

BEYOND 60 PERCENT

Program Strategies for Achieving the 2005 Solid Waste Recycling Goal



City of Portland
Office of Sustainable Development
Solid Waste and Recycling Division

Dan Saltzman, Commissioner-in-charge

Susan Anderson, Director

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Acknowledgments

Prepared by:
Office of Sustainable Development
Solid Waste and Recycling Division
721 NW 9th Ave #350
Portland, OR 97209

Phone: 503-823-7202
Fax: 503-823-4562

E-mail: wasteinfo@ci.portland.or.us
Website: www.sustainableportland.org

Robin Hawley, Program Coordinator and Lead Author
Lee Barrett, Commercial Program Manager
Bruce Walker, Residential Program Manager

The following individuals assisted in reviewing, providing feedback and editing this document: Doug Anderson, Michael Armstrong, Dan Blue, Sheryl Bunn, Eddie Campbell, Judy Crockett, Steve Engel, Sue Keil, Anne McLaughlin, Jerry Powell, Recycling Advocates, Paulette Rossi and Jeanne Roy. The cover was created by Leslie Winter-Gorsline with the City of Portland's Bureau of Environmental Services.

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CITY OF
PORTLAND, OREGON

Dan Saltzman, Commissioner
1221 SW Fifth Ave., Room 230
Portland, Oregon 97204
(503) 823-4151
Fax: (503) 823-3036
dsaltzman@ci.portland.or.us

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I am pleased to present the Office of Sustainable Development's (OSD) report on strategies to meet and exceed the City of Portland's 60% recycling goal. Portland continues to have one of the highest recycling rates of the 30 largest cities in the United States due to the success of the City's recycling programs and the great effort and enthusiastic dedication of local residents and businesses to recycling.

This report, prepared by OSD's Solid Waste and Recycling Division (SW&R), pinpoints the challenges that lay ahead in achieving the City's recycling goal. To address these challenges, it is clear that the City must invest resources and expertise strategically to make progress in the waste stream areas where there is the best opportunity for improvement.

Among the most important strategies for Portland to achieve 60% are:

- **Locating a food composting facility near the metropolitan area.** Food waste is the largest segment of the commercial waste stream without a recycling processing system. Locating a local facility to handle these materials would allow for significant recycling gains. The City and Metro are close to reaching agreement with a California company that plans to establish a facility in Marion County that would be ready for business in early 2003.
- **Reducing the construction and demolition waste stream generated by tenant improvements.** Tenant Improvement represents only 18% of the permits issued for construction projects, but it produces over 76% of the construction waste disposed. Using a Metro grant, SW&R and the Green Building Division are collaborating to develop a *Green Tenant Improvement Guide* to better inform builders about how to recycle and obtain previously recycled building materials.
- **Reducing waste paper generated by businesses.** Paper makes up over 20% of commercial solid waste and is the largest component of the commercial waste stream. With Metro, SW&R will be initiating a pilot project working with copier distributors and service staff to increase duplexing and the use of recycled-content paper while providing businesses a method for measuring the amount of paper saved as a result.

These and several other program strategies are described in this report. As the Solid Waste and Recycling Division works to enhance the City's outstanding recycling programs, I look forward to the participation and contributions of the residents and businesses that are the key to Portland's success. These community efforts are what will enable the City to meet and eventually exceed its aspirations.

I look forward to the work ahead and to reaching 60% and beyond.

Sincerely,

Dan Saltzman
Commissioner-in-charge of the Office of Sustainable Development

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Introduction

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Over the past 10 years the City of Portland Solid Waste and Recycling Division (SW&R) has made tremendous progress in reducing the amount of Portland's waste stream. With public input, enthusiastic staff, and a dynamic garbage and recycling system, Portland's innovative programs have led to significant progress toward aggressive recycling goals.

Solid Waste and Recycling Division accomplishments since 1990 include:

- Implementing a residential franchise system in 1992 including comprehensive weekly recycling and every other week yard debris collection.
- Distributing recycling equipment to over 95% of all multifamily complexes in Portland.
- Requiring all Portland businesses (including multifamily complexes) to recycle 50% of their waste, recovering an additional 100,000 tons and decreasing total waste disposed by 18,200 tons between 1996 and 2000.
- Distributing over 30,000 recycling containers to businesses between 1996 and 2000.

These actions have produced the following results:

- Increased per household recycling by 505 pounds and decreased per household waste disposal by 226 pounds between 1991 and 2000.
- Increased recycling rate in the commercial sector from 46.2% in 1996 to 54.0% in 2000.
- Increased recycling of materials by 4,550 tons in the residential sector between 1998 and 2000 as a result of changing to a commingled recycling system.

- Increased recycling rate from 34% in 1993 - residential only - to 47% in 1996 and 54% in 2000 - commercial and residential - achieving the 2000 recycling goal set by Council in 1997 (see table 1).

Table 1: 2000 Recovery Rates

	% of waste stream recovered
Residential	52.3%
Commercial	54.0%
Total	53.6%

Source: City of Portland Office of Sustainable Development

As we enter the 21st century and continue to work toward the City's 2005 recycling goal of 60%, the time is right to re-evaluate current programs and examine opportunities to further improve future solid waste and recycling activities in the city.

At the forefront of this review process is sustainability, a concept that is increasingly recognized as central to the long-term success of communities. Sustainable development is generally understood to mean meeting the needs of the present without compromising the ability of future generations to meet their own needs.

The City of Portland promotes and encourages sustainability as a corporate practice and as a community ethic. Solid waste and recycling issues are core components in these efforts. For solid waste management, sustainability means preventing waste in the first place, reusing or donating items that still have a useable

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life, recycling more and closing the loop by purchasing recycled-content materials. Additionally, solid waste practices can be examined to identify more sustainable options. For example, we seek to reduce the impact of pollution from garbage and recycling trucks and ensure efficient, safe and responsible disposal of waste at the same time.

City Council set the original schedule to reevaluate the *Plan for Achieving Recycling Goals* for 2002. Given the successful accomplishment of the 2000 recycling goal and the creation of the new Office of Sustainable Development in the summer of 2000 (see "A New City Bureau" below), SW&R presents this plan as part of the office's review process.

Based on input from the Solid Waste Advisory Committee (SWAC), SW&R staff and the community, this plan outlines general policy and program direction as well as specific initiatives the Solid Waste and Recycling Division will pursue for the next four years and beyond. These programs

are intended to achieve recycling goals and minimize negative environmental impacts from the garbage and recycling industry. The plan provides a description of the recycling rates and goals, a brief history of SW&R residential and commercial programs, outlines future program initiatives, and provides an overview of waste collection and processing in the region.

The programs and policies to achieve the City's solid waste management goals are expected to continue to evolve. SW&R staff has worked to articulate policy direction and goals that are relevant and yet flexible enough to not become obsolete before completion.

SWAC members, City staff and the public have contributed valuable input throughout the process of developing this plan. Their suggestions and feedback have greatly improved the plan and enable SW&R to serve the public more effectively.

A New City Bureau: The Office of Sustainable Development

In August 2000 Portland City Council established a new bureau, the Office of Sustainable Development, merging the Solid Waste and Recycling Division (formerly housed within the Bureau of Environmental Services) with the Energy Office, Green Building Initiative and Sustainable Portland Commission (now the Sustainable Development Commission). City Council created this new bureau to accomplish three major goals:

1. Lead by promoting resource conservation and sustainable development practices within City government and throughout the community, working with residents and businesses.
2. Provide a meeting place that brings together government and private partners to work on sustainability issues.
3. Provide excellent service in energy conservation, solid waste and recycling collection, green building and utility regulatory issues.

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that time Council directed SW&R to develop a plan outlining the programs to achieve the

Background

Recycling goals and Current Rates

The Oregon legislature set an ambitious goal of recovering at least 50% of the state's general solid waste stream by January 1, 2000. The 2001 legislature revised the implementation date for this goal to recover 50% by 2009. In 2000 the State recovery rate was 38.9%. In 2001 the State will officially allow local jurisdictions to add an extra 6% credit for backyard composting, reuse of materials and waste prevention (2% credit for each activity).

