

# I. Executive Summary

## Regional Executive Summary

The Regional Solid Waste Master Plan is the plan for managing the six-county metropolitan area's solid waste through the year 2017. The Regional Solid Waste Master Plan was prepared by the Solid Waste Management Coordinating Board ("SWMCB"), a joint powers board of the counties of Anoka, Carver, Dakota, Hennepin, Ramsey and Washington (the "Counties"), in conjunction with the Minnesota Office of Environmental Assistance ("OEA") and the Minnesota Pollution Control Agency ("MPCA"). The Regional Solid Waste Master Plan was prepared to fulfill the requirements of Minn. Stat. §115A.46 and §473.803.

The SWMCB's master planning process represents significant innovation in solid waste planning. For the first time, the Counties have collaboratively prepared their statutorily required master plans. The core of the master plan is a regional plan that the Counties have jointly prepared and agree to jointly implement. Each county also agrees to work towards specific outcomes to further the regional vision. This approach represents new levels of voluntary regionalization. In addition, innovation in planning is achieved by the new focus on outcomes, performance measurement and research based initiatives. Underlying this new approach is the understanding of the Counties, the region and the State that it will be more difficult over the next 20 years to achieve State and regional goals for waste management; it will be necessary to work together, leverage resources and target efforts to achieve the greatest impact.

The Vision and Goals for the region incorporate the direction of the Metropolitan Solid Waste Management Policy Plan and are described in [Section III](#) of the Regional Solid Waste Master Plan. The Regional Solid Waste Master Plan reflects a systematic effort to move the regional solid waste management system toward a vision of sustainability. To achieve a sustainable environment, the region must manage its waste in a manner that will not compromise future generations' ability to meet their own needs. The five goals represent elements of the vision of sustainability.

[Section IV](#) of the Regional Solid Waste Master Plan describes the existing solid waste management system. In 1997, the six-county region succeeded in managing 2,950,000 tons of waste in accordance with the State's hierarchy of preferred waste management practices. The region achieved a recycling rate of 49% including 3% source reduction and 5% yard waste credits. It processed 38% of its waste and landfilled 21%. Despite these successes, the region faces an alarming growth in waste generation over the next 20 years. It is projected that the region will generate an additional 2,000,000 tons of waste in 2017, for a total generation in excess of 5,000,000 tons.

[Sections V](#) through XV describe how the region will work to manage the region's waste in accordance with the State hierarchy of reduction, recycling, processing and landfilling. These sections set forth the Regional Outcomes, Negotiated County Outcomes, and Regional Implementation Strategies. It is important to note that the region will work to increase the focus on reducing the amount and toxicity of waste generated, recognizing reduction as the most sustainable of waste management practices. It is also important to note that the regional outcome for source reduction is very ambitious. Achieving this outcome, as described below, is essential to avoid costly and unpopular future decisions to build new processing facilities, to increase landfilling or both.

[Sections V](#) through X of the Regional Solid Waste Master Plan sets forth principal regional outcomes in the areas of: 1) source reduction; 2) reduction in toxic/hazardous character of waste; 3) recycling; 4) MSW processing; 5) MSW landfilling; and 6) nonMSW management. The principal outcomes for each of these areas are:

**Source Reduction:** From 2005 through 2017, per capita and per employee MSW generation rates will be no higher than the 1999 rates.

**Toxicity Reduction:** Principal Outcome #1: By 2003, the toxic/hazardous character of MSW will be reduced. Principal Outcome #2: By 2017, manufacturers and retailers will take responsibility for consumer products that contain toxic or hazardous components when the product becomes waste.

**Recycling:** Collectively, the region will achieve at least a 50% MSW recycling rate (including a 3% source reduction and a 5% yard waste credit) every year, through 2003.

**MSW Processing:** By 2017, the region will process 65% of MSW not reduced or recycled.

**MSW Landfilling:** Capacity for MSW will be available in sanitary landfills through the year 2017 for MSW that cannot be reduced, recycled, or processed. Sanitary landfills will be designed, operated and managed to protect the environment and public health.

**NonMSW Management:** By 2003, the region will see an increase in the reduction, reuse, recycling or processing of nonMSW to

preserve landfill capacity as a resource.

The principal outcomes are supported by several regional intermediate outcomes and the county negotiated outcomes. Figure I.1 summarizes the tonnage impact the principal outcomes will have on the management of the MSW.

Figure I.1

Impact of Achieving the Principal Outcomes (Tons of MSW Managed in the Six-County Region)			
	Actual 1997	Projected 2003	Projected 2017
MSW Projected	2,949,967	3,599,000	5,048,000
Reduction Outcome		235,000	1,342,000
MSW Generation After Reduction		3,364,000	3,706,000
Recycling Outcome	1,203,525	1,413,000	1,557,000
Subtotal	1,746,442	1,951,000	2,149,000
Problem Materials Otherwise Managed*	59,195	72,000	80,000
Subtotal	1,687,247	1,879,000	2,069,000
MSW Available for Processing (after reduction & recycling)	1,687,247	1,879,000	2,069,000
(+) Recycling at Processing Facilities	38,716	44,000	49,000
MSW Available for Processing Subtotal	1,725,963	1,923,000	2,118,000
Processing Outcome	1,102,852	1,323,500	1,377,000
Waste Needing Management	625,052	599,500	741,000

\* Tires, appliances, lead acid batteries, etc.

In summary, the achievement of the principal outcomes will have the following impact on the tons of MSW managed in the six-county region.

1. The region is projecting a 2.25% increase in per capita and per employee MSW generation. By 2017 this results in a projected amount of 5,048,000 tons, an additional 2,098,000 tons of MSW generated over the 1997 level.
2. The reduction outcome is very aggressive and many details for its accomplishment have yet to be developed. However, failure to achieve these ambitious regional outcomes will force community leaders and local and State policy makers in the foreseeable future to establish new processing facilities, significantly increase the volume of waste being landfilled, or both. In 2017, the region will need to generate 1,342,000 fewer tons of MSW than projected to meet the reduction outcome.
3. Recycling 42% of the tons of MSW through 2017 is the same as the region's current recycling rate. (Note that with the source reduction and yard waste recycling credits, the region has an outcome of a 50% recycling rate.) However, the tons of MSW requiring recycling in 2017 increases by 353,000 tons over the 1997 level. The region will need to increase its recycling from 1,204,000 tons in 1997 to 1,557,000 tons in 2017.
4. The processing outcome calls for maintaining the current processing rate of 65% of the MSW available after the reduction and recycling outcomes are achieved. The current capacity at the region's three primary processing facilities is 1,165,000 tons. To meet the principal processing outcome, the region would need to have an additional 212,000 tons of available capacity by 2017.

- With the achievement of the reduction, recycling and processing outcomes, the region will have 741,000 tons of waste needing management either through landfilling or another management strategy by 2017. This represents an increase of 116,000 tons over the tons of MSW landfilled in 1997.

Each of the sections in the Master Plan further describes the principal outcomes and the strategies needed to achieve these principal outcomes. The strategies recognize that to achieve the outcomes, the SWMCB will need to work closely with the business community, waste industry and other waste generators.

Each of the sections in the Regional Solid Waste Master Plan further describe the principal outcomes and the strategies needed to achieve these principal outcomes. Finally, [Section XVI](#) addresses measurement of the region's performance in achieving the outcomes and implementing the various strategies.

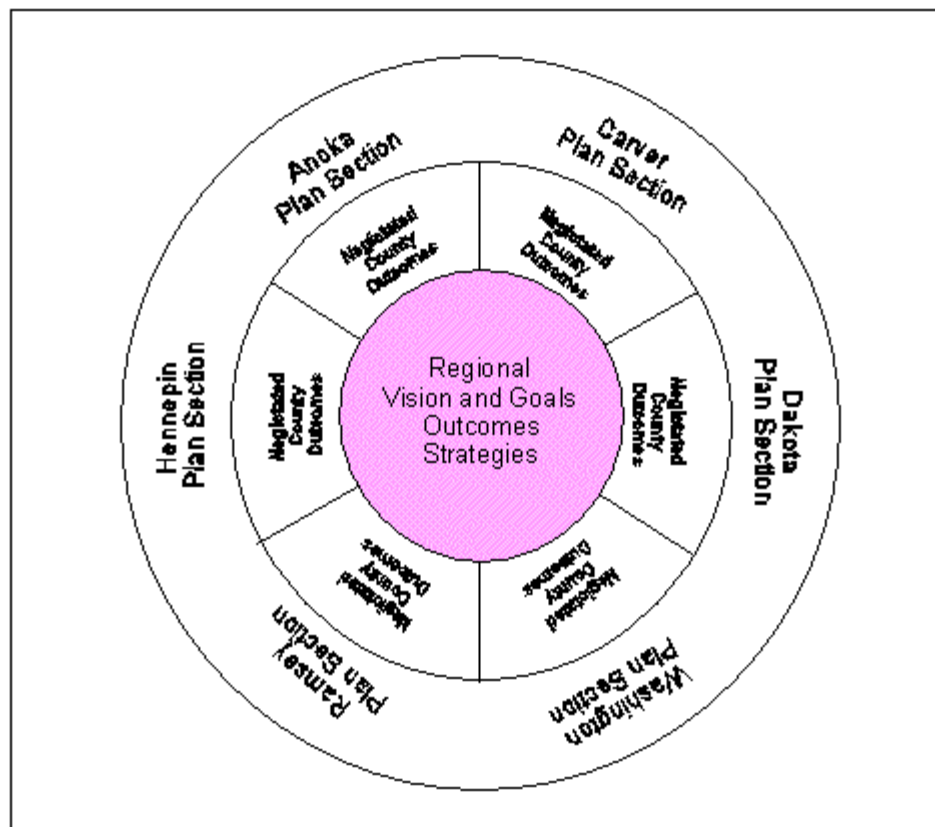
## II. Introduction and Plan Preparation

### Regional Introduction and Plan Preparation

#### Plan Preparation Process

For the first time in the development of a solid waste master plan, the SWMCB counties agreed to prepare a joint master plan, with individual county sections attached to the Regional Solid Waste Master Plan core. The regional elements are called the "Regional Solid Waste Master Plan". The Regional Solid Waste Master Plan, when combined with the county sections is called the "Regional/County Solid Waste Master Plan." This approach allowed for a significant portion of planning to be completed through the SWMCB, furthering the regional collaboration of the solid waste system. Figure II.1 illustrates the regional model for the Regional/County Solid Waste Master Plan.

Figure II.1



This model for the collaborative preparation process was outlined in the SWMCB's Joint Powers Agreement.

The Joint Powers Agreement states that the Regional Solid Waste Master Plan shall include: jointly negotiated solid waste management outcomes for the region; implementation strategies to accomplish the regional outcomes; and jointly negotiated solid waste management outcomes for each of the Counties. Prior to adoption of the Regional Solid Waste Master Plan by the SWMCB, the representatives of each County consented to the jointly negotiated solid waste management outcomes for their respective County. The Metropolitan Solid Waste Management Policy Plan, which was collaboratively prepared by the SWMCB and the OEA, provided the foundation for the outcomes and implementation strategies.

The SWMCB assigned responsibility for the preparation of the Regional Solid Waste Master Plan to the SWMCB Needs Assessment Committee. On January 15, 1998, the Needs Assessment Committee approved a development process and schedule, which included three workshops to develop a set of regional outcomes and implementation strategies for each major topic area in the Regional Solid Waste Master Plan.

In addition to developing regional outcomes and strategies, the SWMCB worked with its member counties to develop negotiated county outcomes. These regional county outcomes are specific to the individual county, set expectations and are the responsibility of individual counties; however, counties are accountable to the region for their performance. By including negotiated county outcomes in the Regional Solid Waste Master Plan, counties commit to taking action to achieve outcomes, and counties are answerable to the SWMCB.

The Regional/County Solid Waste Master Plan consists of the Regional Solid Waste Master Plan elements described above and the individual county elements. The county elements include specific county implementation strategies, county policies and any additional county outcomes. The SWMCB will compile the regional elements and the county elements to form the Regional/County Solid Waste Master Plan. This Regional/County Solid Waste Master Plan will be submitted to the OEA for approval on March 1, 1999.

Input was sought from private industry through the SWMCB Industry Advisory Work Group as the Regional Solid Waste Master Plan was developed as well as from other interested parties. In addition, the Regional Solid Waste Master Plan was developed with considerable input from the OEA and the MPCA; OEA and MPCA members actively participated in the development of the Regional Solid Waste Master Plan, and provided comments, suggestions, and guidance during the preparation process.

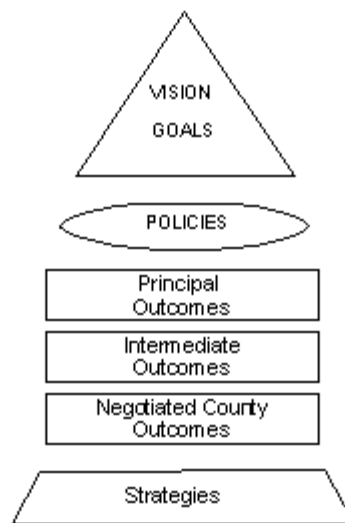
#### Plan Revisions

Minn. Stat. § 473.803, subd. 1, requires each metropolitan county, following the adoption or revision of the Metropolitan Solid Waste Management Policy Plan to prepare and submit to the director of the OEA a solid waste master plan. This Regional Solid Waste Master Plan was prepared following the October 1997 adoption of the Metropolitan Solid Waste Management Policy Plan. Revisions to the Regional Solid Waste Master Plan will occur as required in Minn. Stat. §473.803, subd.1.

#### Outcome Based Planning

As outlined in the Joint Powers Agreement, the SWMCB used an outcome based planning model for the preparation of the Regional Solid Waste Master Plan, building specific outcomes and strategies to support the achievement of the overall vision and goals stated in the Metropolitan Solid Waste Management Policy Plan. The Regional Solid Waste Master Plan includes short-term outcomes and implementation strategies for 2003 and long-term outcomes and implementation strategies for 2017. Where a year for implementation of a strategy or completion of an outcome is given, it is assumed that the date of completion will be December 31 of that year, unless otherwise specified. Figure II.2 illustrates the process and how the various components of the process are connected.

Figure II.2



Each of the sections in the Regional Solid Waste Master Plan further describe the principal outcomes and the strategies needed to achieve these principal outcomes. The strategies recognize that to achieve the outcomes, the SWMCB will need to work closely with the business community, waste industry and other waste generators.

### III. Vision and Goals

#### Regional Vision and Goals

The vision and goals in the Policy Plan, adopted October 1997, provide the foundation for the policies in the Policy Plan and the Regional Solid Waste Master Plan's regional outcomes, implementation strategies, and negotiated county outcomes. The vision established in the Policy Plan is as follows:

A sustainable community seeks a better quality of life for current and future residents by maintaining nature's ability to function over time. It minimizes waste, prevents pollution, promotes efficiency and develops local resources to revitalize local economies. The waste management system is a component of the infrastructure of a sustainable community. Therefore, solid waste will be managed by technologies and methods that support sustainable communities and environments. The solid waste hierarchy, with its associated goal of protecting the state's land, air, water, and other natural resources and the public health, is central to attaining the objectives of sustainability and appropriate solid waste management.

In addition to the vision, five specific goals in the Policy Plan provide the basis for which the outcomes in the Regional Solid Waste Master Plan were developed. The goals represent elements of the vision of sustainability. The Policy Plan recognizes that the goals may conflict, in part (e.g., protecting the environment and minimizing costs), and notes that conflict is part of the challenge of achieving a sustainable waste management system.

The goals for the region, as established in the Policy Plan are:

1. To manage waste generated in the metropolitan area in a manner that will protect the environment and public health and that will conserve resources.
2. To manage the region's waste in an integrated waste management system in accordance with the hierarchy in order to minimize landfilling.
3. To manage the region's waste in a cost-effective manner and to strive to minimize the potential liability of the citizens, businesses and taxpayers in the region.
4. To encourage generators to take responsibility for the environmentally sound management of their waste.

5. To allocate solid waste management system costs equitably among those who use or benefit from the system.

## IV. Existing Solid Waste Management System

### A. Regional Solid Waste System

#### 1. Overview of Integrated System

##### Introduction

Metropolitan counties developed an integrated approach to mixed municipal solid waste (MSW) management in response to the 1980 Minnesota Waste Management Act. The approach reflects the State's preferred waste management practices delineated in Minn. Stat. §115A.02, emphasizing waste reduction, reuse and recycling over composting, waste-to-energy, and land disposal. The counties developed reduction, recycling and household hazardous waste programs as well as three waste-to-energy processing facilities. Two sanitary landfills that accept MSW are located in the metropolitan area. In addition to county efforts, the private sector has been and continues to be a key participant in the system and has an active role in the collection, recycling, processing and landfilling of waste.

