500 single-family household respondents.

coded, and entered into a computerized data file. This information was then analyzed and will be released in report form within a few weeks. Some preliminary information is available now, however, and is summarized below.

Curbside Recycling

In the 1990 Metro survey, 61% of the respondents were aware of the curbside recycling program and used it either regularly or periodically. This number increased to 86% in the 1995 study.

In the 1995 study, the following proportion of respondents with curbside recycling service indicated that they regularly[2] utilize that service to recycle the following materials. Only data for the three counties is available for the 1990 study.

	Clackamas		Washington		Multnomah	Portland	Other Multnomah	Region	
Material Type	1990	1995	1990	1995	1990	1995	1995	1990	1995
Cardboard	43%	55%	40%	50%	37%	54%	57%	40%	53%
Newspaper	74%	76%	62%	78%	64%	77%	75%	67%	77%
Scrap Paper	NA	35%	NA	37%	NA	43%	39%	NA	39%
Paperboard	NA	27%	NA	17%	NA	24%	23%	NA	23%
Plastic Milk Jugs	NA	56%	NA	49%	NA	56%	56%	NA	54%
Glass	60%	62%	55%	59%	64%	61%	61%	61%	60%
Aluminum	35%	41%	35%	34%	40%	41%	39%	37%	39%
Tin	53%	57%	48%	48%	56%	55%	52%	53%	53%
Yard Debris	NA	41%	NA	52%	NA	45%	49%	NA	46%

Yard Debris

The following table depicts the changes in how households handle yard debris. Respondents were allowed to choose as many options as applied.

Yard Debris Option	1990	1995
Curbside Collection	NA	51%
Backyard Composting	37%	41%
Add it to Garbage	28%	6%
Take to a Recycling Center	8%	6%
Haul to the Dump	14%	3%

[2]These figures only include households that use curbside recycling service for a given material on a regular basis.

Collection and Hauling

Overall, 92% of the households in the 1995 survey reported that they pay for regular garbage collection.

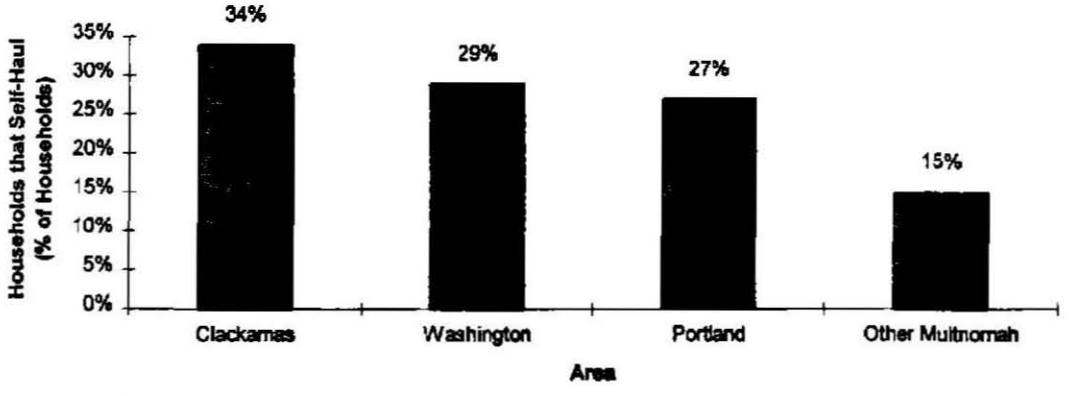
By geographic area, the results were as follows:

Area	% Households with Regular Collection Service
Clackamas	89%
Washington	94%
Portland	93%
Other Multnomah	92%

Of those with no regular collection service:

- 43% responded that the service is too expensive
- 28% use someone else's service
- 26% responded that they did not generate enough waste to warrant subscribing.

Twenty-eight percent of the households self-hauled to a landfill or transfer station in the past year. By geographical area:



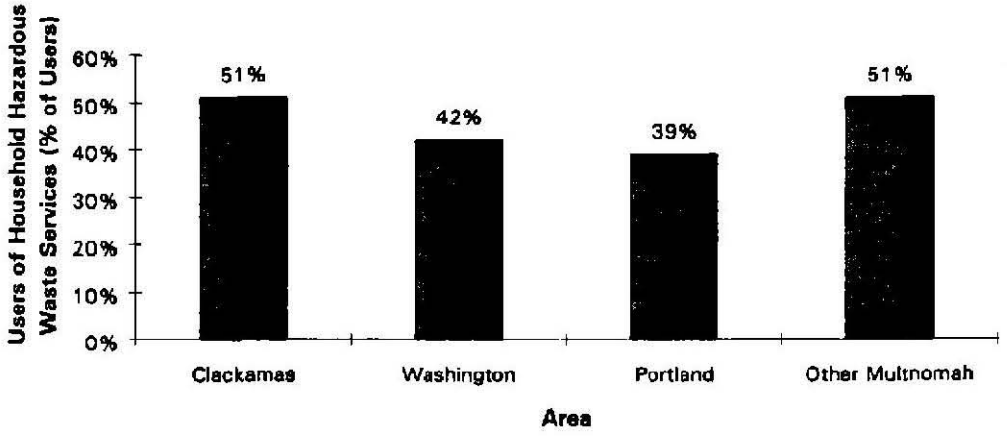
Households that self-hauled in the past year had remodeling/building waste (52%), general household clean-out (47%), and yard waste (34%). Eighteen percent of the households that self-hauled waste delivered weekly household waste at least once during that year.

Geographically, the percentage of households that had taken weekly household waste to a landfill or transfer station in the past year was as follows:

Area	% / Households
Clackamas	14%
Washington	17%
Portland	21%
Other Multnomah	15%

Hazardous Waste

In the 1995 survey, 43% of the households surveyed responded that they had taken their household hazardous waste to a local hazardous waste facility or a special collection event at some point in the past. Geographically:



Funding

The 1995 survey asked if the household would prefer an advance disposal fee on hazardous products for funding household hazardous waste programs, or if they preferred to continue with the current practice of including the fee in garbage bills. Sixty percent of the households reported that they would support the advance disposal fee method. Of those that either supported the advance disposal fee, didn't have a preference, or weren't sure, 54% said that they would support such a fee even if it were only implemented in the Portland metropolitan area.

The survey also asked if the household would be willing to pay for adding plastic bottles to curbside collection. Fifty percent indicated that they would. Of those, 27% would be willing to pay as much as one dollar a month more for curbside service. These proportions do not vary significantly between geographic areas.

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Chapter 5
Regional Solid Waste Policy

Introduction

This chapter presents the overall policy framework within which the specific solid waste goals, objectives, and actions described in the RSWMP were developed. ~~It also provides the basis for future planning and decision-making by the Metro Council, counties, and cities in the region~~.

These policies ~~, when completed, will~~ reflect the region's vision for managing solid waste. The goals, objectives, and policies are not mutually exclusive. That is, any decision regarding solid waste will need to be made with review of all applicable policies.

History

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

1973 Metro's predecessor, the Metropolitan Service District (MSD) requests funding from the state to develop a Solid Waste Management Plan for the metropolitan region.

1974 The MSD adopts a solid waste management plan (also called the "CORE-MET" plan).

1978 Metro is reconstituted as a directly-elected metropolitan government with responsibility for solid waste management, and authority to fund its activities through fees, bonds, and borrowing state funds.

1986 A waste reduction plan is adopted by Metro.

1987 Formal revision of the 1974 Solid Waste Management Plan as a "functional" plan is initiated. The new document is called the Regional Solid Waste Management Plan (RSWMP).

1988 The Metro Council formally adopts and the DEQ approves the RSWMP. Included are goals, policies, and a chapter on general-purpose landfills. Other chapters are completed over time.

1989 The Environmental Quality Commission (EQC) orders Metro to implement either the work plan in Metro's 1986 Waste Reduction Plan or the EQC's alternative. A Waste Reduction chapter is adopted that replaces the 1986 Waste Reduction Plan and incorporates elements of the EQC Order.

1990 Chapters on plan development and special waste are adopted and added to the RSWMP.

1991 A Yard Debris Recycling Plan is adopted and incorporated into the Waste Reduction Chapter. A chapter on illegal dumping is adopted. A plan for transfer stations in Washington County is incorporated into the facilities chapter. A chapter on local government solutions is adopted and added to the RSWMP.

1992 A chapter on hazardous waste is adopted and added to the RSWMP.

1993 The Metro Solid Waste Advisory Committee reviews the solid waste revenue system and makes recommendations to the Metro Council.

1995~~4~~ Major revision of sections of the RSWMP related to waste reduction, facilities, hazardous waste, and solid waste revenues is completed~~initiated~~.

Regional Solid Waste Plan Goals and Objectives

~~The preliminary goals and objectives listed here are being developed by the region's Solid Waste Advisory Committee (SWAC). SWAC will forward its final recommendations to the Metro Council.~~

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

The vision of this plan can be summarized as follows:

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

The overall goal of the RSWMP is:

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

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

System-Wide Goals and Objectives

Goal No. 1 - ~~Goal No. 1-~~ The Environment. Solid waste management practices ~~that~~ are environmentally sound, conserve natural resources, and achieve the maximum feasible reduction of solid waste being landfilled are implemented by the region.