Metro, the Portland-area regional government, established recovery goals of 52% by the year 2000 and 56 percent by 2005. While the State does not set local or regional goals, Metro's goals were amended as a result of State legislation in 2001, which formally included the 6% credits. Metro's goals were increased to 62% in 2005 and 64% in 2009 to include these credits. The current reported recovery rate for the region was 44.6% in 2000. The calculated recovery rate increases to 51.6% because it includes the 6% credits earned by the wasteshed. The *1995 - 2005 Regional Solid Waste Management Plan* outlines how Metro intends to meet the regional goals through 2005.

In spring 1997, Portland City Council set even more ambitious recycling goals of 54% in 2000 and 60% in 2005, 2% and 4% higher than Metro's respective goals.¹ At

¹ The recycling goals established in 1997 replaced previous goals of 60 percent recycling and 10 percent waste reduction by the end of 1997. Those original goals were set in 1991 as the City was about to institute a weekly residential curbside recycling program as part of implementing a new residential franchise collection system. At that time, a privately owned and Metro-franchised municipal solid waste composting facility was about to open in Northeast Portland. Unfortunately, that facility never operated

Table 2: Top Recovery Rates among 30 Largest U.S. Cities

City	Recycling rate (%)
1. Los Angeles	55.5
2. Portland	53.6
3. San Jose	53.0
4. San Diego	48.0
5. San Francisco	46.0
6. Chicago	44.9
7. Jacksonville	43.0
8. Seattle	43.0
9. Austin	29.1
10. Baltimore	28.7

Source: *Waste News* Municipal Recycling Survey, February 2002

recycling goals and methods for measuring them. Council accepted the first plan in September 1998. Recycling is defined in City Code as a "series of activities including collection, separation, and processing, by which products or other materials are recovered from or otherwise diverted from the solid waste stream. Recycling includes composting of source separated organics."

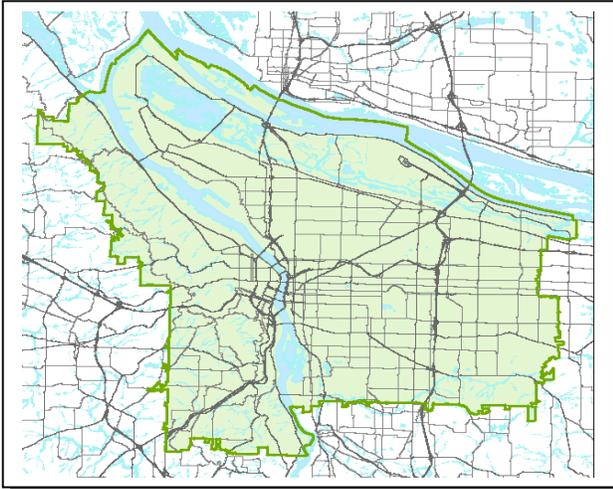
In 2000 Portland achieved its recycling goal of 54% and according to the trade publication *Waste News*, had the second highest rate of the 30 largest U.S. cities (see Table 2). It should be noted, however, that it is very difficult to make meaningful comparisons with other cities because there is inconsistency in how recycling rates are calculated. For example, Portland's rate includes self-haul data and the burning of wood for recovery while some U.S. city's rates do not. In addition, some city's rates include waste and recycling data generated from manufacturing companies while Portland's rate does not.

according to design standards and closed after less than a year of operation. In 1997, Portland's recycling rate proved to be under 50 percent.

Demographics

- Population - 531,600
- Single family households - ~142,000
- Businesses - 14,414
- Multifamily units (>4-plex) - ~70,000

Figure 1: Portland Urban Services Boundary



Setting the City's Recycling goals

Prior to presenting the new recycling goals for 2000 and 2005 to Council, the goals were reviewed by the Portland Utility Review Board (PURB), a citizen committee appointed by City Council to review issues related to city utility rates and services. PURB supported the new goals and asked staff to outline the programs necessary to reach those goals and the rate impacts associated with those programs. In April 1997 Council adopted the goals as presented and supported PURB's request for SW&R staff to document how Portland would reach those goals.

This document establishes the framework for reaching the 2005 goals and continues the planning process discussed above.

Calculating Recycling Rates

Recycling rates in the city of Portland are determined primarily by weight data collected from recyclers, permitted commercial haulers and franchised

residential haulers. Metro and DEQ have helped determine estimates of self-hauled garbage, recycling and yard debris and recycling collected through the bottle bill program. These estimates are also included in the calculated recycling rates. Materials reprocessed on-site by manufacturers are not included. Additionally, general contractors who self-haul materials from a building they are constructing or remodeling are not required to report tonnage to SW&R.

Residential waste recycling figures include hauler-reported curbside recycling as well as estimates of self-hauled yard debris, backyard composting, bottle bill recycling and recyclables self-hauled to depots.

Commercial recycling rates include quantities reported by haulers and by independent commercial recyclers (companies that provide recycling-only

Table 3: Portland Solid Waste & Recycling Activity (2000)

	Tons	% of total waste stream	Total %
Residential			
Curbside recycling	68,100	6.6%	
Self-hauled recycling	27,000	2.6%	
Other recycling	29,600	2.9%	12.1%
Self-hauled waste	16,500	1.6%	
Landfilled	97,100	9.4%	11.0%
Residential subtotal	238,300		23.1%
Commercial			
Hauler and independent recyclers	388,100	37.6%	
Self-hauled recycling	20,000	1.9%	
Recovery facilities	21,200	2.1%	41.6%
Self-hauled waste	44,400	4.3%	
Landfilled	320,900	31.1%	35.4%
Commercial subtotal	794,600		76.9%
TOTAL	1,032,900		100 %

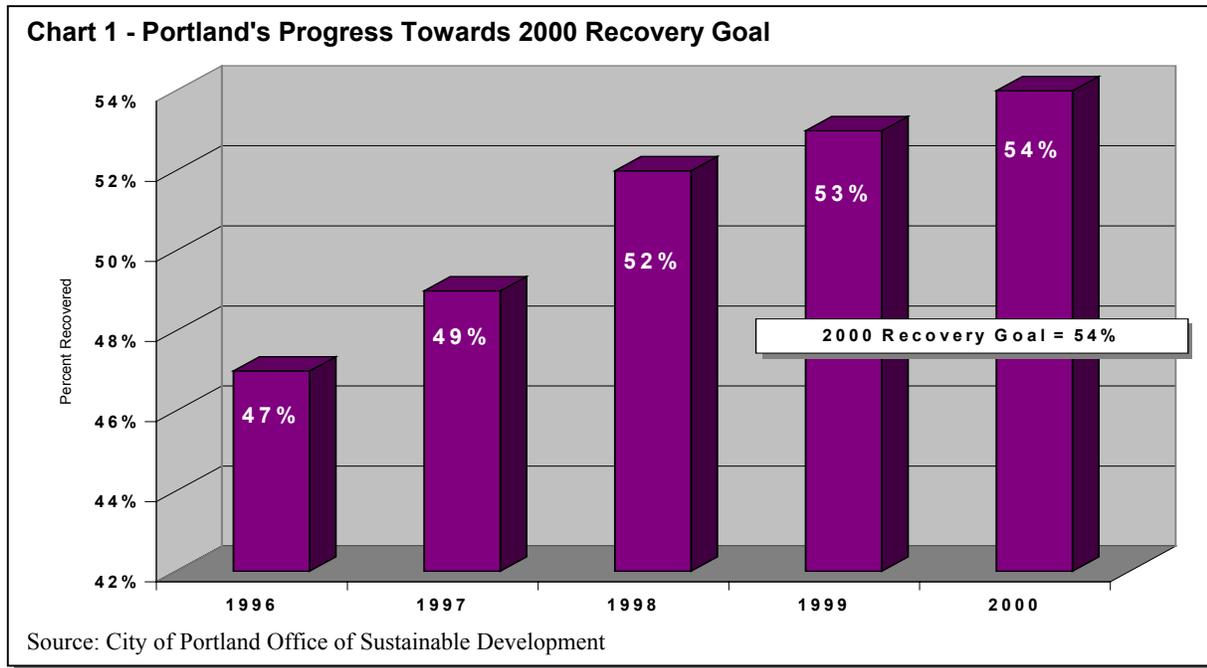
¹Other Recovery = home composting & bottle bill recycling

Source: City of Portland Office of Sustainable Development

Table 3 shows the amount of solid waste generated and recovered in the residential and commercial sectors. Note that the commercial waste stream is over three times the size of the residential.

service to customers), as well as estimates of self-hauled recycling and recycling by sorting mixed loads of waste and recyclables at local facilities.