Since 1990, the SWMCB has provided a forum for metropolitan counties to collaborate on the development of policies and programs that further the region's goal of managing MSW in an environmentally safe and economic manner consistent with the preferred waste management practices identified in the Waste Management Act.

This Section highlights the achievements of the metropolitan counties and provides an overview of the reduction, recycling, household hazardous waste, MSW processing, MSW landfilling and nonMSW management programs and activities in the region.

Note that the information in this Existing Solid Waste Management System Section, with the exception of the Projected MSW Growth through 2017, describes the activities of the seven metropolitan counties. In 1998, Scott County withdrew from the joint powers agreement establishing the SWMCB. Therefore, all other sections of the Regional Solid Waste Master Plan that plan for the future include the six metropolitan counties of Anoka, Carver, Dakota, Hennepin, Ramsey and Washington.

##### Achievements in Management of MSW

The region's aggressive waste management programs and policies have resulted in a system that managed 3,045,095 tons of MSW in 1997. The region achieved a recycling rate of 49% when the 3% source reduction and 5% yard waste credits are added. Figure IV.1 illustrates how the seven-county region managed its MSW in 1997.

Figure IV. 1

1997 MSW Managed for the Seven-County Metropolitan Region		
	Tons	Percent
Recycled	1,257,350	41%
Problem Materials Otherwise Managed*	61,332	2%
Recycling at Processing Facilities**	(38,716)	(1%)
Processing	1,103,019	36%
Secondary Processing**	(1,941)	0%
Landfilling (Unprocessed and Excess MSW)	664,051	22%
Total MSW Managed	3,045,095	100%

\* Appliances, tires, etc.

\*\* Tons are subtracted to eliminate double counting.

### Solid Waste Characteristics

The Minnesota Pollution Control Agency Solid Waste Composition Study 1991 - 1992, dated April 1993, provides the most comprehensive description of the metropolitan area waste composition; that Study is incorporated into this Regional Solid Waste Master Plan by reference.

### Projected MSW Growth through 2017

The Metropolitan Solid Waste Management Policy Plan, adopted in October 1997, included MSW growth projections through the year 2017. During the development of the Regional Solid Waste Master Plan, the SWMCB updated the waste growth projections used in the Policy Plan to incorporate two additional years of data and the revised Metropolitan Council population and employment projections. Additionally, the projections now reflect planning for a six-county region.

The region projects a 2.25% per capita and per employee MSW growth rate through 2017.

Because the Metropolitan Council population and employment projections are higher than previously projected and the additional years of data incorporated into the projections were years of high MSW growth in comparison to previous years, the projected MSW generation is significantly higher than projected in the Policy Plan. The revised projections use the 1991 - 1997 per capita and per employee historical waste growth of 2.25%. Figure IV.2 shows the MSW projections for the planning periods of 2003 and 2017. A table with the waste growth projections for each year through 2017 can be found in Regional Appendix C.

Figure IV. 2

MSW Growth Projections for the Six-County Region		
1997 Actual (tons MSW)	2003 Projected (tons MSW)	2017 Projected (tons MSW)
2,949,967	3,599,000	5,048,000

## B. Source Reduction

### Introduction

Source reduction, often called waste reduction or waste prevention, is the nation's highest priority for managing waste. Minnesota has given source reduction the highest priority in its hierarchy of preferred waste management strategies. The region has given both source and reduction in the toxic/hazardous character of waste the highest priority in the Metropolitan Solid Waste Management Policy Plan. Over the last several years, the counties have implemented progressively more aggressive commercial and residential source reduction programs. This section describes the source reduction activities in the region. Source reduction definitions and statutory obligations can be found in Regional Appendix D.

### Data Summary and Achievements

Because of the inherent difficulties of measuring source reduction, counties have relied primarily on two measurement indicators for the overall success in source reduction. The first measurement tool is the total amount of MSW generated in the region. The total amount of MSW managed has been increasing each year, though some of the increase can be attributed to the region's increasing population and employment.

A second measurement tool used by the counties is an assessment of the source reduction programs implemented by the counties. Each year, the counties report to the OEA the types of programs and activities that have been implemented. If a specified level of program implementation is achieved, the counties are eligible for a 3% source reduction credit that applies to the counties' overall recycling rates. For 1997, each of the seven counties in the region was awarded the 3% source reduction credit.

### MAX (Metro Area eXchange)

The region reaffirmed its commitment to source reduction by undertaking the development and operation of a materials exchange program. Metro Area eXchange (MAX), the SWMCB's materials exchange program, reduces waste by facilitating the exchange of materials businesses no longer need with other businesses

or non-profit organizations that can use those materials. MAX was established in 1995 by the SWMCB and is operated on SWMCB's behalf through an agreement with the University of Minnesota Technical Assistance Program (MnTAP). MAX has a 1998 goal of achieving the exchange of 5,000 tons of materials.

#### Public Information

Public information is a valuable tool used by the region and the counties to achieve source reduction. In 1995 and 1996, the region implemented a \$500,000 radio and newspaper advertising campaign promoting source and toxicity reduction, recycling, MAX and knowing where one's waste goes.

*Dashing through the store  
In an overcoat of gray  
O'er the shelves I pour  
I'm shopping all the way  
The gifts I'm gathering  
Will make their spirits bright  
But the Packaging that holds those things  
Will be trash tomorrow night,  
Oh jingle bells jingle bells  
Jingle all the way  
Think about our planet Earth  
And all the stuff you throw away, hey  
Jingle bells jingle bells ...*  
Text from a December 1996 SWMCB Radio Ad

In the campaign, and in general, the region has focused its public information efforts on topics or messages that were universal among the counties. Through a collaborative effort, the region has also been able to access media, such as radio and daily newspapers, that are not cost-effective for individual counties.

All counties use public information tools to promote their county's waste management objectives. Among the tools frequently used by counties are newsletters, press releases, brochures, displays, community presentations, special events, Internet, bus benches, billboards, posters, fact sheets and local newspaper advertisements. Counties frequently work with their municipalities to expand their promotions and to promote municipality-specific program information. Additionally, haulers and the solid waste industry provide informational pieces to their customers.

#### Technical Assistance

Counties provide technical assistance to businesses and institutions within their boundaries. The types of assistance provided includes visiting sites to analyze the businesses' waste streams, referring businesses to recycling vendors or suppliers, identifying opportunities for source reduction and providing information on the liability associated with disposing of garbage. The counties also work closely with MnTAP, Minnesota Waste Wise and municipalities to deliver technical assistance.

#### Environmentally Responsible Government Procurement Guide

In 1994, the SWMCB, in collaboration with State and city purchasing and solid waste staff, the OEA and the MPCA, developed the "Environmentally Responsible Government Procurement Guide" ("Guide"). The Guide was designed to assist both front-line purchasers and procurement staff in identifying opportunities for source and toxicity reduction, recycling and responsible waste management, as well as provide relevant statutory requirements. The Guide was distributed to over 1,200 government procurement staff statewide. As demonstrated through survey results, procurement managers found the Guide to be a useful tool.

#### Internal County Source Reduction Activities

All counties in the region have undertaken internal county source reduction initiatives. These initiatives have included adopting County resolutions establishing source reduction policies and purchasing guidelines, conducting source reduction surveys at county facilities, establishing internal source reduction implementation and promotion teams and using employee recognition programs.

### 3. Yard Waste

Yard waste in the region is managed through county, municipal and private programs. The region and its member counties focus efforts on the reduction of yard waste by promoting mulching and backyard

composting. Two counties operate yard waste collection sites that allow citizens to drop-off yard waste and pick up compost. However, most yard waste sites in the region are sponsored by municipalities or private firms. Definitions and statutory obligations regarding yard waste can be found in Regional Appendix D.

#### 4. Recycling

##### Introduction

Minn. Stat. §115A.02 lists recycling as a preferred waste management strategy second only to waste reduction and reuse. Over the last decade, with the support of SCORE and other State funding, the region has worked to put residential and commercial recycling programs in place. Residential recycling programs in the region consist of curbside collection and drop-off sites, including recycling services for multi-family housing. Curbside recycling programs in the region are either provided by municipalities or are provided by haulers through contracts with or, under licensing conditions of, a municipality. Most counties provide some funding for municipal programs. Public drop-off locations for recyclables are provided by the municipality, the private sector, or the county. Additionally, many businesses have active recycling programs, and commercial recycling accounts for a significant portion of the recycling in the region. The success of the region's recycling program is not only a result of county and city efforts, but of the significant contribution the private sector has made to the advancement of recycling through the development of markets, provision of drop-off locations, collection of recyclable materials, and the many other elements needed to develop the recycling infrastructure. Counties address their progress on meeting the statutory recycling obligations set forth in Minn. Stat. 115A.552 through the annual SCORE and Certification reports submitted to the OEA.

##### Data Summary and Achievements

The tons of material recycled and the percent of MSW recycled has grown steadily over the last decade. Figure IV.3 shows the tonnage and percent of MSW recycled for the period 1993 - 1997. In 1996, the region met the statutory goal of recycling 50% of MSW when the 3% source reduction and 5% yard waste credit are added.

Figure IV. 3

Tons of Material Recycled and Percent of MSW		
Year	Tons of Material Recycled	% of MSW Recycled*
1993	1,006,000	40%
1994	1,078,000	41%
1995	1,152,000	41%
1996	1,219,000	42%
1997	1,257,350	41%

\* Does not include the 3% source reduction and 5% yard waste credits.

Source: SWMCB Annual Reports

In 1997, 23% of the tonnage of material collected for recycling came from residential programs, 74% from the commercial sector, and 3% was a combination of residential and commercial recyclables that were separated at transfer stations, drop-off centers and processing facilities.

##### Public Information

The region included recycling messages in its 1995 and 1996 multi-media campaign. (See Source Reduction in this Section.) Additionally, the SWMCB demonstrated its support of America Recycles Day in 1997 through a SWMCB resolution and by county participation in local America Recycles Day events promoting the "buy recycled" message.

Counties have a long history of promoting residential and commercial recycling programs. As in source reduction, counties have used a variety of media to promote recycling. Much of the counties' recent promotional messages have focused on the importance of recycling and buying recycled materials. Additionally, the counties collaborated on the development of the "Resourceful Waste Management Guide" ("Guide"). This Guide provides a directory of companies that accept recyclables, as well as other recycling information of value to businesses. Generally, the municipalities provide specific information on which materials can be collected at the curbside or at drop-off locations. The waste management industry has also been very active in promoting recycling and providing information to customers.

#### Technical Assistance

Counties provide technical assistance to businesses and other organizations that want help recycling or reducing waste. (See Source Reduction in this Section.)

#### Internal County Recycling Programs

The counties' internal recycling programs are well-established; however, counties continue to make modifications to their internal programs to enhance efficiency and effectiveness. Counties use a variety of public information tools to encourage county employees to participate in the internal recycling programs, including e-mail, stories in internal county newsletters, signage and hosting special events.

#### Municipal Curbside Programs and Drop-Off Sites

Residential recycling programs are well-established in the region, with nearly all of the region's cities and townships having curbside collection available. Additionally, drop-off sites for recyclables are available in some cities and townships. Some counties also own or operate drop off sites where citizens or businesses can drop off recyclables. Some multifamily units are served through curbside programs and others contract separately for services.

### 5. Reduction in Toxic/Hazardous Character of Waste

#### Introduction

Reduction of the toxic/hazardous character of waste is a primary focus of the Regional Solid Waste Master Plan. This section summarizes programs that reduce the toxic/hazardous character of waste generated in both the residential and commercial sectors. Definitions and statutory obligations regarding household hazardous waste and hazardous waste can be found in Regional Appendix D.

#### Data Summary and Achievements

##### **Household Hazardous Waste Programs**

Since the 1980's, counties have been collecting household hazardous wastes (HHW) to reduce the toxic/hazardous character of the waste stream. In 1997, 6.4 million pounds of HHW were collected through the system of programs. This waste was managed as follows:

Figure IV. 4

Management of Household Hazardous Waste	
Waste Management Method	1997 Results
Waste Reused	3%
Waste Recycled or Fuel Blended	84%
Waste Landfilled or Incinerated	13%

The average program cost per vehicle has steadily declined over the last few years, and in 1997 was approximately \$50 per vehicle. In 1997, an average of 68 pounds of HHW was collected per vehicle.

##### **Hazardous Waste Regulatory Programs**

The metropolitan counties inspect, train and license hazardous waste generators. Figures IV.5 and IV.6

show the number of licensed hazardous waste generators and the number of inspections of hazardous waste generators, respectively.

Figure IV. 5

Licensed Hazardous Waste Generators			
	1995	1996	1997
Large Quantity Generators	216	222	208
Small Quantity Generators	919	817	868
Very Small Quantity Generators	8,076	8,377	8,572
Total Licensed	9,211	9,470	9,648

Figure IV. 6

Hazardous Waste Inspections			
	1995	1996	1997
Large Quantity Generators	195	187	223
Small Quantity Generators	640	593	639
Very Small Quantity Generators	4,141	3,247	4,182
Other*	N/A	N/A	627
Total Inspections	4,976	4,027	5,671

\* Other includes inspections that were conducted at non-generator facilities.

#### Hazardous Waste Transfer, Storage and Processing Facilities

Counties also license and inspect hazardous waste transfer, storage and processing facilities. In 1997, the counties conducted 132 inspections at 44 hazardous waste transfer, storage and treatment facilities.

#### Other Regional Program Achievements

##### **Contract with the MPCA for Management of HHW**

The SWMCB negotiated an agreement with the MPCA to provide State indemnification of the counties for risks associated with collecting and managing HHW with the State. In addition, the region worked with the State to select a HHW contractor, resulting in dramatically reduced waste disposal costs beginning in 1997.

##### **Reciprocal Use Program**

The region continues to have in place Reciprocal Use Agreements which allow residents across the metropolitan area to use any HHW facility at their convenience, regardless of their county of residence.

##### **County Contracts with NSP**

In 1994, the SWMCB negotiated a model agreement with Northern States Power Company (NSP) for the collection of fluorescent and other mercury-containing lamps from residents. The agreements, effective through 1999, obligate NSP to reimburse counties for expenses associated with lamp collection.

##### **Public Information**

The SWMCB developed a regional brochure and other public education materials which provide information on where and how HHW can be managed. In addition, the region contributed to a recent product-labeling initiative of the MPCA, which includes displays and brochures.

##### **Product Stewardship/Extended Producer Responsibility**

The SWMCB has undertaken two major initiatives to promote product stewardship for specific waste

streams. In 1997 and 1998, a CRT Collection Demonstration Project was conducted with three private sector partners: Target Stores, IBM and Materials Processing Corporation. In addition, manufacturer and retailer groups were invited to discuss ways to reduce the amount of waste latex paint generated and to gain financial support from manufacturers and retailers for proper management of waste latex paint.

Used oil, one of the largest waste streams handled through HHW programs, has also been addressed in conjunction with statutory requirements for oil manufacturers. The region worked with the OEA and the MPCA to determine ways to enforce statutory requirements.

#### County Programs

Counties operate permanent, temporary, and mobile HHW collection facilities and sites. In addition to the county HHW collection activities, many municipalities offer cleanup days where certain items such as used oil, tires, appliances, and electronic goods are collected from the public.

Individual counties operate hazardous waste regulatory programs which are needed to comply with statutory requirements. While individual county programs may differ, efforts have been made to increase consistency of county regulatory programs. In addition to ensuring compliance with Federal, State and County laws, statutes, rules and ordinances, hazardous waste regulation programs impact the generation of toxic and hazardous wastes. For example, regulation has played a key role in the elimination of toxic metals in printing inks and the near elimination of the most toxic cleaning solvents used for industrial part washing. Enforcement drives up the cost of using toxic and hazardous products, thereby encouraging the use of products that are more friendly to the environment.

## 6. MSW Processing

### Introduction

Processing means the treatment of waste after collection and before disposal. Waste processing is referred to in the list of waste management methods identified in Minn. Stat. §115A.02, as "resource recovery through mixed municipal solid waste composting or incineration."

Currently, there are three main waste processing facilities serving the metropolitan counties: the Hennepin Energy Resource Company (HERC), the Elk River Resource Recovery Facility (NSP-Elk River), and the Ramsey/Washington County Resource Recovery Facility (NRG-Newport). Each facility will be described in more detail in this Section. Processing definitions and statutory obligations can be found in Regional Appendix D. In addition, several other facilities that process MSW in or near the metropolitan area will be described in this Section.

### Data Summary and Achievements

Figure IV.7 shows the permitted capacity for the three main processing facilities serving the metropolitan counties.