Objective 1.1. ~~Objective 1.~~ The guiding policy for waste management in the region is based on the following priorities:

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

Goal No. 2 Education. Residents and businesses of the region are knowledgeable of the full range of waste management options, including waste prevention and reduction, that are available to them.

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

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

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

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

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

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

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

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

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

Goal No. 4 - Adaptability. A flexible solid waste system exists that can respond to rapidly changing technologies, fluctuating market conditions, major natural disasters, and local conditions and needs.

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

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

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

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

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

Goal No. 5 - Performance. The performance of the solid waste system will be compared to measurable benchmarks ~~on an annual basis~~.

Goal No. 6 - Plan Consistency. The Regional Solid Waste Management Plan shall be integrated with other Metro, State, local government, community and planning efforts and shall be consistent with existing Metro policies for managing solid waste.

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

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

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

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

a. For any community providing a solid waste "disposal site," as defined by ORS 459.280(1) and (2), Metro shall collect a fee to be used for the purpose of community enhancement.

b. Solutions to the problems of illegal dumping and to other adverse impacts caused by changes in the waste management system shall be cooperatively developed.

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

Waste Reduction Goals and Objectives

Goal No. 7 Regional Waste Reduction Goal. The regional waste reduction goal is to achieve a 50% recycling rate by the year 2005. Per capita disposal rates and reductions in waste generated attributable to waste prevention programs are also acknowledged to be key waste reduction indicators. The region's interim goal for the year 2000 is the 50% recovery rate as defined by State statute.

Goal No. ~~8~~2 Opportunity to Reduce Waste. ———Participation in waste prevention and recycling is convenient for all households and businesses in the urban portions of the region.

Goal No ~~9~~3 Sustainability. Secondary resource management is a self-sustaining operation.

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

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

Goal No. 104 Integration. Develop an integrated system of waste reduction techniques with emphasis on source separation, not to preclude the need for other forms of recovery such as post-collection material recovery.

Facilities and Services Goals and Objectives

Goal No. 11 Accessability. There is reasonable access to solid waste transfer and disposal services for all residents and businesses of the region.

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

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

Goal No. 12 Recovery Capacity. A regionally-balanced system of cost-effective solid waste recovery facilities provides adequate service to all waste generators in the region.

Goal No. 13 Toxics Reduction. The toxicity of mixed solid waste to the environment, residents of the region, and workers who collect, transport, process, and dispose of waste is reduced by keeping hazardous waste out of the mixed solid waste collection and disposal system.

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

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

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

Goal No. 14 Disaster Management. In the event of a major natural disaster such as an earthquake, windstorm, or flood, the regional solid waste system is prepared to quickly restore delivery of normal refuse services and have the capability of removing, recycling, and disposing of potentially enormous amounts of debris.

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

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

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

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

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

Goal No. 15 Facility Regulation. Metro's methods for regulatory control of solid waste facilities will include a system of franchising, contracting, owning and/or licensing to ensure that disposal and processing facilities are provided and operated in an acceptable manner.

Revenue System Goals and Objectives

Goal No. 16 Revenue Equity and Stability. The Metro solid waste revenue system is adequate, stable, equitable and help achieve the goals of the Regional Solid Waste Management Plan.

Objective 16.1. ~~Equity.~~ Charges to users of the waste disposal system will be directly related to disposal services received. Charges to residents of the Metro service district who may not be direct users of the disposal system should be related to other benefits received.

Objective 16.2. ~~Revenue Adequacy and Stability.~~ There will be sufficient revenues to fund the costs of the solid waste system.

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

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CHAPTER 7
RECOMMENDED SOLID WASTE PRACTICES TO THE YEAR 2005

Introduction

This chapter presents a set of recommended solid waste management practices that is designed to meet the overall goal the RSWMP ~~as prescribed in Chapter 5:~~

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

The recommended practices are also designed to achieve ~~effect specific sets of~~ goals and objectives listed ~~defined~~ in Chapter 5 ~~for four areas: the solid waste system as a whole ("System-Wide"), Waste Reduction, Facilities and Services, and the Revenue System~~.

This Chapter will provide an overview of the strategies underlying the recommended practices, a description ~~a recounting~~ of how the practices were developed and adopted, ~~and~~ details regarding each of the practices, and ~~how they shall be implemented~~ implementation plans.

Overview of Recommended Practices

The recommended practices embody six~~five~~ broad integrated strategies as the best methods to ~~of~~ achieve ~~ing~~ the RSWMP~~Plan~~ goals:

- **Invest in waste reduction before building additional transfer and disposal station capacity.~~Maintain three regional transfer stations.~~** If the recommended practices are implemented ~~instituted in the region~~ and ~~regional~~ growth is within expected ranges, the existing three transfer stations should provide enough transfer capacity for the next ten years.

- **Expand the opportunity to recycle.** The past decade shows that when residents are provided convenient recycling services they *will* recycle. ~~Although there are often barriers to overcome to make the services efficient and cost effective, the~~ This "*opportunity*" *approach has proven successful.* Many of the RSWMP~~Plan's~~ recommendations in the RSWMP~~Plan~~, particularly for ~~in~~ the business sector and building industries~~trades~~, continue this strategy. The primary focus is to ~~on~~ make ~~ing~~ services available to all generators.

- **Emphasize the Waste Reduction Hierarchy.** ~~The Plan's recommendations emphasize the waste reduction hierarchy in two major ways: First, the The Plan envisions a~~ A major new regional effort on waste prevention *is envisioned in the*

RSWMPPlan. Waste prevention, including reuse, is highest on the hierarchy because it not only preserves landfill space but it also conserves the largest amount of most natural resources. It is, however, difficult to develop comprehensive waste prevention programs. In contrast, As a result, the regional emphasis over the past five years has been on recycling and recovery activities.

The RSWMPPlan also recommends continued support for source-separation efforts before turning to post-collection recovery methods.

~~The Plan recognizes that new waste prevention programs will need to be actively monitored and evaluated to ensure their effectiveness.~~

~~Second, the Plan recommends continueding to support for source -separation efforts, before turning to post-collection recovery methods.~~

~~This recommendation is based on both local negative experiences with post-collection processing and the continuing positive experiences with Ssource-separation efforts that have produced high quality recovered materials and more sustainable waste reduction programs. The Plan also recognizes that increasing the availability of post-collection processing such as dry waste recovery facilities is important for generators where source separation is not cost effective.~~ -

- **Maintain flexibility and encourage innovation.** ~~TIn the The~~ RSWMPPlan ~~it is~~ recognizesds that waste reduction in the region is entering a new era. Many of the successful programs and services brought on-line over the past five years involved the implementation of relatively well-proven ~~program ideas and~~ techniques such as ~~weekly~~ residential curbside recycling ~~bin programs~~. Several recommendations ~~in the Plan~~, particularly those involving waste prevention, expanded business recycling, and organics recovery, will require ~~thoughtful~~ development over the next several years. The philosophy behind the recommended practices in these areas is to allow flexibility ~~not only~~ to encourage development of innovative solutions and avoid imposition of inappropriate practices. ~~but to actively encourage development of innovative solutions.~~

- **Set interim target dates, define roles and responsibilities, and focus on implementation issues.** Since the RSWMPPlan allows for a large degree of flexibility in its implementation, it is important to set and maintain target dates to track accountability to RSWMPPlan ~~assure that the Plan will be accountable to its~~ objectives. In addition, the RSWMPPlan clarifyies who will be responsible for implementing programs. ~~and the mechanisms (including funding) by which program will be implemented.~~

- **Advance cost-effective practices for managing the region's waste.**

Residents of the region strongly support waste reduction practices. At the same time, however, they also expect that governments will promote cost-effective programs. Recommended practices in the RSWMP are ones that are not expected to significantly increase the overall costs that residents pay for the management of waste. Practices that would likely be more costly in the current system, such as the collection of

residential food waste, are included as recommendations contingent on the future development of new techniques that would reduce the costs of the practice.

Development of the Recommended Practices

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

Preliminary recommendations ~~The draft set of recommended practices~~ were developed through a process that:

- Assessed current waste reduction and disposal trends;
- Examined new or alternative ~~expanded~~ waste management practices ~~potentially available over the next ten years~~;
- Modeled the impact of waste management practices on ~~regional~~ disposal tonnage; and~~and waste reduction rates; and~~
- Screened out practices high in cost or low in tonnage impacts.

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

This RSWMP~~Plan~~ development process helped to clarify ~~Finally, the discussions clarified~~ the distinction between the RSWMP~~Plan~~'s "recommended practices" and "alternative" practices ~~to that would~~ allow for local flexibility in meeting RSWMP~~Plan~~ goals and objectives. The consensus was that the recommended practice should serve as a performance standard that alternative practices ~~will would be~~ required to equal.

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

Purpose of the Recommended and ~~And~~& ~~&~~ Alternative Practices

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

- **Identify areas of regional interest~~concern~~.** The RSWMP~~Plan~~ identifies several areas - particularly in promotion and education - where regional coordination and cooperation are required for successful program efforts.

- **Set expectations regarding what can be accomplished.** For those practices that involve waste reduction, the recommended practices are designed to achieve specific levels of expected ~~intended as reasonable estimates of program~~ performance.