Portland's overall recycling for 2000 was estimated to have been about 554,000 tons, 54% of the approximately 1,025,000 tons of total material generated.



Program Overview

For purposes of regulation, planning, program design and evaluation, Portland's waste and recycling collection system is divided into two sectors, residential and commercial.² In 2000 about 23% of Portland's waste originated in the residential sector and 77% from the commercial sector (see Table 3). This section describes the mechanics of the residential and commercial programs.

Residential

Portland's franchise system for residential solid waste and recycling collection began

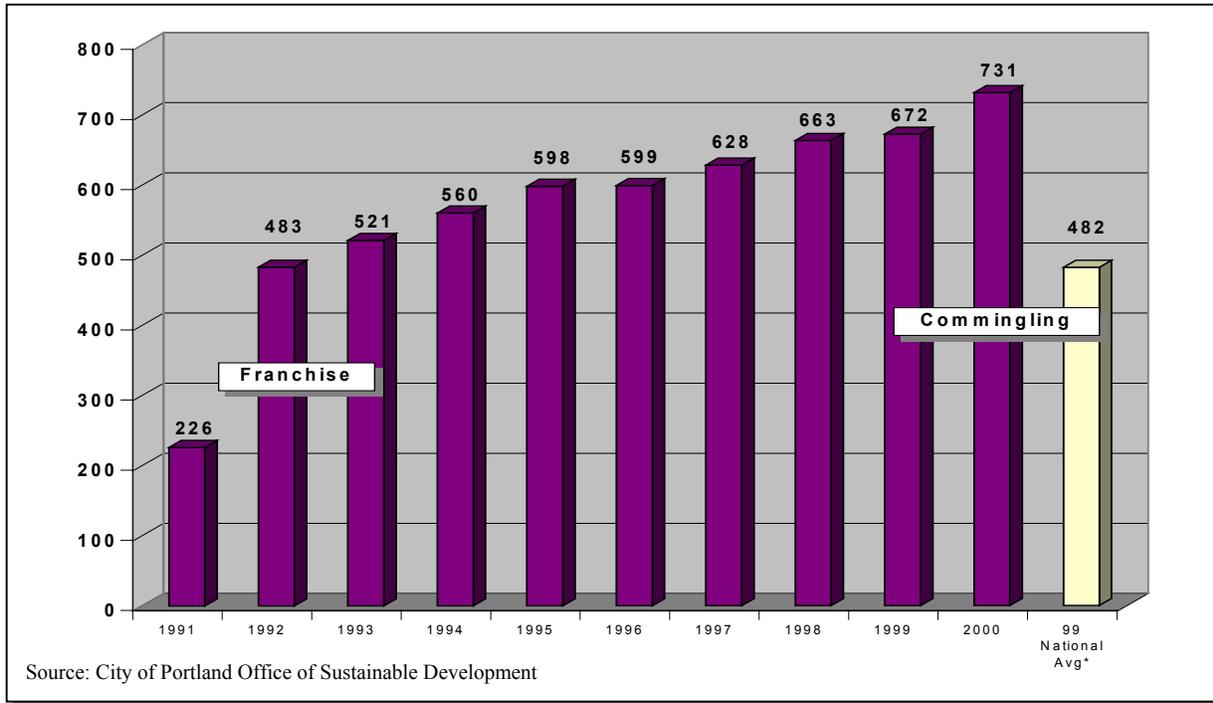
in 1992. Service is provided to 132,000 households by 38 private haulers.

Residential customers are provided with weekly collection of recyclables on the same day as garbage and every-other-week collection of yard debris.

The SW&R Division revamped Portland's collection program in the fall of 1999 to allow customers to commingle recyclable materials. Most notably, customers still use two recycling bins, but are required to keep glass separate to remain consistent with requirements for the haulers. The change in our system was made because of improvements in sorting technology in the recycling industry and because it allows greater collection efficiencies, helping to hold down costs.

² As used in this document, "residential" refers to single-family through four-plex homes, whether rental or owner occupied. "Commercial" includes all businesses, that is, everything that is not "residential." Multifamily properties of five or more units and materials generated by the construction and demolition industry are considered "commercial."

Chart 2: Portland Residential Recyclable Material Diverted Per Customer Household Per Year 1991-2000



In 1991, Portland residences recycled 226 pounds per household through the monthly curbside program. In 1992 after implementation of the new franchise system the amount rose to 483 pounds per household and by 2000 after moving to a commingled collection system, the amount increased to 731 pounds per household. Chart 2 shows the growth of residential curbside recycling volumes during the 1990's.

local markets. Over 80% of Portland households set out recyclables at least three times per month and the overall residential recycling rate in 2000 was 52.3%. The City has considered adding recyclables such as plastic tubs and bags to the residential program, but the market for these materials have not been sufficiently established to support collection.

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In 1994, the first full year of Portland's every-other-week yard debris collection program, the average Portland household recycled 230 pounds of yard debris. By 2000, the amount had increased to 302 pounds.

The solid waste disposed per household has dropped by over 13%, from 1,697 pounds per household in 1992, to 1,471 pounds per household in 2000.

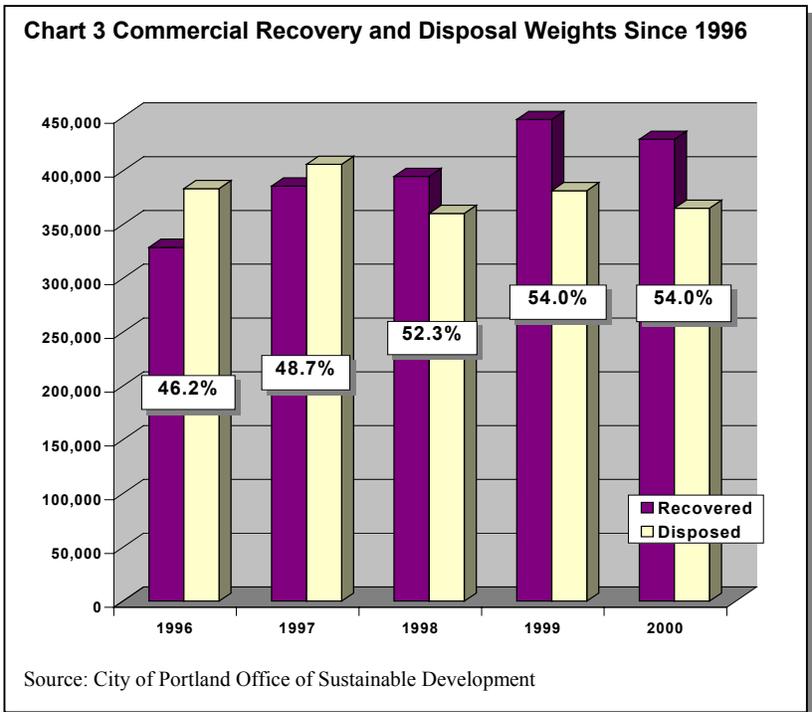
Portland's residential curbside recycling program has successfully captured most of the "traditional" recyclables, given current

Commercial

The commercial sector generates three times as much waste as the residential sector and addresses a broader target audience. The SW&R Division has accordingly dedicated a larger share of resources to its commercial programs.