Figure IV. 7

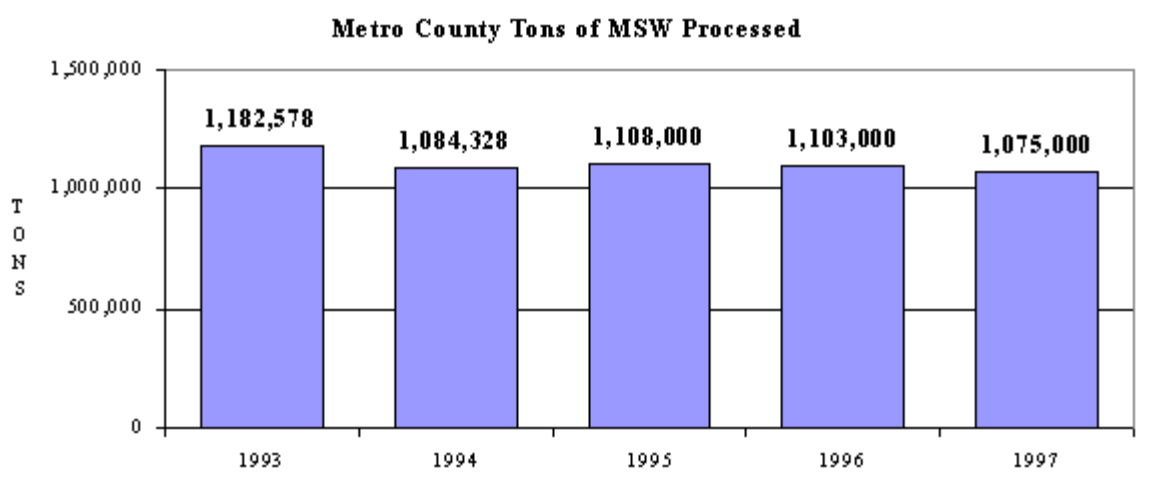
1997 Permitted Capacity at Primary Waste Processing Facilities Serving the Metropolitan Area	
Facility	Annual Permitted Capacity
HERC	365,000
NRG-Newport	500,000
NSP-Elk River*	399,100
Total	1,264,100

\* This represents the metropolitan portion of the capacity for NSP-Elk River, which has a total capacity of 468,500 tons.

### Tons Processed

Figure IV.8 shows the tons of MSW processed during the five year period of 1993-1997.

Figure IV. 8



Source: SWMCB annual data reports and OEA annual SCORE Reports. A small portion of the total tons figures were processed at facilities other than the three primary facilities that currently serve the metropolitan area counties.

#### MSW Processing Facilities

##### ***Hennepin Energy Resource Company (HERC)***

HERC is a privately-owned, mass-burn facility located in downtown Minneapolis in Hennepin County. Hennepin County contracts with HERC for the operation of the facility, which opened in October 1989. Hennepin County is contractually obligated to deliver 365,000 tons of acceptable waste to HERC each year through 2019.

HERC uses a mass-burn technology to combust MSW. The facility produces steam for use in making electricity. The electricity is currently sold to Northern States Power (NSP); the facility produces enough electricity to power 23,500 homes annually. Ferrous metal is recovered from the ash before the ash is transported for disposal.

According to State statute, HERC is limited to burning 365,000 tons annually, or an average of 1,000 tons per day. However, the design capacity of HERC is 442,380 tons annually or an average of 1,212 tons per day assuming the plant operates continually during the year and does not shut down for maintenance.

Currently, Hennepin County's disposal fee is \$60 per ton, or \$39 per ton for waste delivered under contract to the County.

##### ***Ramsey/Washington County Resource Recovery Facility***

The Ramsey/Washington County Resource Recovery Facility, also known as NRG-Newport, is a refuse-derived fuel (RDF) processing plant located in Newport in Washington County. NRG-Newport is owned and operated by NRG Energy, Inc. (NRG), a wholly-owned subsidiary of NSP, according to the terms of a service agreement with Ramsey and Washington Counties that expires in July 2007.

Waste is delivered to the facility, is shredded and then separated by a series of screens, air classification equipment, and magnets into three waste streams: light-weight RDF, ferrous metal, and heavier residue. RDF is transported to NSP power plants in Red Wing and Mankato where it is burned to generate electricity. Ferrous metal is recycled. Residue is delivered to a landfill.

NRG-Newport's permitted capacity is 500,000 tons per year or 1,700 tons per day. The plant accepts waste six days per week.

In 1998, the tip fee at NRG-Newport is \$38.00 per ton for waste generated in Ramsey and Washington

Counties that is delivered under contracts between haulers and one or both counties. The tip fee for waste generated in either county, but not delivered under contract, is \$50.00 per ton. The tip fee for waste generated outside Ramsey and Washington Counties is \$66.79 per ton.

### ***Elk River Resource Recovery Facility***

The Elk River Resource Recovery Facility, also known as NSP-Elk River, is a RDF processing plant located in the City of Elk River in Sherburne County. NSP-Elk River is owned by NSP and is operated by NRG. The RDF produced by NRG is burned to create electricity at the United Power Association (UPA) combustion facility at UPA's Elk River electric power station.

Waste is delivered to the RDF facility, shredded, and then separated by a series of screens, air classification equipment and magnets into three waste streams: light-weight RDF, ferrous metal and heavier residue. RDF is transported to the UPA power plant where it is burned to generate electricity. Ferrous metal is recycled at AMG, in Newport. Residue is delivered to a landfill.

NSP-Elk River's permitted capacity is 468,500 tons per year, or 1,526 tons per day (tpd). The plant accepts waste 307 days per year. Anoka County, Hennepin County, Sherburne County, and the Tri-County Solid Waste Management Commission (Benton, Stearns, and western Sherburne Counties) signed separate service agreements with NSP. Each participant is guaranteed the following waste processing capacity: Anoka County - 500 tpd, Hennepin County - 800 tpd, Sherburne County - 50 tpd, and Tri-County - 150 tpd. Metropolitan counties' capacity is approximately 1,300 tons per day, or 399,100 tons per year.

In 1998, the tip fee at NSP-Elk River is \$38.75 per ton for waste generated in Anoka County, if the hauler is under contract with Anoka County. The tip fee for Anoka County waste not delivered under contract with the County, is \$68.00 per ton. The tip fee at NSP-Elk River for waste generated in Hennepin County is the same as the tip fee at the HERC facility. Ninety-nine percent of the Hennepin County waste delivered to ERRRF comes from Hennepin County's transfer stations.

### ***East Central Solid Waste Commission Material Recovery and Composting Facility***

The East Central Solid Waste Commission (ECSWC) facility's permitted capacity is 65,000 tons per year, or 250 tons per day at 260 days per year. This MSW composting facility is located near Mora in Kanabec County. It is owned by the ECSWC, a joint powers entity composed of Pine, Kanabec, Isanti, Chisago and Mille Lacs Counties. The facility is operated by MICROLIFE Minnesota, Inc. The facility is reportedly in the start-up phase of its reopening and is expected to be fully operational again in 1998. Carver County, and haulers in Carver County, are working to get MSW transported to Mora for processing. This facility is described here because it is included as possible future waste processing capacity in the [MSW Processing](#) section of this Master Plan.

SKB Environmental, Inc. (SKB), constructed a source-separated organic composting facility in Empire Township in Dakota County. The County owns and leases the land to SKB. SKB owns and operates the facility which began operations on September 1, 1998. The facility has a permitted capacity of 20,000 tons per year of which 10,000 tons is for source-separated organics and 10,000 tons is for yard waste.

### ***Wright County Solid Waste Composting Facility***

The Wright County Solid Waste Composting Facility's permitted capacity is a 60,225 tons per year or 165 tons per day. This MSW composting facility is located near Buffalo in Wright County and is owned by Wright County. This facility is currently closed; however, it is listed here because it is included as possible future waste processing capacity in the [MSW Processing](#) section of this Master Plan.

MSW transfer stations throughout the metropolitan area play a significant role in moving MSW throughout the region to final destinations. There are several permitted transfer stations located within the metropolitan counties: two in Anoka, two in Carver, three in Dakota (operations are currently suspended at two of the three), four in Hennepin, three in Ramsey, one in Scott, and two in Washington. These transfer stations are collection points for MSW. The MSW is then transferred to processing facilities or landfills in the metropolitan area or to facilities outside the metropolitan area, including to facilities in Greater Minnesota, Iowa, North Dakota and Wisconsin. Hennepin County has the only publicly owned transfer station in the metropolitan area: Hennepin County Recycling Center and Transfer Station in Brooklyn Park.

## 7. MSW Landfilling

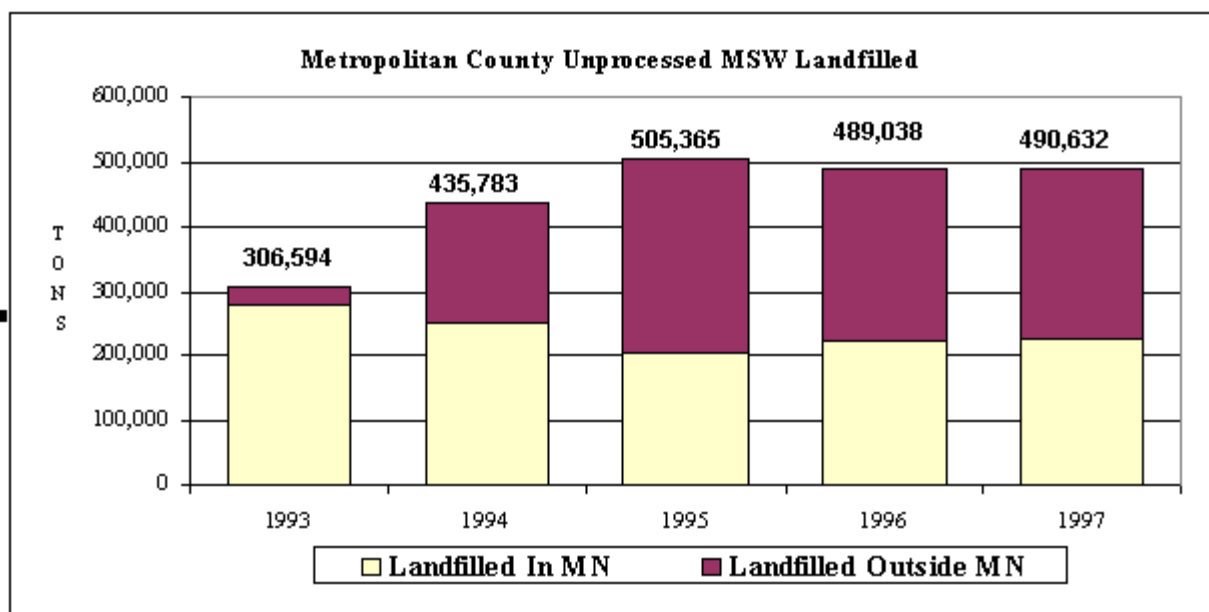
## Introduction

The Metropolitan Solid Waste Management Policy Plan acknowledges that landfills have a role in the region's integrated waste management system, although landfilling continues to be the least preferred management practice.

Landfills and landfill expansions currently proposed or constructed are incorporating extensive liner systems, with leachate collection, methane gas collection or venting systems, and systems that collect and burn methane gas as a fuel. Currently, there are two sanitary landfills operating in the metropolitan area, Pine Bend Sanitary Landfill and Burnsville Sanitary Landfill. Each facility will be described in more detail in this section. Definitions and statutory obligations can be found in Regional Appendix D.

Figure IV.9 shows that landfilling of unprocessed MSW since 1993 has increased and has shifted from primarily in-State disposal to a greater incidence of out-of-state disposal. Court decisions restricting counties' designation authority, as well as changes in landfill, transfer station and hauling company ownership, are largely responsible for this shift.

Figure IV. 9



Source: SWMCB annual data reports and OEA annual SCORE reports.

The Policy Plan recognizes that the private sector has the primary responsibility for the delivery of landfilling services for the metropolitan area. There are no publicly-owned sanitary landfills in the metropolitan area, but there are two private MSW sanitary landfills currently operating (Pine Bend and Burnsville Landfills).

A county solid waste master plan may include a determination that the implementation of solid waste management objectives will be carried out by the private sector. Minn. Stat. §473.803, Subd. 5, supports the role of the private sector, in part or in whole, in achieving the goals and requirements of §473.149, Metropolitan Solid Waste Comprehensive Planning, and §473.803, Metropolitan County Planning. In this situation, the counties' role becomes one of oversight, performance monitoring, regulation, enforcement and reporting.

The two active sanitary landfills (MSW landfills) in the metropolitan area are located in Dakota County. Burnsville Sanitary Landfill is located in Burnsville and is owned by Waste Management Inc. (WMI). Pine Bend Sanitary Landfill is located in Inver Grove Heights and is owned by BFI Waste Systems of North America, Inc. (BFI). In 1998, WMI estimated the capacity remaining at Burnsville Landfill is 3.5 million cubic yards with an anticipated life expectancy of approximately 9 years. In 1998, Pine Bend Landfill has approximately 5.6 million cubic yards of remaining capacity, based on annual State report information.

Burnsville and Pine Bend Landfills installed methane gas-to-energy systems in 1994 and 1996, respectively. These systems burn the methane gas generated by decaying waste in the landfills to produce electricity. Anoka Regional Sanitary Landfill, although currently closed, has methane gas recovery as well.

There are several non-metropolitan landfills located within and outside Minnesota that receive waste generated in the metropolitan area. The facilities located in Minnesota include: Spruce Ridge Landfill in McLeod County (WMI), Forest City Road Landfill in Wright County (Superior Services) and Elk River Landfill in Sherburne County (WMI). Facilities located outside Minnesota include: USA North Dakota in Gwinner, North Dakota; Central Disposal Landfill in Lake Mills, Iowa; Dickinson County Landfill in Spirit Lake, Iowa; and Timberline Trail Landfill near Ladysmith, Wisconsin. All of these landfills are owned by WMI.

## 8. NonMSW Management

NonMSW includes non-hazardous industrial waste, construction/demolition debris (C&D waste), materials banned from disposal with MSW, problem materials, infectious waste and many other waste streams that are not MSW or otherwise defined or regulated as hazardous waste. The management of nonMSW has not been as closely examined as MSW, mainly because it is believed that much of this waste stream is less likely to pollute the environment. Some nonMSW waste, however, has tested hazardous under certain conditions, and nonMSW does include banned and problem materials, as well as infectious waste. NonMSW definitions and statutory obligations can be found in Regional Appendix D.

The Policy Plan recognizes the need to place greater attention on nonMSW management and the need for better data in order to best determine environmentally sound management practices.

### Existing Recycling Efforts

Several materials are separated for recycling at some construction and demolition transfer stations and landfills, including: concrete, bituminous, aluminum, copper, steel, brick, mattresses, appliances and tires. Many other recyclable materials may have the potential to be separated from C&D waste.

The private sector owns and operates most of the metropolitan area management facilities for nonMSW waste streams. There is some public sector activity in managing certain nonMSW materials in the metropolitan area, such as tree waste processing and crushing and recycling concrete or road base material.

There are four construction and demolition landfills open to the public located in the metropolitan area. Dem Con Landfill is located in Scott County. Three C&D waste landfills are located in Dakota County: SKB Rich Valley Demolition Landfill, located primarily in Inver Grove Heights with a small portion in Rosemount, owned by SKB Environmental, Inc.; Dawnway Demolition Landfill located primarily in South St. Paul with a small portion in Inver Grove Heights, owned by A. Kamish & Sons, Inc.; and Burnsville Dem/Con Landfill, located in Burnsville, owned by WMI. There are three facilities in Scott County that process concrete and asphalt: Commercial Asphalt; Northwest Asphalt; and Sheily, which also processes bottom ash and shingle waste.

There are seven transfer stations located in the metropolitan area that accept only C&D waste: Veit Transfer and SKB Transfer are located in Hennepin County; Veit Disposal Systems, Keith Krupenny & Son Disposal Service, Ray Anderson & Sons, and Red Arrow Waste Disposal are located in Ramsey County; and Lloyd's Transfer Station is located in Scott County. Some MSW transfer stations also accept C&D waste.

There are two facilities in Dakota County that process C&D waste: Materials Recovery, Ltd., and All Star Disposal. Two other facilities process only wood waste - Dunham Bros., and SMC-Rosemount Wood Waste. SKB has a facility that processes wood and shingles.

Two special waste facilities are located in Anoka County: the L & G Rehbein offices are located in Centerville and they spread lime sludge and 1<sup>st</sup> State Tire processes tires in East Bethel.

One special waste landfill is located in Dakota County. It is used for the disposal of residuals from the production of alum at Koch Refinery. Koch Refinery and the Koch Spent Bauxite Landfill are located in Rosemount. An expansion of the lined, bauxite disposal basin was approved in 1992; it covers 3.8 acres, with a capacity of 60,000 cubic yards.

One special waste facility is located in Ramsey County. BFI Waste Systems of North America, Inc. operates a medical waste processing facility in St. Paul.

Two special waste processing facilities are located in Dakota County: Bituminous Roadways processes bituminous material and Endre's Processing processes food waste into a livestock food supplement.