- **Provide a strategy or approach that can ~~could~~ also serve as the basis of an alternative practice.** The recommended waste reduction practices were specified in enough detail to allow ~~empirical~~ estimation of expected performance~~for modeling the impacts of the practice~~. Each of these practices, however, embodied a more fundamental waste reduction strategy capable of being implemented in more than one way.

While the recommendations are intended to apply regionally, the RSWMP~~Plan~~ acknowledges that local conditions may require ~~the~~ development of alternative practices. As discussed above, ~~the Plan adopts a view that~~ alternative waste reduction practices must ~~need to~~ demonstrate the same level of expected performance as the recommended practices.

Recommended Practices Descriptions and Implementation RSWMP~~Plan~~

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

- **Residential Waste Reduction**
- **Business Waste Reduction**
- **Building Industries~~Trades~~ (Construction and Demolition) Waste Reduction**
- **Solid Waste Facilities and Services - Regulation and Siting**
- **Solid Waste Facilities and Services - Transfer and Disposal System**

Brief descriptions of the practices are described in the text that follows and in the descriptive tables and timelines accompanying the text. The text and tables together provide the following:

- **Key Concept and Approach for Each Recommended Practice.** –What is the basic strategy behind the practice? What problem or opportunity does the practice address?

- **Key Elements of the Recommended and Alternative Practices ~~and Alternative Key Elements~~.** –What specific programs or activities make up the practice?

- **Roles and Responsibilities:.** –Who will take primary responsibility for seeing that the practice is implemented? Who will assist?

- **Implementation ~~m~~Mechanisms.** –What groups ~~of decision makers~~ will be involved in putting the practice into place?

- **Key ~~d~~ Dates and ~~i~~Issues.** –When will the practice ~~be expected to~~ be adopted?

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

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

The tables were ~~matrix was~~ also designed to communicate several other ideas:

- The first three quarters of FY 1994-5 are heavily shaded to indicate they have passed and the last quarter of FY 1994-95 and FY 1995-96 are lightly shaded to denote that many government resource commitments for this time period have already been made.

- Dark bars are used to represent new or expanded program efforts. Note that expanded efforts are identified as already underway for many practices.

- Implementation of several of the recommended practices (especially organics management) are contingent upon other practices having been successfully

implemented. The table ~~matrix~~ uses filled circles [e.g. ❶] ~~–~~to indicate an ordinary target date and unfilled circles [e.g. ①] for target dates of practices that involve such contingencies.

Residential Waste Reduction Practices
Tables 1.A and 1.B

The recommendations identify five practices of regional concern:

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

** Additional technical specifications and performance information is available in the technical appendices regarding thiese practices.*

1. Education and Information for Waste Prevention

- Key Concept and Approach of the Recommended Practice:

  Because of the natural resources saved, waste prevention programs provide the greatest environmental benefits of all waste management alternatives. Waste prevention education, especially for school age children, provides a strong base upon which to build ~~for building~~ a resource conservation and recycling ethic.

  Waste prevention strategies in the residential sector are in a relatively early stage of development. Coordination ~~within the region~~ on the development ~~construction~~ of educational and promotional programs ~~materials will be~~ is an important objective. ~~The development of a~~ A common regional approach will also increase the effectiveness of regional media campaigns.

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

  Three types of programs ~~are expected to~~ will be implemented~~instituted~~:

  a) Regional media campaigns that emphasize waste prevention practices
  b) Expansion of local education programs and a shift to a greater emphasis on waste prevention
  c) "Earth-Wwise" purchasing and waste prevention programs targeted to households

The waste prevention practices ~~efforts planned~~ will build upon current education and promotion efforts that emphasize recycling activities. The strategy will be to re-focus the messages communicated on ~~that of~~ waste prevention. Since these programs will be new, the programs will be evaluated early on and modified as necessary to improve their effectiveness.

- Roles and Responsibilities:

  Metro and Local Governments will cooperatively develop and conduct regional education and promotion campaigns. Metro will be responsible for the annual regional media campaigns. A funding plan for the campaigns will be developed by Metro, local governments, and the private sector. The media efforts will be patterned on current recycling campaigns with inventive story lines and will use radio, television, and print media.

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

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

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

2. Expand Home Composting

- Key Concept and Approach of the Recommended Practice:

  The existing home composting program has been well received by the public and will ~~could~~ be expanded, with an emphasis on targeting households that are not now participating in home composting. Monitoring and evaluating the effectiveness of the program is ~~will be considered~~ a priority. Evaluations will help determine the most effective ways to reach ~~of reaching~~ the targeted households and the amounts of yard debris being diverted from disposal.

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

  a) Composting workshops will be held semi-annually (spring and fall)

b) Metro home compost ~~D~~demonstration sites will be developed to serve ~~in~~ all parts of the region

c) Five-year (1995-2000) ~~phased-in~~ bin distribution program will be based on results of current pilot programs

d) Promotion and education will be provided on how composting complements but does not replace curbside yard debris programs

- ~~Alternative~~ Key Elements of Alternative Practices:

a) Establish bans on yard debris ~~Yard debris bans~~ at curbside or disposal sites (where service alternatives are available)

b) Extend the home compost program of workshops, demonstration sites, and bin distributions for an additional five years

Other alternative practices may be adopted that achieve the same performance as the recommended practice. See Chapter 8 "Monitoring the Plan" for expected performance in terms of tons of waste disposed.

- Roles and Responsibilities:

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

3. Expand and Increase Participation in Existing Residential Curbside Programs

- Key Concept and Approach of the Recommended Practice:

The recommended practices are based on ~~There are~~ two basic approaches to increase ~~ing~~ residential recycling. One ~~approach~~ is to improve the performance of existing recycling services. The other ~~a second~~ is to add new materials to those presently being collected.

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

a) Weekly curbside collection (or equivalent) of yard debris and ~~&~~ scrap paper for single-family households

b) Provide ~~R~~recycling containers for at least four materials at all multi-family complexes (scrap paper included where space allows)

c) Regional education and ~~&~~ promotion campaigns to support single-family and multi-family curbside recycling

d) Target low-participant neighborhoods with special education and /promotion efforts

- Additional Key Elements
  a) Programs that tTarget the reduction of yard debris in residential drop box rentals (e.g. promote use of drop boxes with compartments that allow segregation of yard debris)
  b) Programs that target reduction of yard debris in self-haul loads at disposal facilities (e.g. provide educational materials on alternatives to disposal to customers)

- Alternative Key Elements of Alternative practices:
  a) Local flexibility to in add ing new materials (e.g. aerosols). Each local government will decide when public demand and markets warrant adding materials to a curbside program.
  b) Disposal bans on recyclables Material bans (where alternatives to disposal are available)
  c) Promote use of commercial refuse and recycling collection services (e.g. through landlord tenant laws) for households not currently subscribing to these services

  Other alternative practices may be adopted that achieve the same performance equal to or greater than as the recommended practice. See Chapter 8 "Monitoring the Plan"Technical Appendix A for expected performance in terms of tons of waste disposed.

  Other alternative practices may be adopted that achieve the same performance as the recommended practice. See Chapter 8 "Monitoring the Plan" for expected performance in terms of tons of waste disposed.

- Roles and Responsibilities:

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

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

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

Metro will also research the strength of markets and market capacity for materials that might be added to curbside programs. Local governments may choose to add such additional materials to curbside programs as markets develop.

4. Development of New Collection, ~~Transfer and Disposal~~ Technologies

- Key Concept and Approach of the Recommended Practice:

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

  One ~~Another~~ emerging technology is the co-collection of refuse and recyclables on the same truck. Separate collection vehicles appears prohibitively expensive for some programs such as collection of ~~non-recyclable organic~~ food waste. Collecting bagged food waste together with yard debris ~~on the same truck used to collect refuse~~ may be a more cost-effective approach, particularly if combined with "one-stop dumping."~~.~~

  Because of the uncertainties of this technology at this time, t~~T~~he recommended approach is to continue investigation and examination of new opportunities ~~not recommend adoption~~ rather than recommendation of any particular practice for adoption~~, but to continue investigation and examination of new opportunities.~~

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

~~e) New cCollection approaches could include collecting bagged residential food wastes together with yard debris in the same collection truck~~

- Roles and Responsibilities:

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

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

5. Curbside Collection and Processing of Residential Food Wastes

- Key Concept and Approach of the Recommended Practice:

  With the success of curbside recycling programs, food wastes now represent a very large fraction of the remaining residential waste stream. _This recommended practice ~~program~~ will provide a method of collecting and composting source-separated food waste from single family dwellings.

- Key Elements of the Recommended Practice~~Key Elements of the Practice~~:
  a) Site~~ing~~ and develop~~ment of~~ regional processing capacity for ~~**commercial**~~ **business food waste** prior to development of residential programs
  b) Residential programs phased-in and dependent on results of pilot programs to be conducted during 1995-2000. Implementation would occur during 2000-2005.

- -Additional Key Elements
  a) Collecti~~ng bagged~~ residential food wastes together with yard debris

- Roles and Responsibilities:

  A residential food waste program will be implemented following development of organics processing capacity for businesses.

  Metro, local governments, haulers, and processors ~~others in the private sector~~ will investigate and conduct pilot projects to determine feasible collection, ~~and~~ processing practices, and markets for end products.