Unlike Portland's residential franchise garbage and recycling system, the commercial collection system is open and competitive. This allows commercial customers to choose among 64 permitted haulers in the city, and to negotiate rates and services. Beginning in January 1996, all commercial businesses were required to recycle. This includes multifamily complexes as well as construction projects with a permit value of \$50,000 or more.

Since 1996 the recycling rate in the commercial sector increased from 46.2% to 54% in 2000. Chart 3 shows the steady increase between 1996 and 2000.



provide recycling shelters, containers and education to multifamily complexes, including training sessions for owners and managers and printed informational materials for tenants. Metro contributed about \$1 million of this funding, along with providing regional coordination and educational materials. Portland State University (PSU) students and the Portland Energy Office provided marketing,

Multifamily

Including multifamily in the commercial program is common in the waste collection industry. Collection arrangements for multifamily complexes are typically part of a property owner's business operation, and the collection routes and equipment for multifamily are generally the same as for other businesses rather than those used for single-family through four-plex homes.

While the City's commercial mandate did not take effect until January 1996, SW&R began offering multifamily recycling assistance in 1989, substantially increasing the number of multifamily complexes that provided recycling to residents. From 1989 to 1996, the City spent \$2.2 million to

education and outreach for this program.

As a result of the City/Metro/PSU program, as well as through independent efforts by haulers and complex owners and managers, a 1996 generator survey found that 98% of all multifamily complexes reported they were recycling and that 88% reported recycling four or more materials. (See Portland State University under Appendix 2 for more information)

A recent survey of calls received at the Metro Recycling Information Center (RIC) in 2000 indicated that 54% of the callers who live in multifamily complexes had questions about basic recycling versus 31% of callers living in single family homes who

called about recycling. The results of this survey suggest that multifamily residents need more information on recycling and perhaps a more uniform collection program.

Despite the high percentage of complexes that are reporting that they recycle; site visits, calls to the City's recycling hotline and calls to Metro's RIC suggest that recycling services in the multifamily sector can be improved.

Business

Over 16,840 commercial accounts and 3,070 multifamily accounts in Portland are subject to the 1996 recycling requirement. This includes office, retail, food generators, medical, manufacturing, transportation, utility, institutional, personal service and other establishments. Prior to 1996, businesses could request recycling service from their hauler or independent recycler at their own initiative. The City's 1999 generator survey found that 82% of all businesses reported recycling four or more materials, an increase from 55% in 1996. The survey also identified over 20 different items recycled by businesses. Participation in the commercial sector appears to be high, but there is still ample room for businesses to recover more materials.

Food Waste

Food waste, food contaminated paper and waxy corrugated cardboard generated by restaurants, grocery stores, food processors, caterers, bakeries, universities, hotels and hospitals make up the largest segment of the commercial waste stream without a recycling system. In March 2000, the City started two pilot projects with two

types of waste hauling companies – one large hauler and the other a consortium of smaller haulers. These haulers were to collect source-separated food waste from a variety of food generators and experiment with several methods of collection. By March 2002, the City plans on identifying an organics processor that will accept and process Portland's organic and food waste material.

The City's food waste program will receive considerable attention in the next few years because it makes up such a large portion of the waste stream without a processing system in place and will be the major contributor to increasing the recycling rate.

Construction and Demolition

The construction and demolition (C&D) sector generates about 26% of the commercial waste stream. Based on Metro's 1998 C&D solid waste generator survey, tenant improvement contributes over 76% of the construction waste disposed in Portland, despite the fact that only 18% of all permits are issued for this type of construction. Tenant improvement is characterized by two phases: a demolition phase and a reconstruction phase, both of which typically create large amounts of waste. A second significant source of C&D waste is new construction, with a small number of large projects creating the bulk of this waste.

The C&D sector contributes a large amount of materials to the waste stream and will be a primary focus for the SW&R Division to increase recovery.

Programs for the Next Five Years

To achieve a 60% recycling rate in 2005, the SW&R Division has identified a number of relevant activities. These activities are described below. Reaching the 54% recycling goal for 2000 represents a great accomplishment. Achieving the next six-percentage point increase is expected to be more difficult. SW&R strategies will emphasize four elements:

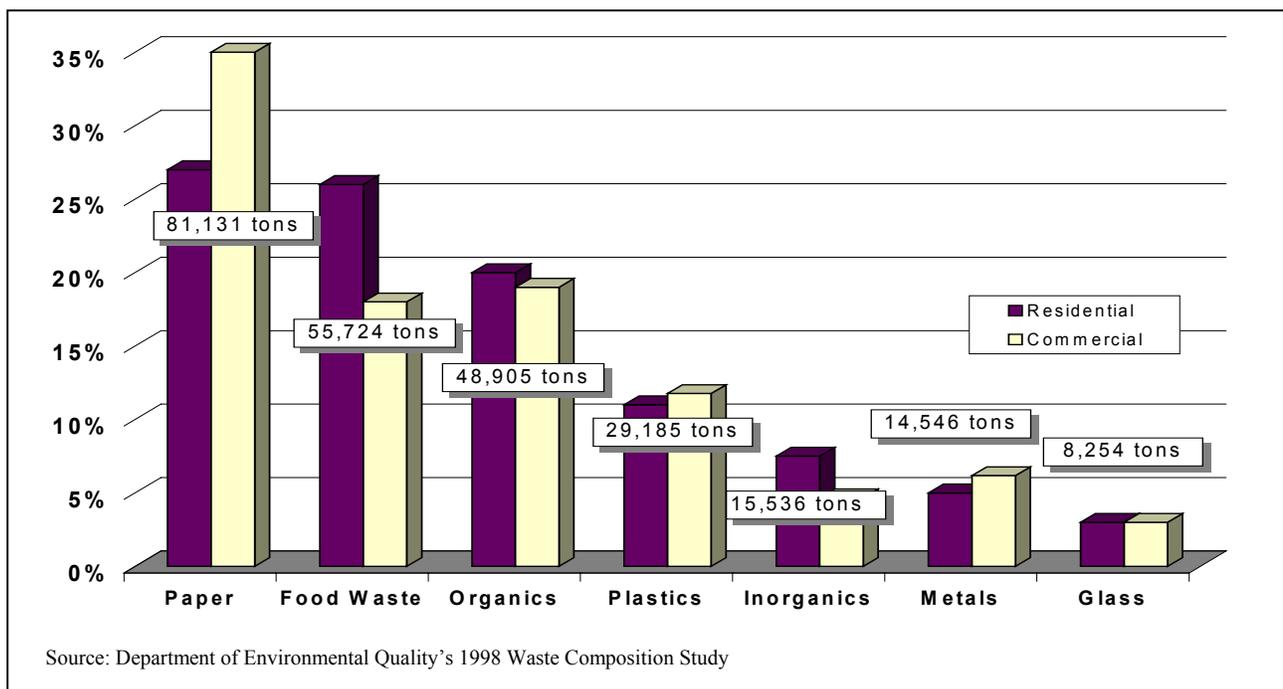
- 1) Targeting the materials that continue to make up the bulk of disposed waste;
- 2) Reusing materials;
- 3) Preventing waste; and
- 4) Promoting sustainability, including considering the environmental and community impacts of all phases of generating, collecting, and disposing of waste.

The initiatives described below are categorized into three areas: residential program activities, commercial program

activities, and supporting program activities. Supporting program activities include 1) developing broad-based education efforts that are expected to reach both residential and commercial audiences, 2) utilizing best practices for collection and disposal, 3) exploring opportunities for expanding the list of materials recovered, 4) incorporating innovations in measuring program success, and 5) promoting product stewardship and waste prevention. Recovery and recycling of electronic products will receive particular attention in several of these efforts.