Two special waste processing facilities are located in Scott County: Greenman, formerly BFI Tires, processes waste tires; and Clean Sweep processes street sweepings.

### **Industrial Waste Management Facilities**

The only industrial waste landfill in the metropolitan area is located in Dakota County. Safety-Kleen (Rosemount), Inc., operates a facility in Rosemount for the disposal of non-hazardous industrial waste and MSW combustion ash. The design of the waste containment/disposal areas consists of four containment cells, covering an area of approximately 78 acres. Cells 1, 2 and 3 are for the disposal of nonhazardous industrial solid waste, and cell 4 is for the disposal of waste combustor ash. The nonhazardous industrial waste disposal cells have a combined capacity of 5,237,547 cubic yards. The waste combustor ash cell has a total capacity of 800,436 cubic yards. The facility accepts waste mainly from industries in the metropolitan area, but also accepts waste from outside the metropolitan area.

### **Ash Facilities**

One ash processing facility is located in Woodbury in Washington County. Black Diamond Industrial Waste Land Disposal Facility accepts coal slag material. The coal slag is processed at this facility into three waste streams: blasting grit (used instead of sand), granules for roofing shingles and slag fines that are used to fill in the space where sugar sand is mined.

One ash landfill is located in Oak Park Heights in Washington County. The NSP A. S. King Ash Landfill accepts fly ash. This landfill provides a dedicated cell specifically for accepting coal combustion ash.

The Safety-Kleen, Inc., facility, located in Rosemount in Dakota County, is also approved by the MPCA and Dakota County to accept waste combustion ash. Waste combustion ash from the HERC facility in Minneapolis is scheduled to be disposed at this facility in late 1999.

## **V. Source Reduction**

### **A. Regional Source Reduction Introduction**

Since 1980, source reduction has been the preferred waste management practice in the State of Minnesota. The Metropolitan Solid Waste Management Policy Plan establishes source reduction as the highest priority in the planning for and development of the regional solid waste management system (Policy 5.1.2.1). The Policy Plan calls for aggressive programs that challenge government units to act as leaders and, at the same time, promotes a shifting of responsibility from government to manufacturers for the proper management of waste. Additionally, it calls for the change in manufacturing practices to eliminate the need for special management when products become waste (Policies 5.1.2.3, 5.1.2.4 and 5.1.2.5). The Policy Plan sets forth criteria for targeting source and toxicity reduction strategies (5.1.2.7).

The need for the reduction priority is clear. Waste generation continues to grow at increasing rates. In 1997, the six-county region managed 2,950,000 tons of MSW. By 2017, the region will need to manage 5,048,000 tons of MSW if waste generation is unchecked. This represents an increase of nearly 71%.

The costs of managing the growth in the waste stream will be significant. If the waste is reduced at the source, these management costs, as well as the initial expense of producing and purchasing finished materials, will be avoided. For instance, according to the Tellus Institute, avoiding the manufacture of finished products also avoids the expenditures otherwise needed to purchase energy for manufacturing, and for the control of air and water emissions during manufacturing. In addition, businesses and other consumers can save money avoiding the purchase of unnecessary items: avoiding the purchase of one ton of paper could potentially save a business \$500 in purchase costs, while reducing the amount of food disposed by one ton could save consumers \$1,000 in food purchase costs. "A One-Year Snapshot: Resource Conservation Benefits-prepared by the Tellus Institute for the Minnesota Office of Environmental Assistance, 1996."

The outcomes in this section of the Master Plan establish a strong regional approach to waste reduction. The principal waste reduction outcome establishes MSW generation rates in 2005 at the 1999 level. Then, from 2006-2017, the per capita and per employee generation rate will remain at that 1999 level. The intermediate outcomes contribute to this overall outcome by targeting specific materials. The negotiated county outcomes create specific areas of concentration for each county, with the expectation that information and implementation strategies will be shared region-wide.

## B. Regional Outcomes, Implementation Strategies and County Negotiated Outcomes

### Principal Source Reduction Outcome

Principal Source Reduction Outcome: From 2005 through 2017, per capita and per employee MSW generation rates will be no higher than the 1999 rates.

If this principal source reduction outcome is achieved, the region will generate 429,000 tons per year less than projected in 2005. Avoided expenditures associated with the production and purchase of finished goods could be in the millions of dollars. However, only a portion of the avoided expenditures will occur within the metropolitan area, unless all of the manufacturing facilities are assumed to be located within the metropolitan area.

The OEA, working with the Tellus Institute, has estimated that the 1998 Statewide source reduction potential is 360,000 tons. As shown in Figure V.1, for the planning year of 2003, the result is that the region would generate 235,000 tons of MSW fewer than projected and 1.3 million tons fewer than projected in 2017.

Figure V.1

Impact of Reduction Outcome on MSW Tonnage			
	Actual Tons 1997	Projected Tons 2003	Projected Tons 2017
MSW Generated/ Projected	2,949,967	3,599,000	5,048,000
Reduction Outcome	N/A	235,000	1,342,000
MSW Generation After Reduction	2,949,967	3,364,000	3,706,000

The region will work toward achievement of the principal outcome by implementing a strategy of targeting certain materials in the commercial sector, as described below, and by working in partnership with the OEA, MnTAP and Minnesota Waste Wise. Because of the difficulty of achieving reduction outcomes, collaboration with clearly defined roles and responsibilities will provide for the best use of limited resources. Additionally, the region will promote reduction in the private sector. This section will describe roles and responsibilities for the implementation of source reduction strategies.

1. The roles and responsibilities of the SWMCB will include:
  - a. Coordination of direct business assistance programs and working with trade associations and industry groups;
  - b. Promotion and public information;
  - c. Coordination of residential education;
  - d. Participating in legislative initiatives and advising the OEA on resource development; and
  - e. Program implementation.
2. The roles and responsibilities of the counties will include:
  - a. Direct business assistance;
  - b. Program implementation; and
  - c. Residential public information.
3. The roles and responsibilities of the OEA will include:

- a. Research and data collection;
  - b. Resource development, including case studies, fact sheets, curriculum, and other related products;
  - c. State and federal legislative initiatives; and
  - d. Financial assistance.
4. The roles and responsibilities of Minnesota Waste Wise will include:
- a. Promotion; and
  - b. Direct assistance to Minnesota Waste Wise members.

#### Regional Implementation Strategies

To achieve the principal outcome, it will be necessary to work in close partnership with commercial waste generators to identify programs and assistance that are most helpful in business and industry, and to make it easy for commercial generators to achieve source reduction. To achieve the principal outcome, the region will:

1. Develop, as needed, task forces comprised of business and commercial generators and trade associations to assist in the identification of the most effective programs and in the distribution of reduction messages and tools.
2. Establish a consistent source of information for reduction.

#### Negotiated County Outcomes

Each county will undertake activities designed to reduce the amount of waste generated by businesses, residents and government units.

#### Intermediate Source Reduction Outcomes

To achieve the principal outcome, the following eight intermediate outcomes were identified as the most reasonable opportunities for reduction. Together, the intermediate outcomes will move the region toward the achievement of the principal source reduction outcome. The opportunities are based on the OEA's Source Reduction Tactical Plan, dated May 8, 1998. This plan targets four specific waste streams: food waste, old corrugated containers (OCC), pallets/crates, and office paper. The targets were selected based on the 1992 MPCA analysis of waste composition and also represent the targets identified by the OEA's Business Environmental Resource Center, MnTAP and Minnesota Waste Wise.

As shown in Figure V.2., these targeted areas are expected to result in the source reduction of 220,000 tons of MSW. The remaining tons needed to reach the 235,000 principal tonnage outcome are expected to be achieved through more general source reduction efforts.

Figure V.2

Source Reduction Potential for Immediate Outcomes	
Materials	Reduction Potential
Commercial Packaging Waste	75,000 tons
Office Paper	20,000 tons
Reuse	50,000 tons
Food Waste	75,000 tons
General Source Reduction	15,000 tons
<b>Total Source Reduction Potential for Immediate Outcomes</b>	<b>235,000 tons</b>

Intermediate Source Reduction Outcome #1: By 2003, the region will reduce commercial packaging waste.

This outcome combines two of the OEA's target areas, old corrugated cardboard (OCC) and wood pallets and crates. Eleven percent of the MSW generated in Minnesota is OCC. In 1996, Minnesotans generated approximately 701,500 tons of OCC, of which 440,000 tons were recycled and 261,500 tons disposed. The OEA and Tellus Institute estimate the potential for OCC reduction is 99,215 tons statewide. Of that amount,

the SWMCB estimates that the metropolitan reduction potential is 60% or 59,529 tons. The base year for comparison purposes is 1997.

Pallets and crates comprise 2% of MSW disposed, or 62,000 tons statewide in 1996. Using the "EPA Source Reduction Program Potential Manual", the OEA estimates the potential to reduce pallet waste generation is 32,600 tons. The metropolitan potential is estimated to be 19,560 tons or 60% of the statewide total.

Because the projected potential for reduction is based on 1992 MPCA waste composition data and national calculations, the **SWMCB has targeted a conservative, combined potential reduction for commercial packaging of 75,000 tons per year by the year 2003.**

#### Regional Implementation Strategies

1. The region will implement a pilot project to demonstrate the feasibility of reusable transportation packaging in businesses and counties.
2. The region will target major generators and disposers of transport packaging in a tailored public information/education campaign and will work with the OEA to develop educational and promotional materials and directories.
3. The region will work with the OEA to investigate legislative and policy barriers to OCC and pallet reduction and reuse. The region will then actively promote the resolution of those barriers.
4. The region will provide supplemental technical assistance by distributing listings of pallet re-manufacturers and fact sheets targeting large generators.
5. The region will provide government leadership by working with public entities to promote ways that government facilities can reduce OCC, pallet use and waste.

#### Negotiated County Outcomes

1. Anoka County will concentrate its efforts on facilitating the reduction of transport packaging in manufacturing and distribution centers.
2. Carver County will concentrate its efforts on facilitating the reduction of commercial packaging in light industrial facilities.
3. Dakota County will concentrate its efforts on facilitating the reduction of commercial packaging in County purchasing, including identifying the need for changes in the State and County purchasing contracts.
4. Hennepin County will concentrate its efforts on analyzing the potential for increased reduction of commercial packaging in County purchasing and in major retail centers, such as the Mall of America.
5. Ramsey County will concentrate its efforts on facilitating the reduction of commercial packaging in office buildings.
6. Washington County will concentrate its efforts on facilitating the reduction of commercial packaging in the grocery industry.

Intermediate Source Reduction Outcome #2: By 2003, the region will reduce office paper.
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Approximately 4% of total MSW generated in Minnesota is high grade office paper. Offices generate 170,300 tons of high grade office paper per year. The OEA has estimated, using the "EPA Source Reduction Program Potential Manual", that the statewide potential to reduce high grade office paper is 30,000 tons. The metropolitan potential is estimated to be two-thirds of this amount or 20,000 tons. Thus, the annual **regional target for office paper reduction is 20,000 tons by 2003.**

#### Regional Implementation Strategies

1. The region will undertake a pilot project in SWMCB operations to maximize reduction of office paper through electronic networking, duplex copying, eco-printing (using printing methods that reduce waste volume and toxicity), and other applicable techniques.
2. The region will undertake the following education strategies:
  - a. Work with vendors of copiers and printers to educate customers on equipment features for two-sided printing and duplicating.
  - b. Work with the OEA to promote an office paper reduction event.
3. To provide technical assistance, the region will:
  - a. a. Target major generators and disposers of office paper.
  - b. b. Distribute the OEA's Tool-Kit for businesses and other resources addressing office paper reductions to trade associations, public entities, and major office paper generators.
4. To promote government leadership, the region will encourage and promote office paper reduction and eco-printing among public entities.

#### Negotiated County Outcomes

1. Anoka County will concentrate its efforts on facilitating the reduction of office paper in government office buildings.
2. Carver County will concentrate its efforts on facilitating the reduction of office paper in government office buildings.
3. Dakota County will concentrate its efforts on promoting the reduction of office paper through modified County and public entity practices with an emphasis on information management practices.
4. Hennepin County will concentrate its efforts on facilitating the reduction of office paper in office buildings.
5. Ramsey County will concentrate its efforts on facilitating the reduction of office paper in office buildings.
6. Washington County will concentrate its efforts on facilitating the reduction of office paper in schools.

Intermediate Source Reduction Outcome #3: By 2003, the region will reduce unwanted, unsolicited mail.
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The OEA has not targeted unwanted, unsolicited mail in its Source Reduction Tactical Plan because of the difficulty of achieving success and the level of effort needed to make an impact. Although this outcome is not of the highest priority, some level of effort is recommended in light of the public interest in reducing this waste stream.

#### Regional Implementation Strategies

1. The region will work with one or more municipalities on a pilot program to examine opportunities for residential reduction of unwanted, unsolicited mail.
2. To provide education, the region will work with the OEA and Minnesota Waste Wise to develop and provide information in business assistance programs and work with municipalities to promote the reduction of unwanted, unsolicited mail.
3. The region will work with the OEA and the Attorney General's Office to identify ways to make it easier for recipients to reduce unwanted, unsolicited mail.

#### Negotiated County Outcomes

None. Primarily a State and regional responsibility.

Intermediate Source Reduction Outcome #4: By 2003, the region will facilitate the reuse of material redirected from the
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waste stream for reuse.

Reuse has significant potential in the region. One tool that the SWMCB has used since 1995 to facilitate the reuse of materials is MAX, a materials exchange program operated by MnTAP under contract with the SWMCB. For the 17-month reporting period ending December 1997, 1,591 tons were exchanged through MAX. While the current contract with MnTAP has an annual exchange goal of 5,000 tons, SWMCB and MnTAP staff estimate that the amount of materials exchanged could be increased to 10,000 tons through this program. In addition, there is significant potential for reuse in the residential sector, the deconstruction industry, and through other business programs that promote reuse. Therefore, the region is **targeting a reuse of 50,000 tons of material per year by 2003.**

#### Regional Implementation Strategies

1. To promote reuse through materials exchange, the region will:
  - a. Provide resources to support materials exchange programs.
  - b. Increase promotion, program development and resources to businesses, including Internet access.
  - c. Focus efforts on targeted materials.
2. To provide education to businesses, the region will develop targeted educational materials for selected business sectors.

#### Negotiated County Outcomes

1. Anoka County will concentrate its efforts on facilitating the reuse of residential materials (e.g., clothes, toys and small electronics).
2. Carver County will work with its Recycling Centers to expand its reuse options.
3. Dakota and Ramsey Counties will concentrate their efforts in generating and analyzing data that will be used to develop stronger, more effective source reduction and reuse messages that target the residential sector.
4. Hennepin County will concentrate its efforts in facilitating the reuse of glass, deconstruction materials and latex paint.
5. Washington County will concentrate its efforts in facilitating the reuse of residential materials (e.g., clothes, toys, small electronics).

Intermediate Source Reduction Outcome #5: By 2003, the region will reduce food waste.

Food waste represented approximately 11% of total MSW generated in Minnesota or approximately 514,800 tons. Of this amount, the OEA estimates that residents generated 50%, restaurants and grocers generated 30%, food processors generated 10% and 10% is generated by others. The OEA developed the Statewide reduction potential for food waste by using several sources, including the "EPA Source Reduction Program Potential Manual", MnTAP, national contacts and the Garbage Project at the University of Arizona.

The total food waste reduction tonnage potential is derived by disaggregating it into the potential of key programs, including backyard composting, food-for-people, and meal planning. The OEA estimates that the Statewide potential for backyard composting is 137,000 tons per year. The SWMCB estimates that of this amount, the region could achieve 36% or 50,000 tons. This lower percentage reflects the limited practicality of backyard composting in certain urban areas. The Statewide potential for food-for-people programs is 10,500 tons. It is estimated that the regional potential is 75% or approximately 7,500 tons. Statewide, meal planning has the reduction potential of 50,000 tons. It is expected that the region could achieve 17,500 tons. (However, the OEA found meal planning reduction potential the most difficult to estimate.) Meal planning is primarily focused on restaurants and institutions. Together, these food waste reduction potential estimates total 75,000 tons per year, by the year 2003. The total is a conservative estimate that reflects the uncertainty of the data and the potential for success. **The annual regional target for food waste reduction is 75,000 per year, by 2003.**

## Regional Implementation Strategies

1. The region will:
  - a. Work with the OEA to research the feasibility of institutional on-site food waste composting.
  - b. Work with the OEA to identify and remove barriers to residential on-site food waste composting.
  - c. Support food-for-people programs through promotion and research.
  - d. Work with institutional food service providers to develop methods for reducing food waste.
2. To provide education tools, the region will:
  - a. Work with the OEA to develop educational and promotional materials for each targeted trade group.
  - b. Work with the OEA and others to coordinate an educational campaign on appropriate, safe and clean backyard composting techniques.
3. The region will work with the OEA to investigate legal and other barriers to food reuse programs and will work to resolve such barriers, including providing education regarding the Good Samaritan Law.
4. To provide technical assistance, the region will:
  - a. Work with the OEA to create a directory of food redistribution centers and distribute the directory to restaurants and grocers.
  - b. Work with the OEA to develop a prototype food waste reduction action plan for each major generator type.
  - c. Target on-site assistance to major generators.