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

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

Business Waste Reduction Practices
Tables 2.A and 2.B

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

1. Waste pPrevention and rRecycling eEducation, Iinformation, &and Mmarket dDevelopment*
2. Expanded sSource- sSeparated (Ppre-collection) Rrecycling*
3. Collection and off-site recovery of source-separated food and non-recyclable paper*
4. Regional processing facilities for mixed dry waste*
5. Fiber-based fuel

* *Additional technical specifications and performance information is available in the technical appendices regarding thiese practices.*

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

- Key Concept and Approach of the Recommended Practice:

  Implement an aggressive waste prevention effort coordinated with recycling education and market development programs for businesses throughout the region. The practice is intended to achieve measurable reduction in the amounts of paper and packaging used by businesses by providing evaluations or "audits" of a business' waste.

- Key Elements of the Recommended Practice~~Key Elements of the Practice~~:
  a) Waste prevention, diversion, and procurement evaluations will be conducted with a goal of reaching ~~evaluating~~ 80% of all businesses by the year 2000. Evaluations will be targeted to specific types of businesses and their suppliers. Enough services will be ~~evaluators must be~~ available to ensure ~~enable~~ reaching the goal.
  b) Model waste prevention programs for different types of businesses
  ~~c) Waste prevention, diversion, & procurement evaluations with a goal of 90% of all businesses by the year 2000~~

c) Coordinated regional and local media campaigns emphasizing waste prevention

d) "Earth-Wwise" programs including promotion campaigns, model procurement polices for targeted generators, and recycled product guides that assist the development of markets for recycled materials.

e) Analysis of how businesses can substitute recycled feedstock in manufacturing processes.

- ~~Alternative~~ Key Elements of Alternative Practices:

  a) Disposal ~~B~~bans on recyclables (*where alternatives* to disposal are available)

  ~~b) Implementation of the waste evaluations may be conducted using a variety of techniques and methods. Examples could include development of a centralized pool of evaluators available on contract to Metro, haulers or local governments. Depending on local conditions and the type of size and businesses, alternatives to on-site evaluations could be employed.~~

  Other alternative practices may be adopted that achieve the same performance as the recommended practice. See Chapter 8 "Monitoring the Plan" for expected performance in terms of tons of waste disposed.

- Roles and Responsibilities:

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

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

  Metro will develop model waste prevention programs for different types of businesses that can be used by the provider of the waste evaluations. Metro will continue development of the Recycling Information outreach program as a regional resource of information about recycling and waste prevention.

Metro will also integrate its "Buy Recycled", model procurement polices, and recycled products guide programs into the waste evaluation effort. Waste evaluations will ~~also~~ provide an opportunity to identify new materials for recycling. If new materials can be identified, Metro will support the markets for these materials through technical or financial assistance to the processors and end users of the recovered materials.

2. Expansion of Source-Separated (Pre-~~c~~Collection) Recycling

- Key Concept and Approach of the Recommended Practice:

  Recyclable paper remains a very significant part of the waste still being disposed by businesses. The recommended practice is to collect ~~focuses on collecting~~ paper, still being disposed~~not already being recycled.~~ Containers (glass, tin, aluminum, PET, and HDPE) are included in the recommended practice because additional costs and tonnage impacts are favorable.

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

- Key Elements of the Recommended Practice~~Key Elements of the Practice~~:
  a) Collection of paper and containers (~~G~~glass, tin, aluminum, PET, and HDPE) from businesses~~not currently receiving recycling services~~
  b) Appropriate recycling containers (e.g. roller carts, bins, OCC cages) provided to all small businesses
  c) Education ~~&~~ and promotion of recycling services including ~~providing~~ waste evaluations ~~to~~f targeted businesses~~generators~~
  d) Business recycling recognition programs
  ~~e) Other alternative practices that achieve the same performance as the recommended practice.~~

- ~~Alternative~~ Key Elements of Alternative Practices:

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

  a) ~~Voluntary:~~ Provide businesses economic incentives to recycle through the design of collection rates

b) ~~Regulate Generator:~~ Require bBusinesses ~~required~~ to participate in a ~~commingled~~ collection program for paper and containers

c) ~~Regulate Collector:~~ Require collectors ~~to~~ to provide recycling services for paper and containers

d) Include small businesses in residential curbside programs

e) Disposal bans (where alternatives to disposal are available)

f) Require Bbusinesses ~~required~~ to have waste reduction and recycling plans

g) Collect yard debris from selected businesses through residential curbside programs.

Other alternative practices may be adopted that achieve the same performance as the recommended practice. See ~~Technical Appendix A~~ Chapter 8 "Monitoring the Plan" for expected performance in terms of tons of waste disposed.

- Roles and Responsibilities:

Local governments will develop business recycling services. They will also take responsibility for involving business waste haulers, private recyclers and businesses in the development of programs that achieve the expected levels of performance.

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

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

- Key Concept and Approach of the Recommended Practice:

  Collection and off-site recovery of source-separated food and non-recyclable paper from businesses IF costs do not substantially exceed the current cost to ~~of~~ collecting and landfilling ~~of~~ organics ~~as waste~~ and there is no reliance on exclusive facility franchises or flow control.

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

  a) Siteing and& developement ~~of~~ processing capacity for regional organic waste

  b) Collection from larger food generators (e.g. major grocery stores) within three to five years~~(short term)~~

c) ~~Include s~~Small generators (e.g. fast food establishments) will ~~would be~~ provided service ~~incorporated into the services~~ after the processing facilities are ~~were~~ well established ~~(long term)~~

- ~~Alternative~~ Key Elements of Alternative Practices:
  a) Waste prevention practices (e.g., grocery store program that provide food that can no longer be sold to charities).
  b) On-site composting where appropriate (e.g. schools or other large institutions with available space and other resources)

  Other alternative practices may be adopted that achieve the same performance as the recommended practice. See Chapter 8 "Monitoring the Plan" for expected performance in terms of tons of waste disposed.

- Roles and Responsibilities:

  Metro will develop technical assistance materials about organics generators (e.g. grocery stores and restaurants) and processing technologies. Metro, haulers, local governments, and the private sectors will conduct demonstration or pilot projects as necessary to resolve questions about the feasibility and practicality of a business organics processing system. These pilot projects will also determine whether there are end markets for the processed material. Issues to be addressed will include the use of transfer stations as reload operations and the development of product quality standards that ensure marketability of compost products.

  Beyond pilot studies, the private sector will be responsible for the siting and development of processing facilities. Metro and DEQ will be responsible for setting performance standards to ensure the environmental acceptability of the facilities. Local governments will assist in the development of programs by working to solve siting issues associated with processing facilities, including the adoption of clear and objective zoning standards that do not effectively prohibit the siting of facilities.

  Haulers and local governments, with technical assistance from Metro as requested, will be responsible working out necessary long-term changes in collection equipment, franchise arrangements or collection routing.

4. Regional processing facilities for mixed dry waste ~~from business and building trades~~

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

  Because of high ~~transfer station~~ disposal costs and the market ~~current high~~ values ~~for~~ of recovered materials, there are strong economic incentives to ~~for~~ develop ~~ment of~~ dry waste processing facilities. The recommend practice is to rely on the private sector ~~for the Under existing Metro plans and policies, the~~ to develop ~~pment of~~ additional dry waste processing capacity. ~~relies on private initiative.~~

- Key Elements of the Recommended Practice~~Key Elements of the Practice~~:
  a) Develop s~~S~~ufficient capacity to serve entire region
  b) Provide r~~R~~easonable access for all haulers
  c) Maintain current Metro fee waivers on recovered material; processing facilities pay fees to Metro only on disposed residuals
  d) Support and develop m~~M~~arkets for recovered materials through technical ~~and financial~~ assistance to processors and end users of recovered materials
  e) Consider policies that could allow vertical integration ~~Allow v~~~~Vertical integration allowed as a Metro policy; allow~~ and processing facilities to accept materials from more than their own company

- Roles and Responsibilities:

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

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

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

5. **Fiber-based fuel**

- Key Concept and Approach of the Recommended Practice:

  Post-collection recovery and processing of paper, ~~and~~ plastics, and other material into a "fiber-based fuel" is an acceptable "last resort" for materials that would otherwise be disposed.

- Key Element of the Recommended Practice~~Key Elements of the Practice~~:

  ~~a)~~ Continue to support development of fiber-based fuel facilities when economically feasible as an alternative to landfilling

- Roles and Responsibilities:

  Metro will examine the need for, as well as ~~and~~ technical and economic feasibility of fiber-based fuel facilities ~~on an annual basis~~.

Building Industries ~~Trades~~ (Construction\ and Demolition) Waste Reduction Practices

Table 3

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

1. Develop ~~ment of~~ targeted technical and educational programs
2. Ensure availability of o~~O~~n-site source separation at construction sites where practical and cost-effective *
3. Develop M~~m~~arkets ~~development~~ to support recycling rather than energy recovery
4. Develop ~~ment of~~ regional dry waste processing facilities for construction and demolition waste from sites where separation and collection of recyclables is not practical or cost effective ~~possible~~

** Additional technical specifications and performance information is available in the technical appendices regarding this practice.*

1. Development of targeted technical and educational programs

- Key Concept and Approach of the Recommended Practice:

  Efforts to remove barriers to recycling activities in the building industriestrades sector through research and educational programs have proven remarkably successful. Wide ly distribution ng of this information to the construction industry and the public is one method to increase opportunity for waste prevention.