Modifications to the residential program will likely be necessary in the next few years. New materials may be added if markets for certain commodities hold firm. City policy has dictated that SW&R add materials to the list of recyclables only when they are judged to have stable and reliable markets for the foreseeable future. Materials may include textiles, plastic tubs, plastic film,

Chart 4 – Composition of Portland Waste Stream, 1998



household batteries and food waste. As local processing and collection capability for organic waste is developed, the City will evaluate the feasibility and associated costs of recycling food-related organics from the residential sector. In addition, public education efforts will be evaluated and revised. SW&R will also explore educating residents on environmentally toxic and damaging materials and products.

SW&R will identify residential areas of Portland with low recycling participation or large waste containers and conduct targeted outreach programs to increase recycling in these areas. Additionally, the division will reevaluate the way service is structured to identify new ways to reward customers for recycling more materials and generating less waste.

In the commercial sector, the prevalence of paper and food waste in commercial waste (see Chart 4) demands that future efforts focus first on these materials. The commercial program will continue to pursue recovering food waste from restaurants, grocery stores and food distribution centers and establishing a local organics processor. It will also emphasize ongoing education for the construction and demolition and business sectors regarding the existing recycling ordinance. These education efforts will include a strong waste prevention element, since many businesses recycle but few systematically try to prevent waste.

As we continue to assess our progress toward recycling goals, if it appears that we are falling short, SW&R will consider banning selected materials from garbage collections, such as yard debris in residential and cardboard in commercial.

As SW&R develops programs to recycle, reuse and prevent waste of materials in the community, it will continue to work internally on City practices and policies. Currently, the City seeks to minimize its impact on the environment by such efforts as recycling all material possible, reducing the amount of

paper consumed, duplexing and printing drafts on used paper, purchasing recycled-content items, programming monitors and computers to automatically shut off, encouraging mass transit, utilizing electronic options for holding meetings when possible, and conserving energy and water.

The City and the community's efforts are expected to increase the recycling rate in Portland toward its goal of 60%. At the same time, however, the recycling goal is part of a larger, overall mission to promote environmental, economic and community sustainability. If completely successful, some SW&R initiatives may even negatively impact the recycling rate while advancing sustainability. Waste prevention, for example, could decrease the recycling rate if the waste that is avoided would otherwise have been recycled and accounted for in the recycling rate.

Other initiatives, such as promoting collection equipment and methods that save fuel for the haulers, may not impact the recycling rate but are important elements in SW&R's overall sustainability plan.

In the pages that follow, initiatives that are expected to increase the recycling rate are marked with a ♻️ symbol. Initiatives that will primarily advance sustainability goals are indicated with an 🌍 icon. The bulleted actions listed below the initiatives are in order of importance and general priority.

It should come as no surprise that every one of the programs that improves the recycling rate also advances the overall goal of sustainability. The manufacturing, distribution, consumption, and disposal of tangible goods has an enormous impact on our society and our environment. The way we manage our waste—including how much we generate—has wide-ranging repercussions not just for landfills but for water and energy resources, biodiversity, human health and global warming.

The City recognizes these important connections, and the City's *2010 Local Action Plan on Global Warming*, for example, sets a target of reducing greenhouse gas emissions from solid waste and recycling by 0.23 million metric tons or just over 7% of the City's total goal.

The role of solid waste management in addressing global climate change is

indicative of its importance to a host of environmental and social issues. Generating and managing solid waste responsibly is a great challenge, and one that is central to achieving sustainability.

SW&R has developed the following policy goals and program activities to help continue Portland's progress toward a sustainable future.

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Residential Program Goals and Activities



Participation

Increase residential recycling participation.

Currently, the recycling rate in the residential sector is 52.3%. Following the substantial increase after introducing commingling in the curbside recycling program, the recycling rate has increased slowly. Besides adding food waste to the list of recyclables collected, which the SW&R Division will review once there is a viable processor taking organic material, City staff will focus its attention on increasing participation.

Actions:

- Develop outreach programs to serve low-participation areas in Portland.
- Review other potential economic incentives for citizens to increase the amount of material they recycle and decrease the amount they dispose of as waste.



Recyclable Material Collection

Expand curbside recyclable material collection.

The residential curbside program currently accepts recyclables separated from waste into five categories. Because of instability in the markets for various recovered materials in recent years, materials have not been added to the curbside program.

Actions:

- Monitor the stability of markets for recoverable materials that are not yet collected at curbside.
- Investigate adding recyclable materials to the curbside program, considering market capacity, collection feasibility and public interest. Materials could include textiles, plastic tubs, plastic film and household batteries, among others.
- Review collection techniques and efficiencies.

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Yard Debris Recycling

Improve current yard debris program to increase recycling.

Waste composition studies show that yard debris continues to enter the solid waste stream. The current system provides every other week pick up of yard debris.

Actions:

- Conduct pilot project with every other week collection of yard debris in 60-gallon rollcars.
- Research whether existing yard debris conversion factors are accurate. The SW&R Division will review changing the conversion factors to reflect the weight of actual loads.
- Provide information to customers on benefits of backyard composting and grasscycling
- Work with Metro to encourage home composting through annual compost bin distribution sales.
- Research weekly collection of yard debris and providing rollcars to customers.
- Review efficiencies in automation of collection of yard debris.



Neighborhood Cleanups

Improve neighborhood cleanup programs and provide access to more citizens.

SW&R has assisted neighborhood associations with one-day drop-off clean-up events for residents since 1991. In February 1999, SW&R contracted with Central Northeast Neighbors to provide a series of one-day bulky waste collection events in Portland neighborhoods. The project is intended to reduce illegal dumping and neighborhood nuisances by providing a curbside service for appliances, furniture and other large items that are difficult to handle. Approximately 32% of the eligible households in the selected neighborhoods are participating. Of the material collected about 55% is recovered.

Actions:

- Continue to provide education material on the proper disposal of household hazardous waste.
- Continue the partnership with Metro who provides a financial contribution in the form of disposal vouchers for waste collected at neighborhood cleanup events.
- Promote and encourage traditional drop-off clean-up one-day events.
- Improve the existing Bulky Waste door-to-door collection events to recover more material and reuse more of what is collected. Review which materials should be recycled rather than reused because of their broader environmental impact. For example, refrigerators are currently sent to centers for reuse, but because of their energy consumption and hazardous material (freon), recycling may actually be the preferred option.



No Service Households

Review applicability of requirement of garbage service at households.

In Portland, garbage service is not mandatory for owner-occupied housing. Currently, about 7% of households in Portland do not have garbage and recycling service, and there is little information on how those households dispose of their waste. A small percentage of these households do not generate enough waste to warrant having service, and about 15,000 tons of waste is self-hauled to transfer stations. There is some concern, however, that some of these households are illegally dumping their waste or may not be recycling.

Actions:

- Research the percentage of garbage generated by no-service households.
- Explore methods to increase recycling and decrease illegal dumping.

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Commercial Program Goals and Activities



Food Waste/Organics

Develop programs to collect and process food waste.

Waste composition studies conducted by DEQ show that food waste, food contaminated paper and waxy corrugated cardboard make up the largest segment of the commercial waste stream. Currently, there is no recycling system in place for these materials. Based on these studies, the City has estimated 35,200 tons of food waste and food-contaminated paper currently enters the commercial waste stream.

Actions:

- Provide financial incentives to site a processor in the local area to handle the food waste generated from certain restaurants, grocery stores and food distribution centers.
- Partner with Metro on siting a processor and creating a regional organics initiative.
- Review the potential to modify building or zoning codes to allow for more space if there are space issues at a business.
- Create a requirement that certain businesses recycle food waste and implement an enforcement mechanism.

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Construction and Demolition (C&D)

Educate contractors about existing requirements and inform them of recycling opportunities.

All building projects in Portland with a permit value of \$50,000 or more (including construction and demolition phases) are required to separate and recycle certain materials from the job site. In 2001, over 2,100 packets of information were mailed to contractors informing them of the recycling ordinance and providing them with a recycling plan form. A Metro study found that tenant improvement and new construction projects are contributing the majority of construction and demolition waste.