## Negotiated County Outcomes

1. Anoka County will concentrate its efforts on reducing residential non-animal food waste through composting.
2. Carver County will concentrate its efforts on reducing food waste through backyard composting.
3. Dakota County will concentrate its efforts on reducing food waste by providing case study data for public institution food-for-people programs.
4. Hennepin County will concentrate its efforts on reducing food waste in institutional food preparation.
5. Hennepin and Ramsey Counties will concentrate their efforts on reducing food waste through food-for-people programs.
6. Washington County will concentrate its efforts on reducing food waste through composting.

Intermediate Source Reduction Outcome #6: By 2003, counties will incorporate reduction and recycling guidelines at all county-operated facilities. The region will achieve a 10% reduction in the amount of waste generated at county-operated facilities, and the region will work with public entities to achieve reduction in facilities operated by public entities.

A significant theme in the Policy Plan is that government will serve as a leader in the implementation of the Policy Plan. Specifically, Policy 5.1.2.3 provides that the State, counties and local government will aggressively implement source reduction strategies, maximize internal reduction efforts and purchase products that reduce the volume of waste. The intermediate outcome is intended to use both reduction and recycling strategies.

## Regional Implementation Strategies

To promote government leadership in source reduction in counties, the region will:

1. Update and implement its "Environmentally Responsible Government Procurement Guide".
2. Work with the OEA to develop a standard cost analysis based on county and State facility contracts and bids for waste collection and recycling services.

3. Promote with member counties the use of standard vendor contract language for source reduction and recycling.
4. Work with the counties to develop specific strategies for decreasing the amount of waste and recyclables discarded from county-operated facilities.

#### Negotiated County Outcomes

1. Each county will reduce waste generated at county-operated facilities by 10% by 2003.
  - a. Each county will determine the baseline year and will determine how to measure its progress. For example, a county may choose to use a per employee measurement, a total tonnage measurement or some other measurement specific to its unique characteristics.
  - b. Each county will increase recycling efforts and adjust purchasing decisions to reduce the amount of MSW generated in its county-operated buildings.
  - c. Each county will assure that, in accordance with State law, all facilities under its control have recycling programs in place by 2000 to collect and recycle at least four materials, including office paper and cardboard when they each comprise a portion of a facility's waste stream.
2. Dakota County will support eco-printing techniques and practices (e.g. using soy inks recycled content paper and recyclable paper).

Intermediate Source Reduction Outcome #7: By 2003, 50% of the region's households and businesses will be able to identify five specific source reduction activities they have practiced within the past 12 months.
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The purpose of this proposed outcome is to measure the success of reduction education, public information and business assistance efforts in reaching people and businesses and in changing behavior.

#### Regional Implementation Strategies

To assist public education efforts the region will:

1. Ensure that public education/information materials developed by the SWMCB and counties include specific practices that can be measured.
2. Conduct periodic surveys to evaluate performance.

#### Negotiated County Outcomes

1. Anoka County will:
  - a. Provide County-wide outreach and education to businesses annually, at a minimum, and actively offer assistance to 10% of its businesses each year through site visits, telephone assistance and targeted promotions.
  - b. Focus its residential source reduction efforts on working with its municipalities and haulers to evaluate the potential for a residential materials exchange program.
2. Carver County will:
  - a. Promote reduction through public information.
  - b. Focus its residential source reduction efforts on backyard composting.
3. Dakota County will:
  - a. Assure business assistance is provided.
  - b. Focus its residential source reduction efforts on food purchasing practices.
4. Hennepin County will:
  - a. Provide on-site waste assessment to 100 businesses annually and will assist an additional 1,000 businesses annually through advertising, outreach and other public education strategies through 2001, and then will evaluate the results of the assistance to determine its subsequent reduction initiatives.
  - b. Focus residential source reduction efforts on landscape practices in conjunction with the University of Minnesota Extension Service.

5. Ramsey County will:
  - a. By 2003, offer all known non-household waste generators at least two opportunities to receive education, consultation and technical assistance on source reduction, and focus additional commercial outreach efforts on reduction of waste cardboard and office paper from office buildings and on reduction of food waste through food-for-people programs.
  - b. Work with other entities in the county to ensure that residential source reduction messages are consistent and frequently provided. The County will ensure that every household is offered source reduction messages at least once per year.
  
6. Washington County will:
  - a. Provide on-site waste assessment to 50 businesses annually and will assist an additional 2,000 businesses annually through advertising, outreach and other public education strategies.
  - b. Focus its residential source reduction efforts on reuse and backyard composting.
  - c. Focus its commercial source reduction efforts on grocers and schools.

Intermediate Source Reduction Outcome #8: Generators will be informed consumers of waste management services and will have an understanding of generator responsibilities and liabilities.

This intermediate outcome goes beyond source reduction. It promotes the integrated waste management system and discourages open burning and improper disposal of waste. Generators in the region will make daily choices regarding waste management. Generators must make informed choices in order for the region to succeed in meeting the vision and goals of this Regional Solid Waste Master Plan.

#### Regional Implementation Strategies

The region will work with counties to develop specific strategies for informing consumers about the benefits and impacts of waste management choices.

#### Negotiated County Outcomes

Each county will work to have its generators be informed consumers of waste management services and to have its generators understand the benefits and impacts of their disposal practices.

## VI. Reduction in Toxic/Hazardous Character of Waste

### A. Regional Reduction in Toxic/Hazardous Character of Waste Introduction

The Policy Plan requires the region to give source reduction and reduction in the toxic/hazardous character of waste the highest priority in planning for and development of the regional solid waste management system (Policy 5.1.2.1). In addition, the region supports the concept of shifting responsibility from government to manufacturers for proper waste management of products that require separate management or are shown to cause environmental harm (Policy 5.1.2.4). Whenever possible, efforts to eliminate the manufacture and sale of products with toxic/hazardous components will be supported (Policy 5.1.2.5).

Minn. Stat. §115A.02 establishes reduction in the toxicity of waste as a key purpose associated with improving waste management. This Master Plan interprets the statutory term "toxicity reduction" to mean reduction in the toxic/hazardous character of waste. Under more specific federal and State laws, toxicity is one of four characteristics of hazardous wastes, the others being corrosivity, ignitability (flamability), or reactivity (explosiveness).

### B. Regional Outcomes, Implementation Strategies and Negotiated County Outcomes

#### Principal Toxicity Reduction Outcomes

Principal Toxicity Reduction Outcome #1: By 2003, the toxic/hazardous character of MSW will be reduced.

Principal Toxicity Reduction Outcome #2: By 2017, manufacturers and retailers will take responsibility for consumer products that contain toxic or hazardous components when the product becomes waste.

The impact of toxic/hazardous materials on the environment can be significant. Wastes with toxic/hazardous components that are burned for energy recovery can create problems with air emissions and/or management of ash resulting from incineration. Toxic or hazardous components can leach into groundwater, or if properly contained by a leachate collection system, create additional costs associated with the management of collected leachate.

The region recognizes that it alone cannot reduce the toxic/hazardous character of the waste and that collaboration with the State and Federal government and the private sector will be necessary.

### Regional Implementation Strategies

To work toward achievement of the principal outcomes, the region will:

1. Place a strong emphasis on extended producer responsibility and retailer involvement in the management of wastes which require special handling or management.
2. Continue collection and management of HHW that is not being managed through private-sector initiatives.
3. Increase coordination of hazardous waste regulatory activities that will include education and technical assistance.
4. Increase public education regarding purchasing decisions and waste management practices.
5. Provide government leadership, with an emphasis on modeling best waste management practices.
6. Determine the most effective toxicity reduction messages targeting residents.
7. Strengthen regional and State collaborations through the Reciprocal Use Program and the MPCA HHW Contract.

### Negotiated County Outcomes

1. Each county will continue to use a variety of compliance strategies, including education, consultation, technical assistance, licensing, inspection and enforcement, to assure that regulated hazardous waste is properly managed.
2. Anoka County will provide convenient year-round access to HHW services for County residents that include reuse opportunities by the end of 2000.
3. Carver County will:
  - a. Provide convenient year-round access to HHW services.
  - b. Provide for the collection of special wastes and options for the collection of Very Small Quantity Generator (VSQG) waste.
4. Dakota County will:
  - a. Continue to have waste haulers and solid waste facilities remove and properly manage any hazardous materials that are improperly disposed by the generator. Based on the results of a pilot program, the County will provide a collection program for HHW at sanitary landfills and at other specified facilities.
  - b. Support a collection for VSQGs, if such a program is needed.
  - c. Continue to provide convenient year-round access to HHW services, including the HHW product reuse center.
  - d. Focus on providing education to citizens and businesses on hazardous waste collection and prevention programs, and placing more emphasis on manufacturer responsibility and waste reuse and recycling.
5. Hennepin County will:
  - a. Focus on providing education to citizens and businesses on hazardous waste collection and prevention programs, and placing more emphasis on manufacturer responsibility and waste

reuse and recycling.

b. Continue to provide convenient year-round access to HHW services.

6. Ramsey County will:

a. Continue to require all waste haulers and transfer stations operating in the county to remove and properly manage any hazardous waste materials to assure that regulated hazardous waste is properly managed, and that regulated entities are aware of options that reduce the quantity and hazardous character of waste.

b. Ensure that VSQGs have a convenient, cost-effective collection system to properly manage hazardous waste. Because the State is considering regulatory changes for VSQGs and because VSQGs generate a wide variety of wastes with varying degrees of risk, the County will first assess the VSQG collection system.

c. Undertake efforts so that households with HHW properly manage their HHW using a variety of management options.

7. Washington County will:

a. Continue to provide a permanent HHW facility and temporary collections through 2007.

b. Continue to ensure VSQG collection services are available as needed.

### Intermediate Toxicity Reduction Outcomes

Intermediate Toxicity Reduction Outcome #1: By 2003, manufacturers and retailers will demonstrate greater responsibility for reducing the amount of toxic/hazardous components of consumer products, and for managing these products when they become waste, focusing on products containing heavy metals and pesticides. In addition, households and businesses will use fewer products containing toxic/hazardous components and reduce the amount of the product used.

Heavy metals of primary concern include lead, mercury and cadmium, and products include batteries, electronic equipment and fluorescent lamps. This outcome reflects the priority in the region for reducing the amount of waste that must be separated from MSW for special treatment and increasing manufacturer and retailer involvement in managing those wastes that are not reduced. In focusing on metals, it is important to consider that some products with metals have an environmental benefit, such as the energy conservation impacts associated with fluorescent tubes.

Pesticides are targeted because some may contain toxic/hazardous components and because some alternatives are available for use by households and businesses.

### Regional Implementation Strategies

1. To address products containing heavy metals, the region will:

a. Work with the MPCA and the OEA to prioritize metals and products to be targeted.

b. Identify retailers and manufacturers of products containing heavy metals and initiate joint projects to reduce and recycle products containing heavy metals.

c. Develop joint public/private public education initiatives to encourage consumers to purchase items with less heavy metal content, and to properly manage products that contain heavy metals when they become waste.

d. Continue to explore options for take-back of electronic goods, specifically items containing cathode ray tubes (CRTs).

e. Work with others, including State agencies, to propose legislation for prioritized metals and products to reduce or eliminate the heavy metal content in those products.

f. Work with the State Department of Administration to establish a lease or take-back system for electronic equipment used by governmental units.

2. To address pesticides, the region will:

a. Work with State agencies, including the MPCA, the University of Minnesota Extension Service and the State Department of Agriculture, to identify retailers and manufacturers of pesticides and initiate joint projects to reduce the use of pesticides and increase the use of nontoxic and nonhazardous alternatives to pesticides. Explore the use of techniques such as Integrated Pest Management.

b. Develop joint public/private education initiatives to encourage consumers to use fewer pesticides, use alternatives to pesticides when appropriate and to properly manage pesticides when they become waste.

## Negotiated County Outcomes

1. Anoka County will, by December 31, 2000, use the following management hierarchy for computers no longer usable by Anoka County facilities: reuse, manufacturer take-back programs, recycling, and disposal only when the other listed options are not feasible.
2. Carver County will establish a system for reuse, lease take-back or proper management system for electronic equipment used by the County by 1999.
3. Dakota County will:
  - a. Work with retailers and manufacturers to manage CRTs and fluorescent lamps, preventing their introduction into MSW.
  - b. Support and host one regional pilot project developed for managing one specific hazardous material, in conjunction with retailers and manufacturers.
  - c. Educate consumers through a targeted educational campaign to understand the chemical composition of specified products that have measurable toxicity, in order to influence product purchasing, use and disposal.
  - d. Continue a system for reuse, lease take-back or proper management system for electronic equipment used by the County.
4. Hennepin County will:
  - a. Establish a lease or take-back system for electronic equipment used by the County by 2000.
  - b. Establish a program to review all chemicals purchased by the County to determine if a nonhazardous substitute may be used. The County will make the substitution if feasible.
5. Ramsey County will:
  - a. Establish, by 2002, a system to ensure proper management of electronic equipment used by the County.
  - b. Conduct periodic environmental reviews of County operations for proper use and management of toxic and hazardous materials.
  - c. Review the use of pesticides on County property and will have an Integrated Pest Management program in place by 2002.
6. Washington County will:
  - a. Establish, by 1999, a system for reuse, lease take-back or proper management for electronic equipment used by the County.
  - b. Review the use of pesticides on County property and will have an integrated Pest Management program in place by 2002.

Intermediate Toxicity Reduction Outcome #2: By 2003, 50% of households, businesses, and government entities will be able to identify three actions they have taken within the last twelve months to reduce the amount of toxic/hazardous materials purchased or to properly dispose of materials that contain toxic/hazardous materials.
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Providing information is one tool that can be used to change purchasing and waste management decisions.

## Regional Implementation Strategies

To provide needed information to the public, the region will:

- a. Develop a model that can be used regionally to provide public education on a variety of toxic/hazardous materials and products.
- b. Initiate discussions with manufacturers and retailers to gain their support for public education efforts. Their support may include developing programs and funding public education efforts.
- c. Implement regional public education initiatives targeting households.
- d. Develop a coordinated approach to provide information and technical assistance to nonresidential generators of hazardous wastes.

## Negotiated County Outcomes

1. Anoka County will:
  - a. Continue to include reduction methods and proper management of HHW in its public information.
  - b. Produce and distribute an educational flyer designed for the business community on the environmental benefits of proper waste management, including toxic and hazardous materials.
2. Carver County will:
  - a. Continue to include reduction methods and proper management of HHW in its public information.
  - b. Produce and distribute an educational fact sheet designed for the business community on the environmental benefits of proper waste management including toxic and hazardous materials.
3. Dakota County will:
  - a. Expand current awareness of consumers by continuing progressive collection programs.
  - b. Expand current awareness of businesses and government entities by continuing active enforcement of hazardous and solid waste regulations, holding educational workshops and undertaking an educational campaign targeting businesses.
  - c. Demonstrate proper usage and management of toxic and hazardous materials through periodic environmental audits of County government buildings.
4. Hennepin County will provide online access to fact sheets and brochures on the management of hazardous chemicals.
5. Ramsey County consumers, businesses and public entities will demonstrate an increased knowledge of the health and environmental effects of improper management of hazardous materials, as measured through County surveys.
6. Washington County will increase awareness by continuing to provide targeted education and marketing to consumers, businesses, government and schools, resulting in proper management of hazardous materials.

Intermediate Toxicity Reduction Outcome #3: By 2003, consumers will have the tools necessary to make choices concerning the purchase of products containing toxic/hazardous materials.

The State of Minnesota, through the MPCA, is participating in a national effort to improve labeling of products containing toxic/hazardous materials. This effort is a collaboration among the United States Environmental Protection Agency, state environmental agencies and industry representatives, and the effort will result in national guidelines for labeling pesticides and cleaning products. Guidelines for pesticides and cleaning products should be in place by the year 2000, with guidelines for other types of materials to follow. The region will be able to use these guidelines as a public information tool.

#### Regional Implementation Strategies

To provide consumers with necessary tools, the region will:

1. Continue to work with the EPA, the State and industry representatives on the national labeling effort.
2. Work with the OEA and the MPCA to develop and support State labeling legislation by 2003.
3. Work with the OEA and the MPCA to provide information to consumers on point-of-purchase decisions.

#### Negotiated County Outcomes

None.

Intermediate Toxicity Reduction Outcome #4: Government will be a leader in the use of substitute products that do not contain toxic/hazardous materials and also will use reprocessed and recycled hazardous wastes where appropriate.