- Key Elements of the Recommended PracticeKey Elements of the Practice:
  a) "Earth-Wwise" building program to train builders about salvage, waste reduction, recycling, and buying recycled, along with other environmental building practices, including programs promoting use of recycled building materials in new construction
  b) On-site audits at construction and demolition sites to promote waste prevention practices
  c) Technical assistance and educational information for builders and others on waste prevention practices for building trade waste

- Roles and Responsibilities:

  Metro will continue to provide technical assistance on building industry practices that promote waste prevention and recycling. Metro, in cooperation with local governments, haulers, and builders, will continue promotion and education campaigns targeted to both construction industry and househol purchasinghouseholds purchasing their services - e.g. the "Earth-Wise" labeling campaign promoting environmentally sound building products and construction practices.

  Local governments, haulers, builders and Metro will work together to develop on-site audits designed for increasing waste prevention and recycling. These audits will be coordinated with local government efforts to ensure availability of on-site recycling services.

2. On-site source separation of recyclables at construction and demolition sites ~~where practical and cost effective~~

- Key Concept and Approach of the Recommended Practice:

  On-site source separation of recyclable materials at construction and demolition sites is ~~can be~~ a very effective method of diverting significant amounts of wood, metal, drywall, and cardboard from disposal. ~~materials. However, site limitations and labor costs may make collection of mixed recyclables and processing at a mixed waste facility more cost effective.~~ The ~~intent of the~~ recommended practice

will ~~is to~~ ensure that ~~the~~ on-site source-separation services are available to generators who want to use them. ~~has the opportunity to choose.~~

- Key Elements of the Recommended Practice~~Key Elements of the Practice~~:
  a) Local governments ensure availability of on-site services for two or more materials
  b) Promotion of and education about on-site recycling collection services

- Additional Key Elements:

  Develop educational materials that ~~T~~target new recoverable materials for source separation when markets are available in the building industries~~trades~~ waste stream: roofing and tarpaper, carpet, and film plastic.

- ~~Alternative~~ Key Elements of Alternative Practices:

  Waste prevention practices (e.g. reduce use of unnecessary packing materials by building industry suppliers)

  Other alternative practices may be adopted that achieve the same performance as the recommended practice. See Chapter 8 "Monitoring the Plan" for expected performance in terms of tons of waste disposed.

- Roles and Responsibilities:

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

3. Develop m~~Markets development~~ to support recycling rather than energy recovery

- Key Concept and Approach of the Recommended Practice:

  Reuse and recycling are higher on the solid waste ~~reduction~~ management hierarchy because these practices retain more of the value of previ~~si~~ous manufacturing efforts and conserve the most natural resources~~have lower environmental impacts~~. Wood is one of the largest components in the building industries~~trades~~ waste stream and the majority of it is currently being used for fuel~~burned~~. Markets for wood as a fuel are driven by other ~~primary~~ fuel supplies such as natural gas. If prices of those fuels fall, the stability of recycling in the building industry~~industy ries' trades recycling~~ could be undermined.

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

- ~~Alternative~~ Key Element~~s~~ of Alternative Practices:
  Enhance ~~Improve Reduce~~ incentives to recycle materials relative to diverting materials to recovery. For example, lower Metro fees on disposed residuals from dry waste processing facilities~~on materials recovered for energy relative to recycling~~

  Other alternative practices may be adopted that achieve the same performance as the recommended practice. See Chapter 8 "Monitoring the Plan" for expected performance in terms of tons of waste disposed.

- Roles and Responsibilities:

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

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

  Metro, local governments, and building industries will establish a ~~certification program for "Earth Wise" construction contractors and processors. The program to will~~ promote salvaging and recycling wood before recovering for energy. ~~This program can be modeled after the existing regional compost product standard and certification program.~~

4. Development of regional dry waste processing facilities for building industries ~~construction and demolition~~ waste from sites where separation and collection of recyclables is not possible

- Key Concept and Approach of the Recommended Practice:

  Because of space limitations and other factors, not all construction sites are suitable for on-site salvage (i.e. collect for reuse) and recycling. Recovery facilities that accept mixed construction waste provide an additional opportunity for recycling construction waste.

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

  a) Develop sufficient capacity to serve entire region
  b) Provide reasonable access for all haulers
  c) Maintain current Metro fee waivers on recovered material; processing facilities pay fees to Metro only on disposed residuals
  d) Support and develop markets for recovered materials through technical and ~~financial assistance~~ to processors and end users of recovered materials
  e) Consider policies that could allow ~~Allow~~ vertical integration ~~as a Metro policy;~~ and ~~allow~~ processing facilities to accept materials from more than their own company

- Roles and Responsibilities:

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

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

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

- ~~Key Elements of the Recommended Practice Key Elements of the Practice: (See #4 under Recommended Business Practices)~~

Solid Waste Facilities and Services
Regulation and Siting
Table 4

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

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

1. Yard debris processing system

- Key Concept and Approach of the Recommended Practice:

  Increase the stability and & environmental acceptability of yard debris processing facilities in order to lower barriers to siting and operation.~~insure they can be sited and operated.~~

- Key Elements of the Recommended Practice~~Key Elements of the Practice~~:
  a) Establish facility performance standards for licensing yard debris processors
  b) Metro licensing program for yard debris processors
  c) Local governments require use of Metro licensed facilities by their franchised curbside yard debris collectors
  d) ~~Adopt uniform standards for facility siting~~
  e) Local governments adopt clear and objective siting standards that do not effectively prohibit the siting of facilities
  f) ~~License or permit yard debris processors~~

- ~~Alternative Key Elements:~~
  a) ~~Metro franchises for yard debris processors~~

  Other alternative practices may be adopted that achieve the same performance as the recommended practice. See Chapter 8 "Monitoring the Plan" for expected performance in terms of tons of waste disposed.

- Roles and Responsibilities:

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

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

2. Establish organic waste regulatory system

- Key Concept and Approach of the Recommended Practice:

  Regulation to ensure ~~Provide~~ environmentally sound and publicly acceptable processing facilities for business and residential food wastes.

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

- Roles and Responsibilities:

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

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

Solid Waste Facilities and Services

Transfer and Disposal System

Table 5

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

1. Maintain existing system of ~~3~~ three transfer stations. Build no new transfer stations. No redirection of haulers from Metro South to Metro Central.
2. Maintain the existing system of private general and limited-purpose landfills
3. Maintain options for haulers to choose among disposal alternatives
4. Allow ~~r~~Reload facilities sited, owned and operated by haulers for consolidation of loads for haul to Metro transfer stations to serve areas distant from transfer stations
5. ~~Continue to provide disposal services for households and businesses that choose to self-haul their waste to transfer stations~~ (moved to next page)

1. Maintain existing system of ~~3~~ three transfer stations. Build no new transfer stations. No redirection of haulers from Metro South to Metro Central.

- Key Concept and Approach of the Recommended Practice:

  Most of the region's waste is delivered to the three transfer stations (Metro South, Metro Central, and Forest Grove), rather than being directly hauled to landfills. These three stations have sufficient capacity to handle the future demand for transfer services under the projected economic growth and waste reduction impacts of the recommended practices.

- Key Elements of the Recommended Practice~~Key Elements of the Practice~~:
  a) Successful implementation of waste reduction practices to reduce demand for transfer services
  b) Modifications to existing facilities as required to maintain service levels
  c) When necessary ~~i~~implement ~~waste reduction practices and~~ waste handling practices ~~(e.g. restrictions on self-haulers)~~ sufficient to reduce demand on transfer facilities
  d) Modify the existing stations as needed to coordinate with any changes in collection technologies (e.g. co-collection of waste and recyclables)
  e) Examine service options to include reuse, recycling, and disposal for households and businesses that self-haul their waste.

- ~~Alternative~~ Key Elements of Alternative Practices:
  a) In the event waste reduction efforts do not perform as expected or growth is greater than expected~~are inadequate~~, options to be evaluated on a case-by-case basis, depending on tonnages and cost, will include:
     1) operational changes to existing facilities
     2) redirection of haulers from ~~Metro South to Metro Central~~ any transfer station that is exceeding capacity
     3) remodeling of existing facilities
     4) adding reload capacity
     5) building a new transfer station

     Other alternative practices may be adopted that achieve the same performance as the recommended practice. See Chapter 8 "Monitoring the Plan" for expected performance in terms of tons of waste disposed.

- Roles and Responsibilities:

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

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

- Key Concept and Approach of the Recommended Practice:
  There is sufficient regional landfill ~~disposal~~ capacity for at least the next ten years.
- Roles and Responsibilities:

  Assuming there are no closures of existing landfills or restrictions on their use, the private sector will continue to supply the general- and limited-purpose landfill space required by the region.

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

3. Maintain options for haulers to choose among disposal alternatives

- Key Concept and Approach of the Recommended Practice:

  Industries, manufacturers, and other generators of waste not classified as "municipal solid waste" (e.g. special wastes, or residual from dry waste processing) have a need for disposal services other than that supplied through Metro transfer stations. The approach is to continue to allow contractual arrangements (i.e. non-system~~nonsystem~~ licenses, designated facility agreements) with disposal facilities that can provide service to those with special needs.