Actions:

- Create a “green” tenant improvement manual and specifications for contractors, developers and architects to reduce waste and increase the use of recycled-content materials.
- Review methods that will increase recycling in the tenant improvement side of construction and demolition projects.
- Publicize Metro’s C&D Tool Kit and recycling guide, now available on the internet as well as in hard copies.
- Evaluate the current C&D recycling program.
- Review actual specifications to develop building guidelines for architects and contractors.
- Research other programs nationally and internationally.
- Research the permitting process and identify opportunities for informing contractors.
- Survey Metro transfer station employees to identify the sources of mixed loads that could be recycled.
- Explore enlisting the Office of Planning and Development Review in educating contractors and enforcing the recycling requirement.
- Review incentives to change behavior, such as a program in which contractors pay an up-front recycling deposit. After completing construction, the deposit would be refunded to contractors who could demonstrate that they recycled.



Business Assistance

Improve technical assistance program and outreach to businesses and create a comprehensive waste prevention program.

Since 1996 the City has provided businesses and organizations with assistance to improve their recycling programs in order to comply with the recycling requirement. This has been predominantly accomplished through a contract with Portland State University's Community Environmental Services. Most businesses and residents are familiar with and actively participate in recycling. However, much more can be done to increase levels of paper recycling in office buildings, in particular. In addition, waste prevention can make a big impact on the amount of waste generated and sent to landfills. Avoiding excess packaging, buying a product in an appropriate quantity, or not buying a product at all can have an enormous impact on the waste stream, as well as saving businesses money.

Actions:

- Evaluate and improve the technical assistance program with Portland State University in order to assist more businesses with recycling and waste prevention.
- Partner with other bureaus and departments in the City on conservation measures, such as water, energy, and transportation.
- Partner with Metro and local jurisdictions to create a uniform assistance program and database that can be measured. Include waste prevention, reuse and buy-recycled education in the assistance program.
- Support business-to-business networks and associations that are working to increase recycling and provide information on waste prevention and sustainability practices in the commercial sector.
- Develop a targeted effort to increase recycling and reuse of paper in office environments.
- Develop programs that focus on other recyclable materials that remain in the waste stream in large quantities, including cardboard, plastics and food waste.
- Continue to provide assistance on event recycling to companies and organizations.
- Research waste prevention programs around the country and develop a comprehensive program for businesses.
- Incorporate waste prevention and buy-recycled education into PSU's technical assistance programs for businesses.
- Develop and conduct a business outreach program to deliver the waste prevention message and encourage the use of green purchasing policies or standards.
- Work with neighborhood business associations to promote increased recycling and waste prevention at their member businesses.



Multifamily Education and Opportunity

Educate multifamily tenants on recycling and provide them with a more uniform program and the opportunity to recycle more materials.

Currently multifamily property owners are required to offer containers for recycling

five materials (scrap paper, newspaper and three other items of their choice). With more hauling companies commingling materials, apartment complexes are able to recycle more than five materials without providing more containers. Educating property managers and tenants on proper preparation of materials is a key issue in the multifamily sector. Creating a more uniform recycling system for residents of multifamily housing will allow SW&R staff to provide more frequent and consistent education literature and outreach to the multifamily sector.

Actions:

- Review creating a more uniform multifamily program to enable standardized education materials and enhance outreach efforts to property managers and tenants.
- Continue to resticker existing recycling shelters or facilitate the replacing of shelters for rollcarts to acknowledge the increased commingling of materials.
- Review the list of mandatory recyclable materials the City requires multifamily owners to provide to residents for recycling, and consider adding cardboard, paper (fiber) and all mixed containers to the list.
- Conduct a waste sort at multifamily complexes to identify the waste composition.
- Create a program for schools to educate children who currently live in apartments and who may live in apartments when they are older.

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Supporting Program Goals and Activities



Program Development

Identify materials remaining in the waste stream to help develop recycling and waste prevention programs.

Waste composition studies identify the materials in the waste stream that could be recovered or reduced. This information allows SW&R staff to design and adapt programs to capture or eliminate those materials.

Actions:

- Continue to review waste composition studies conducted by DEQ, Metro and other organizations.
- Conduct and analyze waste composition studies to determine the materials on which SW&R should focus its efforts.



Education

Improve overall education and outreach efforts on recycling and waste prevention to all sectors.

Education is an integral part of continuing successful recycling and waste reduction efforts and increasing participation. The SW&R Division has developed and distributed newsletters, literature, flyers and stickers to citizens and businesses in recent years. Currently, brochures describing how to prepare

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recyclable materials at home are available in 11 languages. These educational approaches and materials need to be evaluated and revised regularly. Target audiences may change over time, and materials may need to be modified accordingly. Recent experience suggests that direct mail is a better tool for reaching the target audience than newspaper ads, and efforts in the near future will focus on improving the literature sent to citizens and businesses.

Actions:

- Conduct a waste sort in the residential sector by trash container size to determine if certain can sizes usually have the largest percentage of recyclables in them.
- Evaluate current outreach mechanisms and strategies.
- Utilize the *Curbsider* to inform citizens about sustainability issues in the community.
- Educate people about how they can reduce the amount of material they generate.
- Focus outreach strategies on the construction and demolition sector, waste prevention, roll-cart customers, areas with low participation and multifamily.
- Educate the “super recycler.” Get the people who are already recycling at a high level to do more.

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Product Stewardship

Partner with local and state governments on product stewardship initiatives.

Product stewardship (also known as “extended product or producer responsibility”) means creating ownership throughout a product’s lifecycle. Manufacturers, retailers, consumers and government entities each may play a role in the shared-responsibility of reusing, refurbishing, or remanufacturing a product and handling the product responsibly at the end of its useful life.

Actions:

- Continue to participate in local, regional, state and national efforts to address product stewardship issues.
- Support legislation to require product stewardship initiatives such as “take back” requirements.
- Develop end-markets for materials. In particular, review opportunities for recovery of electronic wastes—televisions, computers and cell phones, for example—at the end of their useful life.
- Research various options for manufacturer, producer and consumer responsibility.



Market Development

Partner with state and local government and private and nonprofit organizations to improve, stabilize and expand markets for recyclable and compostable materials.

In order for the SW&R Division to expand recycling rates, it is necessary to assist in creating markets for materials that are recycled. Without viable and stable markets for recyclable materials, recycling is simply not possible. The SW&R office has participated in market development efforts through state and local partnerships.

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Actions:

- Continue to participate in state and local efforts to improve markets for recyclable materials.
- Continue to financially support the Oregon Recycling Markets Development Corporation.
- Continue partnering with Portland Parks and Recreation. The SW&R Division has already spent over \$150,000 to purchase scrap tire crumb rubber to improve the play surface of a soccer field at Lents Park.
- Develop and support market development legislation at the state and federal levels, as well as local policy initiatives in this arena.
- Partner with the Portland Development Commission to support and encourage the market development of companies specializing in recycled-content products.



Program Measurement and Evaluation

Investigate using new measurement and evaluation tools to assess the cumulative impact of solid waste on the environment and community instead of focusing exclusively on its impact on landfills.

SW&R program success has historically been quantified by tonnage land-filled versus tonnage recycled. It has become clear, however, that the cumulative environmental impact of materials varies widely—and rarely in direct proportion to its weight. Tools that apply life-cycle analysis to assess the embodied energy, greenhouse gas emissions, resource depletion, water and air pollution, and toxicity are now being developed. These tools provide an important supplement to conventional measures of solid waste management.

Actions:

- Gather data and work towards creating a tool to measure materials the SW&R staff should focus programs on that take into account the impact of toxic materials, scarce resources, pollution, energy consumption, leachate – the liquid that has percolated through land disposed waste, carbon dioxide emissions, methane gas emissions, water consumption, and other factors impacting the environment.
- Research existing tools and life-cycle analyses to measure and evaluate program success in addition to continuing to track recycling rates by weight.



Waste Prevention

Educate citizens and businesses to prevent waste.

For years the solid waste and recycling program has focused its efforts largely on recycling and keeping materials out of the landfill. But recycling is not the only answer. The well known recycling mantra of “reduce, reuse, recycle” suggests clear priorities: prevent waste first, then reuse, and only then recycle. With an increasing population, future programs must place a greater emphasis on the prevention of waste. This is a challenge that is central to the success of SW&R’s mission.