The most effective way to reduce the amount of toxic/hazardous materials in waste is for consumers to change their purchasing habits. Government can provide leadership by changing its procurement practices

and by developing procurement guidelines.

### Regional Implementation Strategies

The region will promote the role of government as leader and will:

1. Evaluate the use of recycled wastes, including used oil in county vehicles.
2. Establish procurement policies to discontinue or reduce the purchase of items containing mercury.
3. Establish a preference for the use of recycled paint on county buildings.
4. Provide support to counties as they establish programs to review chemicals purchased by the counties to determine if nonhazardous substitutes may be used.

### Negotiated County Outcomes

1. Anoka County will:
  - a. Work with County-operated facilities to evaluate, and if feasible, reduce the use of hazardous materials and increase the use of products made from reprocessed or recycled hazardous materials.
  - b. Review the cleaning products purchased and used for County facilities and will substitute nonhazardous products when feasible by 2003.
  - c. Continue the process of having County-operated facilities review the use of pesticides and fertilizers to determine if nonhazardous products could be substituted and, if not, then determine if fewer pesticides or fertilizers could be used.
2. Carver County will address purchasing and property management policies and work with the Highway Department to reduce the use of hazardous materials and increase the use of reprocessed or recycled hazardous waste.
3. Dakota County will:
  - a. Continue to use nontoxic cleaning materials and produce minimal amounts of unavoidable hazardous waste in vehicle and building maintenance. The County will document the use of these materials and provide this information to other governmental units.
  - b. Work with the County's Parks, Highway and Facilities Management Departments to review the use of pesticides and fertilizers to determine if less hazardous products could be substituted, and if not, review the level of chemicals added, with the objective of lessening the impact of the chemicals on the environment.
4. Hennepin County will review cleaning products and other chemicals, as appropriate, purchased and used for County facilities and will identify nonhazardous substitute products and make a substitution if feasible by 2001.
5. Ramsey County will:
  - a. In county operations, continue to increase the use of substitute products that do not contain toxic/hazardous materials and, if appropriate, will use reprocessed and recycled hazardous waste.
  - b. Review cleaning products and other chemicals, as appropriate, purchased and used for County facilities and will identify nonhazardous substitute products and make substitutions if feasible by 2001.
6. Washington County will:
  - a. In County operations, continue to increase the use of substitute products that do not contain toxic/hazardous materials, and if appropriate, will use reprocessed and recycled hazardous waste.
  - b. Establish a program to review all cleaning products and other chemicals, as appropriate, purchased by the county to determine if a nonhazardous substitute may be used, and will make a substitutions if feasible.

Intermediate Toxicity Reduction Outcome #5: The region will identify industry trends that could have a significant impact on the amount of toxic/hazardous materials in the waste stream.

As some new products come on the market, the nature and amount of toxic/hazardous materials change. Examples include the introduction of latex paint with less mercury, digital TVs, fluorescent lamps to replace incandescent lighting and children's tennis shoes with mercury lights. While the region is not responsible for conducting primary research on products to determine their toxic/hazardous content, it is the region's responsibility to monitor and conduct secondary research on trends in product use which will ultimately affect the level of toxic/hazardous materials in the waste stream.

#### Regional Implementation Strategy

The region will actively monitor trends in product use that may affect the level of toxic/hazardous materials in the waste stream.

#### Negotiated County Outcomes

None.

Intermediate Toxicity Reduction Outcome # 6: The amount of waste latex paint will be reduced, and responsibility for management of remaining waste latex paint will shift from government to paint retailers and manufacturers.

Latex paint is the largest waste stream collected at HHW facilities and collection events. In 1997, over 1.2 million pounds of latex paint was collected by metropolitan counties. Although latex paint produced today is not hazardous, it remains a problem waste for several reasons. Paint cans containing liquid paint cannot be disposed of in MSW, consumers cannot always distinguish between oil-based and latex paint, and older latex paint may contain mercury. For these reasons, counties continue to collect latex paint at HHW facilities and events. In addition, HHW program operators believe that by accepting latex paint, counties encourage households to properly manage other wastes that contain toxic/hazardous materials.

The focus of regional efforts to improve the system for managing waste latex paint is to shift responsibility from government to the private sector by enlisting the support of paint retailers, manufacturers and distributors to provide drop-off options and to fund needed management programs. Through these efforts, the primary outcome of reducing the need for collection of waste latex paint becomes a shared goal for those who manufacture and sell latex paint, as well as for the government sector.

#### Regional Implementation Strategies

The region will:

1. Establish a "Latex Paint Solutions Task Force" composed of public and private sector partners. By June 1999, the Task Force will produce plans for a long-range public education effort and for specific strategies to reduce government spending for latex paint management and disposal.
2. Work with the OEA and other interested parties to draft model legislation to require product stewardship for latex paint.

#### Negotiated County Outcomes

1. Dakota County will use remanufactured paint on a demonstration basis to paint selected areas of one or more County buildings and will provide resulting information to other governmental units and private entities.
2. Hennepin County will study the use of remanufactured paint in County buildings and will provide resulting information to other counties.

## VII. Recycling

### A. Regional Recycling Introduction

The region recognizes that recycling is an integral component of the integrated waste management system. The recycling policies in the Policy Plan reaffirm the region's commitment to recycle at least 50% of the region's MSW, including the 5% yard waste and 3% source reduction credits. (The recycling rate based on tonnage alone is 42%). Figure VII.1 shows the impact of achieving the reduction and recycling outcomes. Note that, although the level of recycling will remain constant, substantially more tonnage must be recycled to meet the regional outcome.

Figure VII.1

Tons of Materials Recycled			
	Actual 1997	Projected 2003	Projected 2017
MSW Projected	2,949,967	3,599,000	5,048,000
Reduction Outcome	N/A	235,000	1,342,000
MSW Generation After Reduction	2,949,867	3,364,000	3,706,000
Recycling Outcome (42%)	1,203,525	1,413,000	1,557,000

## B. Regional Outcomes, Implementation Strategies and County Negotiated Outcomes

### Principal Recycling Outcome

Principal Recycling Outcome: Collectively, the region will achieve at least a 50% MSW recycling rate (including a 3% source reduction and a 5% yard waste credit) every year, through 2003.

To maintain the region's success in recycling, the region will focus its efforts on materials that have the greatest potential for recycling and on generators that can have a significant impact on the tons recycled. Therefore, the region will concentrate on the commercial sector, where significant increases in tonnage can be expected. As in source reduction, targeted materials will include office paper, food waste and transport packaging. Residential recycling programs are in place and require support to achieve the outcome. Because businesses do not generally make a clear distinction between reduction and recycling, the strategies below are closely aligned with the source reduction strategies. The roles and responsibilities for implementing are likewise similar to the source reduction roles and responsibilities (See [Section V, Part B](#)). The implementation strategies recognize the need for collaboration with the OEA, MnTAP, Minnesota Waste Wise, trade associations and other business organizations.

### Regional Implementation Strategies

The region will focus its efforts on increasing commercial recycling of office paper, food waste and transport packaging. These strategies will be closely linked with the source reduction strategies. In addition, efforts will be put in place to increase residential and multi-family housing recycling. To work toward achieving at least the 50% regional recycling rate, the region will undertake the following strategies.

1. The region will undertake the following education strategies:
  - a. Update and distribute the "Resourceful Waste Management Guide."
  - b. Develop a SWMCB web page.
  - c. Coordinate county residential and multi-family housing recycling messages.
  - d. Work with the OEA to develop educational and promotional materials for each targeted material.
2. The region will provide government leadership and promote responsible procurement by exploring the expansion of cooperative purchasing so that public entities can procure recycled products at the least possible cost, and by updating and distributing the "Environmentally Responsible Government Procurement Guide".
3. The region will research zoning and design barriers to commercial and multi-family recycling and develop model planning, zoning and building ordinances or guidelines that will minimize recycling barriers.

## Negotiated County Outcomes

1. Anoka County will:
  - a. Undertake efforts so that residents are aware of and utilize recycling opportunities that will increase the participation rate and result in at least an average residential recycling rate of 175 pounds per person of SCORE eligible materials by 2003.
  - b. Work cooperatively with municipal and county regulators to identify barriers for residential and nonresidential recycling in Anoka County.
  - c. Focus its efforts in the commercial sector on manufacturing industries and distribution centers.
2. Carver County will:
  - a. Analyze its programs and policies to identify and implement opportunities to improve recycling participation rates and the amount of recyclables set out for collection by each person.
  - b. Focus its efforts on facilitating the recycling of commercial packaging in light industrial facilities.
3. Dakota County will:
  - a. Work with the public and private sectors to maintain household recycling rates at 1997 levels.
  - b. Add a material to the list of County-wide materials required for collection when the collection is shown to be technically and economically feasible.
  - c. Focus its efforts on food waste recycling (e.g., Endres Processing and animal farmers).
4. Hennepin County will:
  - a. Focus on increasing the recycling participation rate of households.
  - b. Promote and encourage additional commercial and industrial recycling through its business waste reduction and recycling program.
  - c. Focus efforts on outreach and education to residents.
  - d. Focus its efforts on packaging purchased by counties and on major retail centers, such as the Mall of America.
5. Ramsey County will:
  - a. Work with municipalities to achieve a county-wide increase in the number of households participating in municipally-sponsored, single-family curbside recycling services by 2003.
  - b. Work with municipalities to achieve a county-wide increase in the percentage of households participating in multi-unit housing recycling programs by 2003, as reported in surveys.
  - c. Increase the percentage of households that recycle at least four materials regularly by 2003, as reported in surveys.
  - d. Work with municipalities and service providers and support residential recycling programs to maintain collection of at least 162 pounds of recyclables per person through 2003, with the intent to increase per capita collection at a rate exceeding the per capita rate of growth in MSW generation.
  - e. Focus its efforts on commercial packaging and office paper in office buildings.
6. Washington County will:
  - a. Work with municipalities to achieve a County-wide increase in the number of households participating in curbside recycling services by 2003.
  - b. Increase the percentage of multi-unit households participating in recycling programs at their residences by 2003, as reported in surveys.
  - c. Work with municipalities and service providers and support residential recycling programs to maintain collection of at least 162 pounds of recyclables per person through 2003, with the intent to increase per capita collection at a rate exceeding the per capita rate of growth in MSW generation.

## Intermediate Recycling Outcomes

Intermediate Recycling Outcome #1: By 2003, 80% of the region's businesses that generate old corrugated cardboard or office paper waste will regularly practice reduction

A large percentage of businesses in the region currently recycle or reduce cardboard and office paper. The

intent of this outcome is to strive to make incremental improvements to the reduction and recycling of paper and to enhance current efforts and programs.

### Regional Implementation Strategies

The regional implementation strategies for this section are consistent with the Source Reduction Intermediate Outcome #2 strategies. Note that where strategies for source reduction are set forth, recycling will be encouraged if reduction is not possible.

### Negotiated County Outcomes

1. Anoka County will identify businesses that generate cardboard and office paper and will provide information to those businesses on how to reduce and recycle cardboard and office paper.
2. Carver County will maintain its current efforts to facilitate the reduction and recycling of office paper.
3. Dakota County will:
  - a. Implement a phased business recognition program.
  - b. Support eco-printing techniques and practices (e.g., using soy inks, recycled content paper and recyclable paper).
4. Hennepin County will:
  - a. Focus efforts on its Business Waste Reduction/Recycling Program.
  - b. Separate cardboard and wood waste at its transfer stations and at HERC.
  - c. Focus efforts on promoting recycling at school buildings.
5. Ramsey County will:
  - a. Undertake efforts so that 80% of the businesses in the county who report on County surveys that they create waste cardboard, and 75% of those who report they create office paper waste, report that they have recycling programs in place for these materials by 2003.
  - b. Offer all known non-household generators of commercial recyclables at least two opportunities to receive education, consultation or technical assistance on recycling, and will focus additional commercial outreach efforts on recycling waste cardboard and office paper from office buildings by 2003.
  - c. In consultation with the OEA, research barriers and solutions to recycling office paper in office buildings and present findings to other counties by 2001.
6. Washington County will, in conjunction with its reduction efforts, concentrate on the recycling of office paper in schools and cardboard in grocery stores.

Intermediate Recycling Outcome #2: The region will target materials, collection and marketing strategies that result in the collection and recycling of the most materials for recycling at the least possible cost.

To encourage recycling, the State and counties have allocated significant resources to the start-up and maintenance of recycling programs. In the past, most of those resources have been directed toward residential programs; however, programs such as county and municipal drop-off sites and technical assistance have been made available to businesses as well. As the recycling system matures, it is critical to evaluate the cost-effectiveness of recycling programs to determine if those programs are sustainable or if they can be made more cost-effective.

There is a need to research which collection methods are the most efficient and to evaluate innovative systems which could reduce costs of collection and produce more recyclables. Likewise, some materials are more cost-effective than others to collect and recycle because of the characteristics of the material, market conditions, processing requirements and other factors.

### Regional Implementation Strategy

Working with municipalities and private service providers, the region will assess the efficiency and effectiveness of city and county recycling programs and explore funding options and innovative programs, in order to identify opportunities that will allow the region to achieve and sustain at least a 50% recycling

rate.

#### Negotiated County Outcomes

1. Each county will, by 2000, gather information about the level and type of service, price of service, quality of service and service performance for use in analysis of local recycling efforts.
2. Anoka County will annually target its efforts on one material and work with haulers to provide technical assistance to municipalities and businesses on the most cost-effective method for collection of these materials.
3. Carver County will continue its commitment to the operation of drop-off centers.
4. Dakota County will promote the use of drop-off sites and continue to fund the County Eco-Site recycling and HHW drop-off site.
5. Hennepin County will evaluate opportunities for improvements in multi-family collection methods.
6. Ramsey County will:
  - a. Continue to require that municipalities provide residents with the opportunity to recycle and have a long-term funding plan in place for residential recyclables collection, including multi-unit housing recycling.
  - b. Assure that information prepared by the State and region regarding high quality, cost-effective recyclables collection is distributed to municipalities as soon as such information becomes available, in order to assist them in making decisions about local recycling programs.

Intermediate Recycling Outcome #3: The growth in the recycling industry will keep pace with the rate of overall economic growth in Minnesota and will reflect the changing market needs resulting from a change in the composition or quantity of materials found in the waste stream. The region will act as a leader in the procurement of products with recycled content.

The region recognizes that the development of markets for recyclables is critical to the success of the region's recycling efforts and the integrated waste management system. While market development is largely the responsibility of the State, there are strategies the region can implement to assist the State, including: 1) helping stabilize a long-term balance between supply and demand for recovered materials and recycled products, 2) increasing demand and purchase of recycled products, and 3) fostering the development of manufacturing capacity to produce recycled products. Additionally, the region will need to take into consideration the changing composition of the waste stream and the different market needs that may result from those changes.

#### Regional Implementation Strategies

1. The region will conduct research by:
  - a. Working with the OEA to identify current and future market needs for materials collected in the region.
  - b. Identifying the impact that changes in the quantity, quality and type of waste available for recycling will have on collection programs.
2. The region will undertake education and other strategies as appropriate that target city and county economic development staff who are in regular contact with businesses and who can promote the benefits of recycling and purchasing products with recycled content.
3. The region will work with trade associations or industry by:
  - a. Assisting the OEA with its efforts to work with manufacturers to promote the use of recycled materials in products.
  - b. Working with targeted industries to encourage the use of recycled paper.

#### Negotiated County Outcomes

1. Anoka County will:
  - a. Promote the utilization of recycled feed stock in new and existing County businesses.

- b. Increase the purchase of products made from recycled material.
2. Carver County will
  - a. Promote the utilization of recycled feed stock in new and existing County businesses.
  - b. Increase the purchase of products made from recycled material.
  - c. Promote the "buy-recycled" message in County buildings and public entities, emphasizing recyclables as a resource, not a waste.
3. Dakota County will:
  - a. Promote the "buy-recycled" message to all County waste generators and public entities, emphasizing recyclables as a resource or asset, not a waste.
  - b. Consider leasing County property for solid waste purposes.
4. Hennepin County will increase the procurement of environmentally responsible products that contribute to sustainability.
5. Ramsey County will:
  - a. Include "buy recycled" messages in its public information efforts to all businesses, institutions and residents at least once per year through 2003.
  - b. Undertake efforts so that, by 2003, 50% of businesses responding to County surveys report that they have a policy to favor the purchase of products that have recycled content or are environmentally friendly. This will represent an increase from 32% in 1996.
6. Ramsey, Washington and Dakota Counties will work with the Metro East Development Partnership and local economic development entities to increase awareness of the recycling industry and the opportunities for growth by pursuing such industries.