- Key Elements of the Recommended Practice~~Key Elements of the Practice~~:
  a) Designated out-of-region landfills for accepting ~~certain~~ limited types of wastes (e.g. special wastes)
  b) Franchised in-region system of private landfills and processing facilities
  c) Non-system user licenses for individual haulers delivering limited types of waste (e.g. special wastes) to other facilities

- Roles and Responsibilities:

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

4. Reload facilities

- Key Concept and Approach of the Recommended Practice:

  The recommended practice is to allow reload facilities sited, owned and operated by haulers for consolidation of loads for haul to Metro transfer stations to serve areas distant from transfer stations. Reload facilities could assist in maintaining existing service levels (i.e. time spent waiting in line or time required to drive to a facility). They can also ~~and~~ provide some additional material recovery or opportunity to divert materials to dry waste recovery facilities.

- Key Elements of the Recommended Practice~~Key Elements of the Practice~~:
  a) Addition of reload capacity to existing private processing facilities to serve areas distant from existing transfer stations or to address capacity problems at existing facilities
  b) Reload options to be evaluated on a case-by-case basis depending on future tonnage and costs
  c) New reload facility ownership and operation determined on a case-by-case basis

- Additional Key Elements:
  d) Low-level recovery activities (manual "dump and sort" activities and other low technology methods) at reload facilitiesfacilites

- ~~Alternative Key Elements:~~
  ~~a) Reload options to be evaluated on a case-by-case basis depending on future tonnages & and costs~~
  a) ~~New reload facilities. Ownership and operation determined on a case-by-case basis. built and operated by individual haulers~~

  Note: These items have been moved to the previous page

- Roles and Responsibilities:

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

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

The recommendations identify five practices of regional concern:

1. Continue to provide hazardous waste collection services to the region's households and conditionally exempt commercial generators at Metro South and Metro Central transfer stations.

2. Promote household hazardous waste prevention and reduction through adult and school education programs

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

4. Provide service to outlying areas not conveniently served by permanent HOUSEHOLD HAZARDOUS WASTE collection facilities

5. Secure alternative funding sources for HOUSEHOLD HAZARDOUS WASTE collection services

1. **Continue to provide hazardous waste collection services to the region's households and conditionally exempt commercial generators at Metro South and Metro Central transfer stations.**

   Practices for this section have not yet been written.

2. **Promote household hazardous waste prevention and reduction through adult and school education programs.**

   - Key Concept and Approach of the Recommended Practice:

     People will change their behavior through effective education and buy fewer toxic products. Children, as the next generation of consumers, should be educated about alternatives and can often motivate adults to "do the right thing."

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

     A. Develop effective regional promotion and education programs and media campaigns to motivate the public to reduce the quantity and toxicity of waste generated as well as promote responsible use and disposal of these products.

        1. Conduct education programs such as school presentations and workshops for adults.
        2. Use collection events as an opportunity to educate HOUSEHOLD HAZARDOUS WASTE generators about toxic waste prevention.
        3. Use city and county newsletters, hauler flyers, and other means to communicate the message of HOUSEHOLD HAZARDOUS WASTE prevention to the public.
        4. Continue Metro's "Alternatives to Pesticides" adult education program. Coordinate this activity with the home composting education efforts described earlier in Chapter 7.
        5. Continue to use the Recycling Information telephone program to distribute household hazardous waste prevention information.

     B. Perform periodic evaluations (e.g., waste characterization study) to determine whether fewer household hazardous waste~~HHW~~ products are being generated and disposed.

     C. Adopt policies to encourage the reduced use of toxic products by Metro facilities services and local government offices and services.

- Roles and Responsibilities:

  Metro and Local Governments will cooperatively develop regional programs and media campaigns that will use print media and personal outreach as described ~~above~~ under "key elements" above. Metro will continue the "Alternatives to Pesticides" program, conducting workshops and distributing printed information to adult home gardeners. Metro will distribute toxic waste prevention literature at satellite household hazardous waste~~HHW~~ collection events and through the Recycling Information public outreach program. Metro will also perform periodic evaluations to determine the effectiveness of education and promotion efforts.

  Local Governments will promote household hazardous waste prevention through city and county newsletters, hauler flyers, and other means.

  Both Metro and local governments will work within their government agencies to adopt policies that encourage the reduced use of toxic products.

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

- Key Concept and Approach of the Recommended Practice:

  The two existing facilities are the regional base of operations for household hazardous waste~~HHW~~ collection services. They house the staff, equipment, and processing capabilities that are used for satellite household hazardous waste~~HHW~~ collection events and services. Because the two existing facilities can accommodate more customers, Metro will seek new ways to maximize their use

- Key Elements of the Recommended Practice~~Key Elements of the Practice~~:
  a) No new, fixed full-service facilities of the type at Metro South and Metro Central.
  b) Promote the use of the two permanent facilities to residents by distributing discount coupons to residents, newspaper ads, feature articles, and other effective means.
  c) Continue to analyze facility use and the effectiveness of promotional efforts.

- Roles and Responsibilities:

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

3. Provide service to outlying areas not conveniently served by permanent household hazardous wasteHHW collection facilities

- Key Concept and Approach of the Recommended Practice:

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

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

- Roles and Responsibilities:

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

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

4. Secure alternative funding sources for household hazardous wasteHHW collection services.

- Key Concept and Approach of the Recommended Practice:

  Household hazardous wasteHHW collection services are expensive to provide. The minimum $5 handling fee currently charged at the two permanent facilities covers a small portion of operating costs. As disposal fee revenues decrease due to effective waste reduction and recycling programs, new revenue sources must be secured to pay for HHW collection.

- Key Elements of the Recommended Practice~~Key Elements of the Practice~~:
  - A. Continue to collect a minimum $5 handling fee at the two Metro permanent HHW collection facilities to help off-set expenses, but review annually whether Metro should continue to collect the fee.
  - B. Meet on a scheduled basis (twice yearly or more often) to plan funding of appropriate services. Planning should accommodate budgeting schedules, regional and local promotional campaigns, and event logistics.
  - C. Funding priorities should include (in priority order):
    1. The two permanent collection facilities;
    2. Full-service satellite collection events, other services to outlying areas, and pilot projects;
    3. Other community events and services for residents located closer to the permanent facilities.
  - D. Go to the Oregon Legislature to secure a state-wide advance disposal fee on designated HHW products in order to stabilize funding and staffing for full-service satellite collection events. If a state-wide advance disposal fee is not adopted, return to the Metro Council with a proposal to adopt a region-wide advanced disposal fee.
  - E. Seek additional levels of grant funding for full-service satellite collection events from the DEQ.

- Alternative Key Elements:
  - A. Examine alternative funding arrangements including:
    1. Retailer licensing fee;
    2. Private sponsorship and grants;
    3. Public sector (i.e., sewage treatment, water and fire districts) sponsorship and/or in-kind support.
  - B. Examine the following long-term options to improve service convenience:
    1. Curbside collection of selected HHW materials such as paint and batteries.
    2. Product "take-back" requirements for retailers of HHW products.

  Other alternative practices may be adopted that achieve the same performance as the recommended practice. See Chapter 8 "Monitoring the Plan" for expected performance in terms of tons of waste disposed.

- Roles and Responsibilities:

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

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

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- **Linkage Principle.** Funding mechanisms should be linked to services provided and/or clearly related to objectives of the solid waste management system.

- **Revenue Neutrality.** Any fiscal changes sought by Metro should be revenue neutral at the time of the change. Exceptions can be made if, upon appropriate findings and authorization, new levels of funding are required to implement programs, recommendations, or objectives of this Plan.

- **Cost of Service.** Metro's fees and charges for services and programs should be based on the cost of providing the service to recipients; or on a fair value of the benefit when the cost of service cannot reasonably be calculated.

- **Departures from Cost-of-Service.** Departures from a cost-of-service basis for pricing may proceed only after a determination, based on appropriate findings, that System Financing Criteria or policy objectives are significantly compromised by a cost-of-service approach.

- **Phasing.** In the long run, As different elements of the financing system will have differing degrees of acceptance and implementability, Metro should phase in portions of the financing system as they are ready for implementation.

- **Public Education.** It is important to establish understanding and acceptance of the reasons for change and its effects. Accordingly, Metro should communicate this project to its broader audience of customers and the public at large. A period for public review and comment should be set aside prior to final Metro action on any new and substantive change in system financing method.

- **Use of Funds.** To the greatest possible extent, revenues derived from the solid waste system should be used only for funding solid waste activities.

- **Waste Subject to Metro Charges.** The following criteria determine whether disposed materials may be subject to Metro charges: (1) waste that is generated within the Metro boundary and disposed at a facility authorized by Metro to receive waste; (2) waste, regardless of location of origin, that is disposed within the Metro boundary. This policy applies to all waste including residuals from solid waste processing facilities.

Principles on Specific Financing Solutions

The following principles for financing the Metro solid waste system are adopted by RSWMP:

- **Usage Charges.** Services that directly benefit the customer using the services should be financed by usage charges based on the amount of service consumed. Usage charges should be set according to the cost of providing service to the customer.