Actions:

- Be a model for businesses by implementing City government green purchasing policies.
- Review waste composition studies and recycling reports to identify promising materials and products for waste prevention efforts.
- Work with BOMA and other business associations to promote waste prevention.
- Work with CEO’s of 100 major local businesses to promote green purchasing and business practices.
- Provide brief summaries of all SW&R reports (email or post on website) so recipients won’t have to print entire documents.
- If data supports incentives as a way to improve waste prevention, the City will consider them for implementation.
- Work with Metro to develop education curriculum for classrooms to influence the future buying habits of the young.
- Educate businesses about changing purchasing policies to prevent waste.
- Educate residents to change purchasing behavior.
- Market the concept of “not buying” products.
- Promote waste prevention through an advertising campaign, competition and technical assistance.



Best Practices for Collection and Disposal

Minimize environmental impacts of the collection, disposal and processing of solid waste and recyclable materials.

Collecting, processing, recycling and disposing of solid waste consumes large amounts of resources and impacts local environmental quality and contributes to global warming. Researching best management practices and increasing efficiencies can reduce the amount of pollution produced improving local air and water quality, and reduce the amount of natural resources consumed.

Actions:

- Ensure worker safety when considering changing collection and disposal systems.
- Review garbage truck automation and whether it is feasible to implement.
- Review increasing efficiencies and reducing truck traffic.
- Review alternative fuels for garbage and recycling trucks.

Five Years and Beyond

Achieving the 60% recycling goal by 2005 will not by any means solve the waste problem. Waste generation will likely still increase and create even more critical environmental impacts and demands on landfill space. Based on waste generation forecasting, Portland's waste will increase by 150,000 tons between 2000 and 2005 which means a substantial amount of waste will continue going to the landfill. As discussed previously, calculating tonnage amounts is an easy process used for

evaluation and measurement purposes, but there are other, more significant, environmental impacts to consider in developing and evaluating reduction strategies. These impacts, calculated through life cycle analysis and "embodied energy" models, will become more common and will allow us to identify and measure activities on various levels. The following activities are likely to make the biggest impact in reducing the impact of future waste generation on the environment.

Residential Program Goals and Activities



Food Waste in the Residential Sector

Review implementing a residential food waste collection program.

- Review the feasibility of a co-collection system for yard debris and food waste. Proceeding with such a system will depend on the success of the food waste collection program in the commercial sector and whether a local processor comes online and becomes viable.



Recycling and Garbage Collection

Increase efficiencies in collection of garbage and recycling.

- Review moving from manual to automated processes.
- Evaluate collection technologies from a resource conservation viewpoint.

Commercial Program Goals and Activities



Waste Prevention

Decrease the overall solid waste and recycling tons.

- Review the feasibility of setting a waste prevention goal for 2010, including possible methods of measurement.

Supporting Program Goals and Activities



Program Measurement and Evaluation

Improve and expand SW&R program measurement and evaluation. Change measurement tools from a “tons to landfill” model to a cumulative environmental impact model.

- Utilize this new model for determining SW&R program success and environmental impacts of solid waste and recycling on our community. Set new goals based on this new modeling tool.



Disposal Bans

Review materials that could potentially be banned from the landfill.

- Materials that SW&R will likely focus on include appliances, electronics, and mercury because they contain a mixture of hazardous and recyclable materials. Other materials like yard debris and cardboard are both plentiful and easily recycled.

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Financing for the Future

The OSD's Solid Waste & Recycling programs are primarily funded through the residential franchise fees and the commercial tonnage fees paid to OSD by garbage haulers. Additionally, specific programs or pilot projects may be funded through grants sought and obtained by the SW&R Division. Currently, there are four studies being conducted by SW&R through grants provided by Metro.

There are a number of programs funded through fee revenue from SW&R that are managed by other City agencies. These programs are: illegal dumping cleanup managed by the Office of Planning and Development Review, leaf pickup for FY 2001-02 managed by the Office of Transportation and green building services managed by the Office of Sustainable Development's Green Building Division. For more in depth information on SW&R financing and forecasting, please see the 2001 *Solid Waste Management Fund Five-Year Financial Plan*.

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Appendix 1: Waste Forecasts, Composition, and Generators

Forecasting Future Waste Generation

Forecasts of future waste generation were developed in 1996 by SW&R through a grant awarded from the Municipal Solid Waste Management Association. The forecast projected an amount of material that would be generated based on 1995 levels, modified by population and per capita income. Comparing these forecasts with actual generation figures in future years may provide an indication of the effectiveness of the City's waste prevention efforts (see Table 4).

Waste Composition and Generator Data

Waste composition studies and generator surveys provide guidance to SW&R program development. Waste composition studies identify the relative proportions of materials remaining in the waste stream, suggesting materials to target for recycling

efforts. DEQ's 2000 Waste Composition Study, for example, found that organics made up over 19% of the commercial waste going to the landfill. In response, SW&R is conducting pilot projects on the collection and processing of food waste.

Generator surveys provide insight into the behaviors and habits of businesses and residents. Data from the surveys help identify which sectors need attention, determine which materials to emphasize, and provide a gauge of awareness levels on various issues. Despite the usefulness of generator surveys in determining participation, information is self-reported and must be interpreted cautiously. Additionally, they do not identify how much of a certain material a generator is recycling.

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Table 4: Waste Generation and Recycling Rate Forecasts, 1996 through 2005

This table was calculated in 1998 to forecast future growth in waste generation in the Portland area. For 1999 and 2000, the forecast appears accurate. In 2000, for example, the total generated amount forecast shows 1,048,000 tons and the actual generated amount was 1,032,900 tons. While this decrease could be partially attributed to waste prevention, there are many other factors that contribute to the decrease in tonnage of garbage and recycling.

To achieve a 60% recycling rate in 2005, the total amount recovered will need to grow

to approximately 730,500 tons. Commercial recycling will need to grow to 597,600 tons, an increase of 168,300 tons (nearly 39%) from the estimated 429,300 tons recovered in 2000 from commercial sources.

The largest increase shown here is in 2002, when commercial recycling is forecast to grow from 56% to 59%. This growth is anticipated during the first year of widespread recycling of commercial food waste from food-related businesses, which should occur in 2002.

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Table 4: Waste Generation and Recycling Rate Forecasts, 1996-2005 (prepared in 1998)

1996-2000	1996 Estimate		1997 Estimate		1998 Forecast		1999 Forecast		2000 Forecast	
	Tons	%								
Residential Disposal	103,600		103,500		109,000		110,000		110,640	
Residential Recycling	97,000	48%	102,780	50%	109,000	50%	114,500	51%	119,800	52%
Commercial Disposal	383,500		406,100		366,000		366,500		366,750	
Commercial Recycling	329,000	46%	385,900	49%	408,000	53%	430,000	54%	450,750	55%
Total Material Disposed	487,100		509,600		475,000		476,500		477,500	
Total Material Recycled	433,000	47%	488,680	49%	517,000	52%	536,500	53%	571,000	54%
Residential Material Generated (~22%)	200,600		206,280		218,000		224,500		230,500	
Commercial Material Generated (~78%)	712,500		792,000		774,000		796,500		817,500	
Total Material Generated	913,100		998,280		992,000		1,021,000		1,048,000	

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2001-2005	2001 Forecast		2002 Forecast		2003 Forecast		2004 Forecast		2005 Forecast	
	Tons	%								
Residential Disposal	115,000		118,500		122,000		125,000		128,500	
Residential Recycling	150,000	52%	128,500	52%	132,000	52%	135,500	52%	139,000	52%
Commercial Disposal	373,500		358,700		360,000		351,000		350,000	
Commercial Recycling	475,500	56%	516,300*	59%	540,000	60%	573,000	62%	597,000	63%
Total Material Disposed	488,500		477,200		482,000		476,000		480,000	
Total Material Recycled	600,500	55%	644,800	57%	672,000	58%	708,000	60%	734,500	60%
Residential Material Generated (22%)	240,000		247,000		254,000		260,500		267,000	
Commercial Material Generated (78%)	849,000		875,000		900,000		923,500		947,000	
Total Material Generated	1,089,000		1,122,000		1,154,000		1,184,000		1,214,000	

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Appendix 2: Collecting, Processing and Tracking Portland's Waste

Where does Portland's waste go?