## VIII. MSW Processing

### A. Regional MSW Processing Introduction

The Policy Plan provides that it is the policy of the region that all MSW that is not reduced or recycled will be processed to the extent feasible (Policy 5.3.2.1). This policy maintains the Waste Management Act's preference for processing over the landfilling of waste. To achieve this preference over the next six years, however, will require a greater degree of collaboration among the region, the State and the counties. The Policy Plan promotes cooperation among the counties to use the existing facilities to the greatest extent possible, and provides that the region will work with the State to remove constraints on existing combustion capacity.

The region currently processes approximately 1,103,000 tons of waste. By 2003, 1,923,000 tons of MSW will remain available for processing and landfilling, assuming reduction outcomes are achieved, current processing facility capacity is fully utilized and 50% of the MSW is recycled. Because existing processing capacity is nearly fully used, additional capacity will be necessary to meet the growing demand.

### B. Regional Outcomes, Implementation Strategies and Negotiated Outcomes

#### Principal MSW Processing Outcome

The intermediate outcomes and implementation strategies together will move the region toward this principal outcome. The 1997 rate of processing was approximately 65%, as measured by the percent of MSW that is available for processing after reduction and recycling is achieved and problem materials are separately managed. This outcome maintains the current rate of processing at the 1997 level.

To maintain the processing rate of 65% in the future, the region will need additional capacity beyond the current capacity of 1,165,000 tons at the three primary facilities of HERC, NSP-Elk River and NRG-Newport. In fact, as shown in Figure VIII.1, by 2017 the region will need 1,377,000 tons of processing capacity including 212,000 tons of additional capacity, in order to meet this principal outcome.

FIGURE VIII.1

MSW Processing Outcome			
	Actual 1997	Projected 2003	Projected 2017
MSW Projected	2,949,967	3,599,000	5,048,000
MSW Available for Processing	1,725,963	1,923,000	2,118,000
Processing Outcome	1,102,852	1,323,500	1,377,000

Without this additional capacity, the region will only be able to process 55% of MSW that is not reduced or recycled. Landfilling will increase to 953,000 tons by 2017. In order to plan for the additional processing capacity, the strategies set forth call for the establishment of a policy committee and the development of an implementation plan to process MSW.

The principal outcome reflects the regional commitment to processing, and the implementation strategies will position the region to prepare for a future with increasing volumes of waste.

#### Regional Implementation Strategies

Regional Implementation Strategies are addressed in the Processing Intermediate Outcomes Section.

#### Negotiated County Outcomes

1. Each county will:
  - a. Work with public entities so that their waste is managed in accordance with the Policy Plan, the Master Plan and Minn. Stat. §115A.46 and §115A.471.
  - b. Support the development of regional processing capacity.
2. Anoka County will optimize the amount of MSW processed (that is not reduced or recycled) at its contracted resource recovery facility through August 2009.
3. Carver County will:
  - a. Continue to offer a subsidy or financial incentives for processing.
  - b. Encourage innovation and new technology through demonstration projects or other means for waste that would otherwise be landfilled.
  - c. Participate in the regional efforts to expand processing capacity and increase the amount of waste processed.
4. Dakota County will:
  - a. Offer a hauler financial incentive through 2003.
  - b. Support the acceptance of waste combustion ash and residue at appropriate permitted facilities located in Dakota County.
  - c. Participate in the regional efforts to increase processing capacity and increase the amount of waste processed.
  - d. Encourage innovation and new technology through demonstration projects or other means for waste that would otherwise be landfilled.
  - e. Emphasize reuse and recycling in order to optimize the available capacity at processing facilities.
5. Hennepin County will:
  - a. Maximize the amount of MSW that is processed into electricity through its contracted resource recovery facility through the year 2009 for the Elk River Resource Recovery Facility and 2019 for HERC which are the ends of the delivery agreements.
  - b. Optimize the available capacity at its contracted processing facilities by emphasizing reuse and recycling.
  - c. Investigate economically feasible and environmentally safe non-landfilling alternatives for processing combustion by-products (e.g. residue and ash).
6. Ramsey and Washington Counties will:
  - a. Optimize the amount of MSW processed (that is not reduced or recycled) at its contracted resource recovery facility through July 2007.
  - b. Work so that consumers understand the benefits related to waste processing, as measured by

surveys.

### Intermediate MSW Processing Outcomes

Intermediate MSW Processing Outcome #1: By 2000, the region will complete an implementation plan to process MSW through 2017.

Expansion of processing capacity will be difficult and will require the collaboration of the private sector, the State and regional bodies to identify opportunities and to finance facility development. The regional strategies reflect the complexities of the issue but are structured to position the region to respond to the growing MSW stream and to regionally address the expiration of the service agreements with existing facilities.

#### Regional Implementation Strategies

1. The region will lead the development of a plan to process metropolitan MSW through 2017. The Plan will be prepared in collaboration with the OEA, the MPCA and the Metropolitan Council through the establishment of a policy committee. The Plan will identify regional opportunities for expanding capacity and for maintaining existing capacity and will develop a program to implement processing initiatives.
2. The region and the OEA will prepare and propose State and federal legislative initiatives to define MSW as a renewable energy source.

#### Negotiated County Outcomes

1. Dakota County will encourage innovation and new technology through demonstration projects or other means for waste that would otherwise be landfilled.
2. Carver County will take the lead on encouraging innovation and new technology through demonstration projects or other means for waste that would otherwise be landfilled.
3. Hennepin County will take the lead role in monitoring the impact electric utility deregulation will have on the waste processing facilities used by the region.

Intermediate MSW Processing Outcome #2: Through 2003, 100% of current metropolitan MSW processing capacity will continue to be fully utilized to process MSW not reduced or recycled.

This outcome stems from the recognition of the difficulty in maintaining the status quo in light of the loss of regulatory tools and the competing demands for public resources. The current processing capacity of the region at HERC, NSP-Eik River and NRG-Newport is 1,165,000 tons per year.

#### Regional Implementation Strategy

The region will work with the State of Minnesota to ensure the enforcement of the public entities law.

#### Negotiated County Outcomes

1. Anoka County will optimize the processing of MSW generated in the County that is not reduced or recycled, to the extent that processing capacity is available.
2. Carver County will continue negotiations with facilities that have available capacity.
3. Dakota County will support licensed haulers' use of metropolitan waste processing capacity for MSW generated in Dakota County.
4. Hennepin County will maximize the amount of MSW that is processed into electricity through its contracted resource recovery facilities.
5. Ramsey and Washington Counties will work to assure a waste supply to the NRG-Newport facility that

optimizes the amount of MSW processed (that is not reduced or recycled) from the two counties.

Intermediate MSW Processing Outcome #3: By 2003, metropolitan MSW processing capacity will increase by 158,500 tons up to a total annual MSW processing capacity of 1,323,500 tons.

To increase the regional processing capacity by 158,500 tons (13% above current capacity), the region will have to increase the permit at HERC by 35,000 tons, process 50,000 tons of MSW at facilities such as the East Central Solid Waste Commission composting facility, SKB Source Separated Composting Facility or Wright County Compost Facility, and increase the throughput at NRG-Newport up to its 500,000 ton permitted level and address the corresponding need for increased combustion capacity.

Figure VIII.2

Increase in Processing Capacity	
Capacity	Tons Per Year
Increase in HERC Permitted Capacity	35,000
Increase in Non-Contracted Processing Capacity	50,000
Increase in Newport Capacity	73,500
Total Increase in Capacity	158,500
Current Capacity	1,165,000
Intermediate MSW Processing Outcome #3 Capacity	1,323,500

### Regional Implementation Strategy

To address this short-term expansion of processing capacity, the region will work with the State to remove combustion capacity constraints, evaluate the feasibility of using existing capacity at facilities not currently under contract with metropolitan counties, and examine the use of a market participant approach and other waste assurance tools.

### Negotiated County Outcomes

1. Anoka County will work with NSP/NRG and the Resource Recovery Operations Committee to achieve efficiencies at the NSP-Elk River Resource Recovery Facility.
2. Carver County will work to identify new processing capacity and non-conventional processing methods.
3. Dakota County will strengthen public/private partnerships by working with SKB Environmental on the processing of food waste at the SKB Environmental source-separated organic composting facility.
4. Hennepin County will:
  - a. Examine the feasibility of requesting a permit modification to allow HERC's capacity to be increased to its design capacity to process Hennepin County waste that is currently landfilled.
  - b. Work with NSP/NRG and the Resource Recovery Operations Committee to achieve efficiencies at the NSP-Elk River Resource Recovery Facility.
5. Ramsey and Washington Counties will work with NRG to increase processing capacity and efficiencies at the NRG-Newport facility.

## IX. MSW Landfilling

### A. Regional MSW Landfilling Introduction

The Policy Plan acknowledges that landfills have a role in the solid waste management system and that sufficient capacity should be available. Nevertheless, the disposal of solid waste in landfills is the least preferred management method. The Policy Plan recognizes that the private sector has primary responsibility for the delivery of landfilling services. Further, the region has defined the role of government

in landfilling as that of system assessment (Policy 5.4.2.2). It is also the policy of the region that generators are responsible for the ultimate disposal of their waste (Policy 5.4.2.4) and that education will be used as a tool to provide generators with the information they need to make decisions about how their waste is disposed.

Given the expected growth in the waste stream, the region will have a considerable need for landfill capacity. The amount of capacity needed is directly linked to the achievement of the region's reduction, recycling and processing outcomes. Figure IX.1 below shows the amount of landfill capacity needed for unprocessed MSW if the region achieves its reduction outcome, recycles 50%, and processes 65% of the MSW not reduced or recycled. Landfill capacity for processing residue, rejects and ash will also be needed.

Figure IX.1

Tons of Capacity Needed for Landfilling Unprocessed MSW			
	1997	2003	2017
MSW Projected	2,949,967	3,599,000	5,048,000
Reduction, Recycling and Processing Outcomes and Problem Materials Managed		2,999,500	4,307,000
Landfill Capacity Needed	625,052	599,500	741,000

## B. Regional Outcomes, Regional Implementation Strategies and Negotiated County Outcomes

### Principal MSW Landfilling Outcomes

Principal MSW Landfilling Outcome: Capacity for MSW will be available in sanitary landfills through the year 2017 for MSW that cannot be reduced, recycled, or processed.

Capacity and need are constantly changing and should be evaluated periodically. Capacity available to the metropolitan area includes capacity located in the metropolitan area and in Greater Minnesota and capacity in out-of-State locations. The approach used to address landfill capacity assumes that nonMSW will be managed appropriately so as to minimize competition with MSW for sanitary landfill capacity.

### Regional Implementation Strategy

The region will rely on the market to provide landfill capacity, but will monitor available capacity and will prepare a capacity report periodically.

### Negotiated County Outcomes

None. This is primarily a private sector responsibility.

Principal MSW Landfilling Outcome #2: Sanitary landfills will be designed, operated and managed to protect the environment and public health.

### Regional Implementation Strategies

The region will:

- Work with the OEA to develop information regarding resource recovery operations at landfills receiving MSW generated in the metropolitan area.
- Encourage the MPCA to conduct research regarding the reclamation of closed landfills.
- Encourage the MPCA and the OEA to require metropolitan landfills to include options for beneficial use of landfills as part of their closure plan.
- Work with the OEA to conduct a periodic review of landfills receiving MSW from the metropolitan area for compliance with Policy Plan standards.

### Negotiated County Outcome

Dakota County will regulate sanitary landfills that receive MSW and are located within its County boundaries to protect the environment and public health.

#### Intermediate MSW Landfilling Outcome

Intermediate MSW Landfilling Outcome: Public entities will serve as leaders in making responsible waste management choices about MSW landfilling.

Because government is a consumer of landfill capacity, it can model environmentally sound decision-making and limit its liability by adhering to responsible waste management principles. Policy 5.4.2.4 establishes the characteristics of landfills that best meet appropriate management principles.

#### Regional Implementation Strategy

The region will work with public entities to assist them in making responsible waste management choices about landfilling and directing their waste to appropriate facilities. The region will address waste management choices in the revised "Environmentally Responsible Government Procurement Guide."

#### Negotiated County Outcomes

Each county will:

- a. Use responsible waste management principles when arranging for the landfilling of waste.
- b. Work with public entities within its county so that the public entities use responsible waste management principles when arranging for landfilling of waste.
- c. Emphasize reuse and recycling in order to optimize the available capacity at landfills.

### X. NonMSW Management

#### A. Regional NonMSW Management Introduction

The Policy Plan recognizes, for the first time, that nonMSW should receive greater attention in regional decision making (Policy 5.5.2.1). In order to develop nonMSW policies and programs, however, it will be necessary to collect data, evaluate environmental impacts and regulatory issues, and identify best management practices. At the same time, the Policy Plan establishes expectations that government, businesses and the waste industry take responsibility and make decisions in a manner that will minimize environmental harm and encourage reuse, recycling and resource recovery, where appropriate (Policies 5.5.2.3, 5.5.2.4 and 5.5.2.5).

According to data collected by the MPCA, the region landfilled approximately 1.2 million tons of nonMSW, in construction, demolition, and special waste landfills in 1997. In addition to landfilling, nonMSW was managed through processing, incineration and beneficial reuse (e.g. land application).

#### B. Regional Outcomes, Implementation Strategies and Negotiated County Outcomes

##### Principal NonMSW Management Outcome

Principal NonMSW Management Outcome: By 2003, the region will see an increase in the reduction, reuse, recycling or processing of nonMSW to preserve landfill capacity as a resource.

##### Intermediate NonMSW Management Outcomes

Intermediate NonMSW Management Outcome #1: Beginning in 1999 and completed by December 31, 2000, nonMSW waste characterization data (definitions, quantities and composition), along with information on existing and alternative management practices, will be available on a regional level for use in policy and program development.

Achieving this outcome will provide the data necessary to develop strategies for achieving other nonMSW management outcomes, policies, and goals in the Policy Plan and the Master Plan.

## Regional Implementation Strategy

Working with industry, the region will develop baseline data, evaluate management practices and establish management priorities.

## Negotiated County Outcomes

Dakota County will:

1. Take the lead in the region in compiling data that the region can use in achieving the outcomes of the Master Plan including the potential for alternative management practices for nonMSW.
2. Encourage private sector involvement in nonMSW management within the County and within the metropolitan area.

Intermediate NonMSW Management Outcome #2: By 2003, 75% of public entities in the region will implement additional strategies to reduce, reuse, recycle or process nonMSW waste generated through public sector activities from information obtained in the assessment of the nonMSW stream.

Achievement of this outcome would: a) preserve landfill capacity for those waste streams for which no alternative management system exists; b) reduce impact on air quality caused by burning, and methane generation caused by burying, tree waste; and c) conserve natural resources since recycled material would replace the use of virgin material. An established private sector system exists as an alternative to land disposal or burning of many nonMSW streams.

## Regional Implementation Strategy

The region will provide education and technical assistance to public entities regarding the appropriate management of nonMSW.

## Negotiated County Outcomes

Each county will:

1. Implement one or more additional strategies by 2003 to reduce, reuse, recycle or process portions of the nonMSW stream generated by county activities.
2. Undertake efforts so that public entities in the county will be in a position to implement one or more additional strategies to reduce, reuse, recycle or process portions of the nonMSW stream.

Intermediate NonMSW Management Outcome #3: By 2003, markets for processing and recycling of nonMSW will be further developed.

This is an outcome that will strengthen the ability of the region to sustain environmentally sound nonMSW management practices. The negotiated county outcomes reflect the philosophy that markets will be strengthened by increasing the supply of materials for recycling, reuse, or processing. Further, the negotiated county outcomes reflect the need for assessment of the feasibility of such activities and implementation if appropriate. This approach underscores the need for additional information and research.

## Regional Implementation Strategies

To encourage market development, the region will:

1. Work with the OEA to identify markets, to disseminate information to potential market users and to provide education and technical assistance to appropriate industries.
2. Develop consistent regulatory approaches to industries managing nonMSW.
3. Encourage source separation of reusable and recyclable materials at demolition and construction sites and the direction of these materials to appropriate outlets.

## Negotiated County Outcomes

1. Each county will:
  - a. Assess the potential for reduction, recycling, reuse or processing of materials in county deconstruction and remodeling projects.
  - b. Reduce, reuse, recycle or process materials generated by deconstruction or remodeling activities of the county, as identified as appropriate in the assessment.
  - c. Work with public entities to identify and implement appropriate reduction, reuse, recycling and processing opportunities.
2. Dakota County will encourage private sector involvement in non-MSW management within the County and within the region.
3. Hennepin County will:
  - a. Provide a model assessment methodology for assessing reduction, recycling, reuse and processing of non-MSW in the deconstruction of buildings.
  - b. Collaborate with the Green Institute, and take the lead in the region's efforts in developing residential and commercial deconstruction projects to increase the recycling and reuse of nonMSW material.

Intermediate NonMSW Management Outcome #4: By 2003, the toxicity of nonMSW that is disposed will be reduced.