- **Surcharges.** Surcharges on disposal are an appropriate means of recovering non-variable costs of integrated system management after all appropriate cost-saving

measures have been taken and when other financing mechanisms fail the Revenue Adequacy criterion.

- **System Benefit Charges.** Enterprises that benefit directly from activities of Metro which divert materials from disposal should contribute to the funding of these activities.

- **Generator Charges.** There are certain solid waste programs and services which benefit all residents (persons and businesses) in the region. All residents of the region should share in the cost of these programs and services.

- **Product Charges.** Metro should employ charges on specific products that make identifiable, extraordinary burdens on the disposal system; or which may be more valuable if reused or recycled. These may be used to send economic "signals" regarding the true environmental cost of disposal, or as policy tools to encourage waste reduction goals such as prevention and recycling.

The Building Blocks of a Solution

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

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

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

1. Usage Charges on Mixed Waste (Current System)

- Financing Principle

  Services which provide direct benefits to the customer using the services should be financed by usage charges based on the amount of service consumed. Usage charges should be set according to the cost of service.

- Definition

  A usage charge is a fee based on the amount of services consumed. Nearly all of Metro's solid waste system is currently financed through a usage charge at Metro facilities (tip fee) and a usage surcharge (Regional User Fee) at certain non-Metro facilities. Usage charges can be levied through variable or non-variable (flat) rate schedules. The choice of appropriate schedule depends on the cost of service and other pricing objectives. Through FY 1994-95, both of Metro's tip fee and Regional User Fees were flat rates per ton.

- Performance of Usage Charges Under Key Evaluation Criteria

  a) *Revenue adequacy.* Usage Charges (tip fees) at transfer stations are adequate means of financing Metro's operational costs to transfer, transport, and dispose of MSW. Metro's surcharge on usage (Regional User Fee) has been adequate to finance Metro's non-variable costs of integrated system management in the past, but its effects on the stability of the rate base make its adequacy in the future unlikely.

  b) *Stability.* High disposal costs cause generators to seek alternatives to disposal, and the consequent erosion of the revenue base tends to de-stabilize the revenue system. Usage charges must be in proper alignment with the price of alternatives if the revenue stream is to remain stable. While policy objectives (*e.g.*, to reduce disposal) may capitalize on the effect of high usage charges, the existence of the system itself in the long-run should be weighed against price effects.

  c) *Equity.* Usage Charges (tip fees) are equitable in that they affect only voluntary transactions. The flat Regional User Fee based on the per-ton costs of integrated system management is not equitable because, through FY 1994-95, it was not based on the cost of service by waste type or generator type.

  d) *Incentives.* A high tip fee provides price incentives for waste reduction and diversion because high disposal costs will cause households and businesses to seek alternatives to disposal if those alternatives cost less that the cost of disposal.

- Recommendations

  A usage charge is an appropriate means of recovering variable costs and certain fixed costs of service provision. It is recommended that Metro continue to make use of user charges to fund MSW transfer, transport, and disposal operations unless there are significant changes in the underlying cost of providing these services.

2. System Benefit Charges to Solid Waste Enterprises

- Financing Principle

  Enterprises that benefit directly from activities of Metro which divert materials from disposal should contribute to the funding of these activities.

- Definition

  This option encompasses charges which are levied on materials (or enterprises which handle materials) that have been diverted from disposal by reason of Metro's solid waste management activities. Two closely-related suboptions fall in this category: *surcharges*, and *license or franchise fees*. Their primary difference is the degree of formality in the arrangement between the enterprise and Metro.

  a) *Surcharge.* Metro may regulate facilities that receive solid waste for disposal, treatment, or processing. Insofar as Metro has implemented policies and programs

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

b) *License or Franchise.* A license or franchise formalizes the relationship between a private enterprise and the regulatory agency, compared with the arrangement described immediately above. Licensing or franchising can account for specific conditions between the enterprise and the agency. A license or franchise fee is a charge for the ability to do business under the relationship. This type of fee can broaden the rate base by obtaining revenues from non-disposal operations. As above, the justification for this type of fee is that processors and other operators benefit from Metro's policies that divert valuable materials from the waste stream.

- Performance of System Benefit Charges Under Key Evaluation Criteria

a) *Revenue adequacy.* System Benefit Charges are not designed for comprehensive program funding. Revenue adequacy means that the funding mechanism should provide sufficient revenues for program application above administration and collection costs.

b) *Stability.* System Benefit Charges are stability-enhancing in that they would diversify the revenue base, but are not alone sufficient to guarantee revenue stability. Because many solid waste enterprises employ new technology, there is inherent uncertainty in the revenue stream that would emerge from this system of charges.

c) *Equity.* System Benefit Charges are equitable when designed to affect only those enterprises (or portion of enterprise activity) that have benefited from Metro's solid waste management activities that have diverted waste from disposal. System Benefit Charges help to cover the costs of these activities from beneficiaries of the activities rather than from ratepayers that remain in the disposal system.

d) *Incentives.* System Benefit Charges can reduce the incentive to engage in enterprises that provide an alternative to disposal by reducing profits. See the discussion under Recommendations, below, for rate design considerations.

- Recommendations

License or franchise fees can be implemented in several forms: a charge for operation (similar to a business license fee), a surcharge on activity levels, or a mix of the two. Charges on activity levels can be levied on a gross or net basis. Charges on a gross bases (*e.g.*, on tons of cubic yards delivered, or a percentage of the transaction price) has the advantage of simplicity but the disadvantage that a firm working with a marginal or new technology cannot avoid the charge unless exempted. Charges on a net basis (*e.g.*, net business income, residual material) do not necessarily disadvantage new firms (which typically have low or negative profits, especially if working with a new technology or infant markets), but increases the administrative reporting burden and may be a disincentive for efficient operation. The appropriate form of implementation

should be determined after an evaluation of the economic effect on the enterprises, and the impact on Metro's solid waste management policies.

3. Special Disposal Fees

- Financing Principle

  Employ surcharges on specific products that make identifiable, extraordinary burdens on the disposal system; or which may be more valuable if reused or recycled. These surcharges may be used to send economic "signals" regarding the true environmental cost of disposal, or as policy tools to encourage waste reduction goals such as prevention and recycling.

- Definition

  Special Disposal Fees (SDFs) are a family of fees levied on specific products or classes of products. The basic idea is to build the cost of certain solid waste management programs into the product price, rather than attempting to recover these costs at the time of disposal. SDFs are price-guided incentives which can support several management objectives:

  a) Encourage source reduction
  b) Encourage recycling (supply of materials)
  c) Encourage use of recycled materials (demand for materials)
  d) Internalize the full waste-management cost of production and consumption
  e) Provide funds for disposal of "problem" wastes or products with excessive residuals
  f) Provide funds for remediation of environmental damage

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

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

  a) Advance Disposal Fees (ADFs): an SDF on products with inherently harmful or excessive residuals.
  b) Deposits: an SDF on products with a potentially reusable, recyclable, or recoverable residual.
  c) Litter fees: an SDF on products which, due to their nature, are often improperly disposed.

- Performance of SDFs Under Key Evaluation Criteria

a) *Revenue adequacy.* SDFs are not designed for comprehensive program funding. Revenue adequacy means that the funding mechanism should provide sufficient revenues for program application above administration and collection costs.

b) *Stability.* SDFs are stability-enhancing in that they would diversify the revenue base, but are not alone sufficient to guarantee revenue stability.

c) *Equity.* Properly designed, SDFs are equitable in that they affect only voluntary transactions. To avoid regressive effects, special consideration should be given to products that are generally considered necessities, but would otherwise be candidates for imposition of an SDF. For example, exemptions on medical containers from advance disposal fee on plastic containers.

d) *Incentives.* Price-guided incentives are a primary objective of an SDF system. Properly designed, SDF can reduce use of products having special disposal problems and/or unpriced environmental impacts in production or consumption.

- Recommendations

  Metro should employ charges on specific products that make identifiable, extraordinary burdens on the disposal system; or which may be more valuable if reused or recycled.

4. Generator Orientation: Generator Fees

- Financing Principle

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

- Definition

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

- Performance of Generator Fees Under Key Criteria

  a) *Revenue adequacy.* Most or all non-variable costs could feasibly be recovered through a generator fee system. Under a revenue neutral design, there would be no net change in regional remittances to Metro at the time of conversion to a generator fee system.

b) *Stability.* The principal advantage of generator fees is their stability under changing conditions, as compared with financing non-variable costs through the tip fee.

c) *Equity.* Equity must be designed into a generator fee system. There are three basic equity issues with generator fees: (1) how to define and identify generator types or classes (*e.g.*, households, businesses) so that fees may be linked to benefits received; (2) the basis for allocating costs to generator types or classes to ensure that the generator is assessed fairly and appropriately; (3) the rate structure that assesses costs among members of each class in an equitable manner.

d) *Incentives.* Generator fees may work against incentives to reduce, reuse, and recycle because they are fixed charges which do not vary with use of the disposal system. Thus, the design and use of generator fees must take into account the tradeoffs between revenue stability and waste reduction policies.