Collection

Portland's permitted and franchised haulers collect waste and recycling from businesses and residents and transport it to Metro-approved transfer stations or material recovery facilities for processing.

Independent recyclers collect material from businesses and transport it either to a private recovery facility or to their own facilities to be marketed locally, nationally or internationally.

Transfer stations

Haulers in Portland dispose of waste at one of three local transfer stations. Some waste that is delivered to the transfer stations is loosely sorted by employees to remove recyclable materials. Unrecovered material is transferred by truck about 150 miles to Columbia Ridge Landfill near Arlington, Oregon. Recovered material is marketed locally, nationally and internationally.

The transfer stations that receive waste from Portland haulers are:

Metro Central Transfer Station, Portland
Metro South Transfer Station, Oregon City
Forest Grove Transfer Station, Forest Grove

Material Recovery Facilities (MRFs)

MRFs are sorting facilities that receive dry waste from Portland haulers and recyclers. Materials are sorted by type and marketed as individual commodities locally, nationally and internationally.

Portland haulers and recyclers take their waste to the following MRFs:

East County Recycling, Portland
EZ Recycling/Farwest Fibers, Portland
KB Recycling, Clackamas
Pride Disposal, Portland
Willamette Resources, Inc., Wilsonville
Wastech, Portland

Landfill

Portland's waste is trucked from the local transfer stations to the Columbia Ridge Landfill, a general-purpose landfill located near Arlington, Oregon, and owned and operated by Waste Management. In 1990 Metro initiated a 20-year contract with Waste Management to dispose of waste from Metro transfer stations.

Waste and Waste Flow Reporting in Portland

Metro Regional Government

Detailed information on the flow of waste in Portland is available in Metro's *Solid Waste Information System* (SWIS) report. The SWIS integrates data on waste generation, delivery, disposal, recycling and recovery. It reports historical solid waste data and forecasts future waste flows. This information is used by Metro to set rates, develop budgets, devise facility management strategies, support regulation and enforcement, and develop and monitor waste reduction programs. The information produced by SWIS is published semiannually and is available at http://www.metro.dst.or.us/metro/rem/waste/swis_report.html

In 1998, Metro commissioned a *Construction and Demolition Solid Waste Generator Survey* to provide suggestions for new diversion programs and policies in the construction and demolition (C&D) industry. This survey was in response to the 1994 Waste Composition Study that found that nearly 26% of the region's disposed waste was generated by C&D projects.

Oregon Department of Environmental Quality (DEQ)

DEQ's *Oregon Solid Waste Composition report* (1998) is the most recent source of information on the waste composition in Portland and the Metro area. The City relies on this waste composition data as a

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snapshot of the waste at the time it was collected but does not assume it reflects the future waste stream. Unforeseen developments in the economy, markets for recyclables and regulatory policy, among other factors, may change the waste stream, but some materials are expected to continue to be more prevalent than others. These materials—food waste, construction and demolition debris, and paper and cardboard—remain a primary focus of SW&R efforts.

Portland State University

PSU provides information on waste generation in the commercial sector in the Community Environmental Services Program's *Portland Generator Survey* (1993, 1995, 1996 and 1999). The Generator Survey was a longitudinal survey of over 1,600 Portland businesses over a seven-year period to determine recycling participation among businesses. The survey was conducted at the same

addresses for all four survey years. The 1999 survey specifically focused on determining the progress of the City's ordinance mandating commercial businesses to recycle at least 50% of their waste. It found that 82% of all businesses reported recycling four or more materials.

City of Portland

The City collects monthly and quarterly reports from the franchised and permitted haulers and independent recyclers in Portland. Independent recyclers collect about two-thirds of the commercial recyclable materials that are collected by companies that report to the City. These reports, along with estimates of self-hauled recyclables and yard debris, home composting, sorted materials from recovery facilities and material recycled through the bottle bill, are used to calculate the recycling rates for Portland.

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Appendix 3: Partners and Complementary Initiatives

Solid Waste Advisory Committee (SWAC)

OSD's SWAC is an advisory committee comprised of citizens, business representatives, haulers and independent recyclers in Portland that meets on a monthly and/or quarterly basis. SWAC plays an integral role in guiding the development and implementation of solid waste and recycling programs that meet the needs of Portland residents and the business community. Additionally, SWAC advises SW&R on major decisions around recycling goals, program planning and policies.

Sustainable Development Commission (SDC)

The Sustainable Development Commission is comprised of individuals appointed by the mayor to advise City Council on energy, environmental and sustainable development issues for the City of Portland. The mission of this body is to encourage City decision-makers to enhance the livability and

economic vitality of the City of Portland through programs and policy decisions that protect the City's natural resources, provide for the efficient use of energy and water, protect the environmental quality of the built environment, and promote a sustainable future.

Oregon Department of Environmental Quality (DEQ)

Waste Policy Leadership Group (WPLG)
In 1999 the director of DEQ appointed a stakeholder group to make recommendations regarding future policy and program directions in solid waste management. WPLG members met through December 2000 and advised DEQ on issues such as waste prevention goals, recycling goals, product stewardship, used tires and bottle bills.

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Metro Regional Government (Metro)

The *Regional Solid Waste Management Plan* (RSWMP) was developed by the Metro Solid Waste Advisory Committee (SWAC), adopted by Metro Council, and approved by the Oregon Department of Environmental Quality. The plan provides direction for meeting regional solid waste needs through 2005. Three work groups were formed as part of the RSWMP comprising Metro staff and local government representatives. The focuses of the work groups are waste prevention, commercial organics and construction and demolition debris. The City's SW&R staff currently participate in each of these work groups. Their website is <http://www.metro.dst.or.us/metro/rem/waste/waste.html>

Data Collection

To use resources efficiently and better target programs, SW&R now relies on DEQ's waste characterization data to determine what recyclable materials remain in the waste stream. Portland supplements DEQ's budget for this data gathering to increase the sample size for Portland.

This plan does not include analysis of recycling and waste streams for which there is no readily available data—for example, for self-hauled waste and recyclables or for bottle bill recycling. There is no reliable data source for this information specific to Portland.

For a decade, Portland haulers and SW&R staff have expended considerable resources gathering, reporting and tabulating data on materials collected. While these data have helped track progress, they are not particularly useful in designing and modifying programs. Knowing what materials are not being diverted—and who is generating them—provides clearer direction for SW&R.

Similarly, using SW&R resources efficiently is especially important in deciding when to gather new data that are peripheral to our program, such as Portland's share of bottle bill recycling or self-hauled materials, both garbage and recycling. For Portland to develop a tracking system for these materials would require substantial resources but would not provide useful information for program design and other future allocation of City resources.

Note that in the residential sector, there is an ongoing need to track the amount of recyclables collected by franchisees. These data remain a necessary part of the residential rate making process, and City staff will continue to gather and tabulate them.

Market Development

In early 2001, Metro hired a full-time market-development specialist to work on stimulating markets in the region. This specialist oversees the new Market Development Loan Program. DEQ has also taken an active role in promoting market development by partnering with a non-profit organization called the Oregon Recycling Markets Development Corporation which was formed by the Association of Oregon Recyclers, Metro and the City's Solid Waste & Recycling Division through a grant to develop markets for materials. The City participates in efforts to develop markets in Portland by assisting local companies and organizations with pass-through grant funding from DEQ, for example. However SW&R believes that Metro and DEQ are better positioned to lead market-development efforts. The City will continue to maintain good working relationships with processors and to keep informed about market conditions and potential alternative markets.

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