This outcome incorporates a number of policies in the Policy Plan, including a focus on prioritizing the management of nonMSW, with an emphasis on source and toxicity reduction (Policies 5.1.2.1, 5.4.2.4, and 5.5.2.2). It should be noted that this outcome is operative if the research indicates that nonMSW has toxic elements.

## Regional Implementation Strategies

1. The region will provide incentives, technical assistance, and educational opportunities to nonMSW generators to encourage the reduction of hazardous components in non-MSW.
2. The region will work with member counties to provide for a consistent regulatory approach to industrial waste generators to reduce the toxicity of nonMSW disposed. This approach will:
  - a. Continue to require evaluation of industrial waste to determine the level of hazardous components.
  - b. Enforce compliance with industrial waste plans prepared by landfill operators.
  - c. Require certification, prior to disposal of demolition waste that specified hazardous and problem materials have been removed from buildings prior to demolition.
  - d. Establish design standards (e.g., liners, groundwater monitoring) for C&D landfills in order to promote the protection of groundwater.

## Negotiated County Outcomes

1. Following the completion of the regional research on best management practices, each county will:
  - a. Reduce the toxic/hazardous character of nonMSW generated in their county.
  - b. Continue to regulate nonMSW land disposal in the county to minimize the toxic/hazardous character of nonMSW that is disposed.
  - c. Use hazardous waste programs to minimize the amount of hazardous characteristics in nonMSW.

Intermediate NonMSW Management Outcome #5: By 2005, 80% of the region's public entities will evaluate and where feasible, incorporate sustainable architectural guidelines in the planning process for construction and remodeling of government buildings.

Hennepin County anticipates completion of the Sustainable Design Guide and Rating System by the end of 1998. The University of Minnesota has received a grant to continue enhancing the Sustainable Design Guide and Rating System and establish case studies and training programs. From this model, guidelines will be developed. In order to achieve this outcome, the SWMCB will need to collaborate with others, provide input into guideline development, and adopt guidelines as a regional policy. These guidelines will help

reduce the amount of waste generated from construction and deconstruction of buildings, reduce the toxicity of the materials used, encourage the use of recycled products and provide reuse options for construction materials.

### Regional Implementation Strategy

The region will distribute the Sustainable Design Guide and Rating System to public entities and will provide education and technical assistance to public entities regarding the use of the Guide.

### Negotiated County Outcomes

1. Anoka County will:
  - a. Evaluate and, where feasible, incorporate sustainable guidelines in the planning process and procurement of architectural services for the construction and remodeling of all County government buildings and other County projects using public financing by December 31, 2005.
  - b. Encourage public entities in the County to evaluate and, where feasible, incorporate sustainable guidelines in the planning process for the construction and remodeling of all government buildings including projects using public financing.
2. Hennepin County will:
  - a. a. In partnership with the University of Minnesota and with regional assistance, complete and maintain the Sustainable Building Design Guide and Rating System.
  - b. b. Incorporate sustainable guidelines in the planning process for the construction and remodeling of all County government buildings and other county projects using public financing by 2003.
  - c. c. Undertake efforts so that public entities in the County incorporate sustainable guidelines in the planning process for the construction and remodeling of all government buildings including projects using public financing.
3. Ramsey, Carver, Dakota and Washington Counties will:
  - a. Evaluate and, where feasible, incorporate by December 31, 2005, sustainable architectural guidelines in the planning process and procurement of architectural services for the construction and remodeling of all County government buildings and other County projects using public financing.
  - b. Undertake efforts so that public entities in the county incorporate sustainable architectural guidelines in the planning process for the construction and remodeling of all government buildings, including projects using public financing.

## XI. Public Information

### A. Regional Public Information Introduction

The Metropolitan Solid Waste Management Policy Plan contains several policies that call for the use of public information as a tool to promote proper waste management and generator responsibility. The Regional Solid Waste Master Plan incorporates the use of public information in the individual sections throughout the document. Public information activities of the counties will be addressed by counties as applicable.

## XII. Solid Waste Regulation

### A. Regional Solid Waste Regulation Introduction

The Metropolitan Solid Waste Management Policy Plan indicates that an integrated solid waste management system requires responsible solid waste collection practices that protect the public health, safety and welfare. The State, region, counties, cities, towns, waste collectors and waste generators should work together on solid waste collection issues (Policy 5.6.2.1). To that end, the metropolitan counties, through the SWMCB regional hauler licensing program, regulate the collection and transportation of MSW within and between member counties.

### B. Regional Hauler Licensing Program

Established in 1995, the regional hauler licensing program is designed so that the metropolitan counties can, through a collaborative effort, issue mixed municipal solid waste hauler collection and transportation licenses. The program provides for the issuance of one base license by the county in which the hauler is based and an operating license by each county in which a hauler operates. The base license provisions, including insurance requirements, fees, hauler application form and license year, are consistent throughout the region. In the license year 1998-99, the counties licensed 245 haulers in the region.

The SWMCB establishes the requirements for the application process and encourages uniform enforcement guidelines to be carried out by the counties. However, the SWMCB is not the regulatory authority responsible for licensing haulers or enforcing licensing requirements. Each county involved in the regional hauler licensing program has individual authority to enforce licensing requirements and/or take action against a hauler violating such requirements.

The SWMCB does not have regulatory authority; and therefore, no specific regional solid waste regulation outcomes, regional implementation strategies or negotiated county outcomes have been developed.

### XIII. Yard Waste

#### A. Regional Yard Waste Introduction

The Regional Solid Waste Master Plan does not contain regional yard waste outcomes or implementation strategies. Yard waste activities of the counties will be addressed by counties as applicable.

### XIV. Collection and Transportation

#### A. Regional Collection and Transportation Introduction

The Metropolitan Solid Waste Management Policy Plan requires responsible solid waste collection practices that protect the public health, safety and welfare. The Policy Plan further states that the State, region, counties, cities, towns, waste collectors and waste generators should work together on solid waste issues. The Policy Plan also sets forth a policy that the authority responsible for the management of waste collection should ensure that all waste generators have available to them appropriate waste collection services.

Solid waste collection services in the metropolitan area are largely privately owned and operated. A few municipalities contract for hauling services, and others provide service with their own vehicles and hauling crews. In the current waste management system, counties do not provide waste collection services. Hennepin County has one publicly owned transfer station in the metropolitan area. The City of Minneapolis has two transfer stations, one of which is open.

Because the region is not directly involved in collection and transportation services, no specific regional collection and transportation outcomes, regional implementation strategies, or negotiated county outcomes are included in the Regional Solid Waste Master Plan. Licensing of haulers is addressed in [Section XII](#), Solid Waste Regulation.

### XV. Cost and Finance

#### A. Regional Cost and Finance Introduction

In 1980, the Minnesota Legislature enacted the Waste Management Act, established the hierarchy of preferred waste management practices and authorized counties to manage solid waste in order to protect the environment and the public health. At the same time, the Legislature created a preference for the private provision of services, as well as a preference that the costs of the waste management system be visible to the consumer. Over time, the Legislature adopted a variety of laws related to the financing of the system, including SCORE taxes, landfill surcharges, public subsidies of recycling, designation, waste management service charges and county authority to issue bonds. The purpose of these laws was to provide the financial tools necessary to pay the costs of meeting the public goals of a cleaner environment, protecting public health and resource conservation. Implicit was the recognition that some strategies to manage waste higher on the hierarchy cost more than the short-term costs associated with landfilling.

As the regional waste management system developed over the last 20 years, costs have risen and the method of financing has shifted. The costs of capital-intensive processing facilities were initially paid by waste generators through tipping fees that reflected the costs. With the loss of designation, county-imposed waste management service charges have been increasingly used to pay the system costs; those costs are thus decreasingly visible to generators and the burden on local property tax systems continues to grow. A report of county expenditures on the solid waste management system titled "Survey of County Solid Waste Management System Costs - 1996" showed that counties provided over \$100,000,000 in funding in 1996, excluding direct payment by generators for solid waste collection, transportation and landfilling services. The revenue for these expenditures is generated from tipping fees, hauler and county service fees, license fees, material sales and grants. The Policy Plan recognizes that financial incentives are perhaps the most effective mechanism for achieving environmental and resource conservation goals. Yet, at the same time, the Policy Plan emphasizes the need to target limited public resources to achieve policy priorities and to shift reliance from local property taxes.

## B. Cost and Finance Policies

Because the cost and finance policies in the Policy Plan reflect the joint direction of the State, the region, and the metropolitan counties, certain policies in Section 5.8 of the Policy Plan are incorporated into the Regional Solid Waste Master Plan. These policies will be used to guide decision-makers as the SWMCB and the counties work to achieve the regional and county outcomes set forth in the Regional Solid Waste Master Plan. These policies establish a framework for decisions on how to finance implementation activities over the next six years.

1. In accordance with State law and policy, a planned integrated solid waste system is necessary for the protection of the environment and public health (Policy 5.8.2.1).
2. Pricing policies should create incentives for generators to manage solid waste as high as possible on the hierarchy of preferred waste management practices (Policy 5.8.2.2).
3. If necessary, the counties will implement financial mechanisms that encourage the appropriate management of solid waste by generators, and seek the necessary funding for an efficient and environmentally-effective solid waste system (Policy 5.8.2.3).
4. The State, the region and the counties recognize that an integrated solid waste management system and a clean environment are public goods. To enhance these goals, government: a) will improve the information and consumer's understanding of the waste management services they are purchasing; and b) will consider incentives that take into account social costs and benefits (Policy 5.8.2.4).
5. The State, region and counties recognize that it is no longer practical to rely mainly on county revenue sources (property taxes and service charges) to fund integrated solid waste systems that implement the Waste Management Act hierarchy. A larger State funding role is necessary (Policy 5.8.2.5).

The State, region and counties will work together to obtain the appropriate level of revenue and revenue sources that finance the regional integrated solid waste system. Such financing should provide the public entities(y) responsible for regional solid waste management under the Waste Management Act and related laws with: a) sufficient revenue to meet responsibilities; b) stable revenue source(s); c) revenues targeted for regional priorities; and d) revenue administered with few costs and burdens.

6. The solid waste management system that serves the region should be affordable and cost-effective and should minimize liability and long-term costs to generators (Policy 5.8.2.8).

## XVI. Performance Measurement

### A. Regional Performance Measurement Introduction

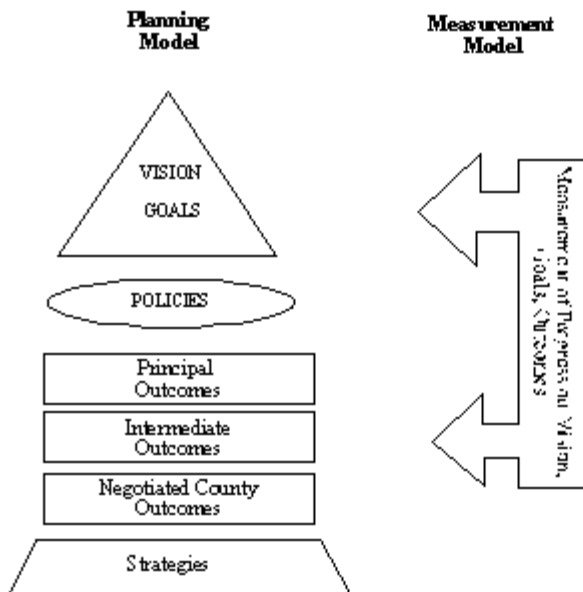
Measuring results is an important part of a planning process. The region is committed to developing a performance measurement system that will provide feedback on progress in achieving the regional vision, goals and outcomes, as shown in the following documents:

1. The Metropolitan Solid Waste Management Policy Plan emphasizes the use of research in the development of plans, performance measures and evaluation (Policy 5.2.2.6).
2. The SWMCB Joint Powers Agreement, effective July 1, 1998, states that the SWMCB shall systematically evaluate the progress of the region and each County in achieving the outcomes of the Regional Solid Waste Master Plan.
3. The Regional Solid Waste Master Plan uses an outcome-based planning model, which emphasizes accountability and results.

B. Measuring Progress on Achieving the Vision

The SWMCB has employed an outcome-based planning model to develop the Regional Solid Waste Master Plan. Outcome-based planning emphasizes the results or outcomes that programs strive to achieve. Both principal and intermediate outcomes have been developed. The principal outcomes flow from the vision and goals stated in the Policy Plan, and the intermediate outcomes provide further detail on outcomes to be achieved.

Figure XVI.1



As shown in the Figure XVI.2, principal and intermediate outcomes support the larger vision and goals. Measurement should address progress towards achieving the vision and goals to the extent that methods are available for direct measurement. In addition, the measurement system should provide information that allows the region to monitor progress toward outcomes.

The following measures have been identified to address the overall vision and goals. These measures will be addressed on an annual basis.

Figure XVI.2

Vision: Achieving a Sustainable Environment	Measures	Methods
Source	In order to show reduction in the amount of solid	The SWMCB currently calculates these indices based on tons

Reduction	waste generated by households and businesses, a key measure will be: <ul style="list-style-type: none"> <li>• Pounds of MSW and recycled materials per capita, per employee</li> <li>• NonMSW measures to be developed</li> </ul>	of waste divided by population and employment estimates.  See nonMSW Management Intermediate Outcome #1.
Management of Waste that Cannot be Reduced	To show the preference for management of waste based on the State hierarchy, key measures will include: <ul style="list-style-type: none"> <li>• Tons and percent of residential and commercial material recycled (or other method of measurement, to be determined by 1999)</li> <li>• Tons of MSW processed</li> <li>• Tons of MSW landfilled</li> <li>• NonMSW measures to be developed</li> </ul>	The SWMCB currently measures or estimates these numbers. Methods would rely on county-generated reports and regional methods for estimating wastes that cannot be directly measured.
Reduction in the Toxic Hazardous Character of Waste	Both residentially and commercially generated hazardous and toxic wastes will be addressed, as follows: <ul style="list-style-type: none"> <li>• Pounds of HHW removed from MSW</li> <li>• Pounds of hazardous waste managed</li> <li>• NonMSW measures to be developed</li> </ul>	The SWMCB currently measures results from HHW programs. In addition, data on the amount of hazardous waste generated can be collected through county hazardous waste programs.
Resource Conservation	By producing energy with waste, the region conserves resources. One measure that reflects this outcome is the amount of energy produced (kilowatts/ton of MSW or RDF).	Resource recovery facilities track the production of energy; the region will work with facilities to access and summarize this information.
Resource Conservation	Through source reduction, recycling and resource recovery activities, the region conserves valuable land and landfill capacity. Acres of landfill capacity <u>not</u> used, would indicate progress on achieving sustainability through resource conservation.	The SWMCB would deduce the amount of landfill capacity conserved based on measures and estimates of the quantity of material reduced, recycled and converted to energy. In addition, the SWMCB will collaborate with the State OEA to estimate other resource conservation achievements.

In addition to these measures, other measures that address sustainability in terms of the cost-effectiveness of services, generator responsibility for wastes and the equitable distribution of system costs will be addressed by measures to be developed in early 1999.

### C. Measurement of Outcomes

Regional Appendix E shows the measures identified for each outcome included in the Regional Solid Waste Master Plan, as well as methods and frequency of data collection and reporting on each outcome. At least one measure is identified for each principal and intermediate outcome. Additional measures may be used, as available, to provide further indication of progress.

Some intermediate outcomes can be measured with existing data sources. However, a significant number will require new measurement initiatives to develop data that more directly addresses outcomes. Two significant measurement methods will be used to develop new outcome measurement data:

#### 1. Waste Stream Analysis

Analysis of the composition of waste streams is a critical step in providing information on the types and quantities of various materials in the mixed waste stream. Three key program areas, source reduction, recycling and toxicity reduction, can be addressed through waste sorts or other analysis efforts that measure the amount of targeted wastes, recyclables, and HHW remaining in the mixed waste stream. This information, combined with measures of the amounts of recyclables and HHW

separated from mixed waste, provides powerful information to guide program and policy development. Waste sorts can also provide useful information on nonMSW disposal methods.

## 2. Surveys

The regional waste management system relies heavily upon residents and businesses acting on knowledge about how best to reduce the amount and toxic/hazardous character of waste generated, and how to properly manage waste which cannot be reduced. The most direct method for measuring knowledge, awareness and attitudes is through surveys using appropriate statistical methods. Surveys of both residents and businesses are needed to measure programs towards achieving the outcomes. In addition, less formal surveys or censuses of public entities and others may be used to collect information that demonstrates progress on achieving the regional outcomes.

## D. Measurement of Negotiated County Outcomes

Counties will submit status reports to the SWMCB by April 15 of each year to show progress towards achieving negotiated outcomes. These reports will include both descriptive information as well as quantitative measures of progress, as appropriate. The SWMCB will develop the report forms and delineate the information that counties will submit to the SWMCB.