- Recommendation

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

"Through" options are recommended; "to" options are not. The following billing vehicles are recommended:. bill through the property tax bill, bill through utility billings, bill through jurisdictions, bill through haulers. The following billing vehicle is not recommended unless cost-effective implementation is possible: dedicated billing system.

5. "Public Good" Orientation: Taxation

- Definition

Under a tax-based system, some or all costs of programs are supported by general fund revenues which are raised by taxation. Taxation is justified by the "public good" aspect of service provision. The scope of the tax base may be broad or narrow:

a) Broad-Based Taxes. These are taxes that have wide incidence. Examples include property, income, payroll, and sales taxes. These options are not recommended for the following reasons: the weak or non-existent link between revenue sources and uses for solid waste management; extremely difficult to satisfy key evaluation criteria such as waste reduction incentives; inconsistent with financing solid waste disposal as an enterprise fund; the Metro charter requires a vote of the people to implement broad-based taxes, and this option is currently under study by the agency as a long-term solution to financing general government.

b) Niche Taxes. These are taxes which have narrow incidence. No specific recommendations are made with regard to niche taxes.

- Recommendation

This concept should be held in reserve for further study if other approaches prove infeasible.

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Solid Waste Advisory Committee
June 21, 1995

Regional Solid Waste Management Plan
Chapter 9: Metro Solid Waste System Financing

Summary

This chapter has been abstracted from *Solid Waste Revenue System Study*, approved by SWAC in January 1994. Some editing and change of language has been incorporated for clarity and to update facts. The substantive additions are underlined on page 9-2 of the current chapter:

1. **Cost-of-service-based pricing as a design principle.**

2. **Departures from cost-of-service pricing only after appropriate findings and action by Metro Council.**

3. **Including a formal period for public review and comment (prior to referral to Metro Council) as a standard implementation principle.**

4. **Geographic origin of waste generation as a basis for determining appropriate charges for services and programs:**

   a. **Waste generated within the Metro boundary, regardless of where disposed.**

   b. **Waste disposed within the Metro boundary, regardless of where generated.**

5. **Surcharges on disposal (for example, the Regional User Fee) as an appropriate funding alternative. (This language corrects an oversight in the original report.)**

Solid Waste Advisory Committee
June 21, 1995

Regional Solid Waste Management Plan

Chapter 8: Monitoring the Plan

Status Report

This chapter addresses how the plan will be monitored over time. Metro staff, with support from its consultant, is currently finishing estimates of the impact of the following long-term waste management practices:

1. **Additional recycling due to Business Waste Prevention programs**
2. **Additional material from bans on yard debris in C&D dropboxes and residential self-haul to transfer stations.**
3. **Additional organics from businesses (contingent on successful pilot programs).**
4. **Residential organics recovery (contingent on feasible solutions to collection and processing)**
5. **Additional materials from source-separated business recycling programs**
6. **Additional materials recovered from C&D waste.**
7. **Additional delivery to MRFs over limited purpose landfills to increase post-collection recovery.**
8. **Recovery at reload facilities.**

Results will be in the final draft for the July meeting of SWAC.

Solid Waste Advisory Committee
June 21, 1995

Regional Solid Waste Management Plan

Chapter 8: Monitoring the Plan

Expected Performance Year 2005

Key RSWMP Indicators

	Current Level Year 1995	Plan Year 2005
Recycling Rate	39%	50%
Recovery Rate	42%	54%
Disposal Rates		
Single Family Households	29.7 lbs/HH/week	23.3 lbs/HH/week
Multifamily Households	23.7 lbs/HH/week	19.1 lbs/HH/week
Businesses	20.0 lbs/emp/week	16.7 lbs/emp/week
Disposal Per Capita	0.76 tons/capita/yr.	0.63 tons/capita/yr.

Regional Solid Waste Management Plan

DRAFT Solid Waste Regional Benchmarks DRAFT

Note: Numbers are being revised.

	Year 1995 Baseline	Year 2000 Indicator	Year 2005 Indicator
System Benchmarks			
Recycling Level	39%	45%	50%
Recovery Level	42%	50%	54%
Per Capita:			
Generation*	1.34 tons/capita	1.37 T/capita	1.37 T/capita
Recycling*	0.58 tons/capita	0.66 T/capita	0.74 T/capita
Disposal*	0.76 tons/capita	0.72T/capita	0.63 T/capita
SW Hierarchy			
Prevention	n/a	1%	1%
Recycling	28%	32%	35%
Composting	6%	7%	10%
Energy/Fuel	8%	8%	8%
Disposal	58%	52%	46%
Facility Benchmarks			
Direct-Haul Tonnage	1,044,000 T/yr	**	1,014,800T/yr
Transfer Stations	793,000 T/yr	**	683,800 T/yr
MRFs	109,000 T/yr	**	198,500 T/yr
Ltd.Purpose Landfill	142,000 T/yr	**	132,500 T/yr
Access to Tr.Stations	19.6 minutes	**	19.9 minutes
Multnomah County	18.6 minutes	**	19.0 minutes
Clackamas County	18.1 minutes	**	18.0 minutes
Washington County	23.2 minutes	**	23.3 minutes
Landfilled Solid Waste	982,000 T/yr	**	915,800 T/yr
Food	215,000 T/yr	**	181,000 T/yr
Recyclables	350,000 T/yr	**	299,800 T/yr
Yard Debris	58,000 T/yr	**	41,800 T/yr
Other	359,000 T/yr	**	393,200 T/yr
Disposal Benchmarks			
Single Family*	29.6 #/HH/wk	27.9#/HH/wk	23.3 #/HH/wk
Food*	9.1 #/HH/wk	8.4 #/HH/wk	4.7 #/HH/wk
Recyclables*	9.7 #/HH/wk	8.8 #/HH/wk	8.8 #/HH/wk
Yard Debris*	2.9 #/HH/wk	2.7 #/HH/wk	1.8 #/HH/wk
Other*	7.9 #/HH/wk	8.0 #/HH/wk	8.0 #/HH/wk
Multifamily*	23.7 #/HH/wk	19.2 #/HH/wk	19.1 #/HH/wk
Food*	7.4 #/HH/wk	7.4 #/HH/wk	7.4 #/HH/wk
Recyclables*	9.0 #/HH/wk	5.3 #/HH/wk	5.2 #/HH/wk
Yard Debris*	1.9 #/HH/wk	1.1 #/HH/wk	1.1 #/HH/wk
Other*	5.4 #/HH/wk	5.4 #/HH/wk	5.4 #/HH/wk
Business*	20.0 #/emp/wk	17.6 #/emp/wk	16.7 #/emp/wk
Food*	4.5 #/emp/wk	4.2 #/emp/wk	3.9 #/emp/wk
Recyclables*	8.0 #/emp/wk	5.8 #/emp/wk	5.3 #/emp/wk
Yard Debris*	0.7 #/emp/wk	0.7 #/emp/wk	0.7 #/emp/wk
Other*	6.8 #/emp/wk	6.8 #/emp/wk	6.8 #/emp/wk
Construction & Demo*	234,000 tons/yr	**	237,700 T/yr
C&D per capita*	0.18 tons/capita	**	0.16 T/capita

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

** Under revison.

Solid Waste Advisory Committee
June 21, 1995

Regional Solid Waste Management Plan

Chapter 8: Monitoring the Plan

Qualitative and quantitative aspects of the solid waste system will be tracked and reported on a regular basis: phasing and implementation, performance on measurable benchmarks, and effects on individual generators, waste streams, facilities, and programs.

Measurement is designed to assist with three general elements of monitoring RSWMP over time:

1. Tracking Implementation of the Plan

- What jurisdictions have done which plan elements?
- "Program Monitoring"

2. Management of Plan Resources

- How well do RWSMP programs (recommended practices, regulations, education and promotion) perform with respect to their individual objectives?
- "Program Evaluation"

3. Performance of the Plan

- How well do a set of quantifiable benchmarks measure up against numeric planning targets?
- Support the implementation, assessment, and corrective actions described in Adoption and Implementation chapter of the plan.
- "Regional Benchmarks"

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Regional Solid Waste Management Plan
Chapter 8: Monitoring the Plan

Description and examples of each of the three elements of measurement:

1. Program Monitoring

- Tracks the level of implementation by jurisdiction, material, and service level.
- Qualitative "checklist" approach.

2. Program Evaluation

- Determines effectiveness of individual programs and adherence to objectives.
- Focuses on recommended practices, policies, projects, and facilities as the unit of analysis.
- Provides program-specific feedback, but not aggregate (system) effects.
- Monitor "key" programs only.

3. Regional Benchmarks

- Precise and reliable indicators of system trends.
- Measure aggregate (system) effects, but not program-specific information.

- Three families of Regional Benchmarks:

  1. *System Benchmarks*
     - ◊ Easily calculated and understood indicators of change.
     - ◊ Examples: recycling & recovery rates; per-capita disposal.

  2. *Facility Benchmarks*
     - ◊ Provide facility-specific information.
     - ◊ Delivery, recovery, and landfilled tonnages; access measures.
     - ◊ Examples: tonnage to transfer stations; landfilled yard debris.

  3. *Disposal Benchmarks*
     - ◊ Track change in generator behavior.
     - ◊ Track disposal by material type.
     - ◊ Examples: pounds of food waste disposed per week per household; pounds of mixed paper disposed per week per employee.