1988 ABATEMENT PROGRESS REPORT FOR THE TWIN CITIES METROPOLITAN AREA

Report of the Metropolitan Council
to the Minnesota Legislative Commission on Waste Management

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The Metropolitan Council coordinates the planning and development of the seven-county Metropolitan Area. The Council is authorized by state and federal laws to plan for highways and transit, sewers, parks and open space, airports, land use, air and water quality, waste management, health, housing, aging and arts.

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SUMMARY

The 1988 abatement report contains information on abatement progress, costs and finances, and on the Metropolitan Landfill Abatement Fund expenditures and activities. This summary high-lights key elements for each of the three sections of the report.

The abatement progress section of the report explains that the region is projected to produce 2,190,000 tons of solid waste in 1988. Of this amount, it is estimated that up to 50 percent of the waste generated could be recycled. For 1988 the estimated source-separated recycling rate in the region is approximately 197,000 tons of waste, or 8 percent. The Council's goal for 1988 is 9 percent. The counties reported that their commercial/industrial recycling equaled 107,000 tons. Very little commercial/industrial recycling activity was reported by the counties in 1987. The counties reported an estimated residential recycling rate equal to 90,000 tons for 1988.

The residential recycling rate has increased 70 percent since 1987. This is due in large part to more recycling services offered and an increase in the level of service in existing programs. For example, 15 new curbside recycling programs and 13 new yard-waste collection programs have begun since 1987. Six cities are now providing weekly collection service for recyclable materials, where as only one city provided the service in 1987. Figures i-1 through i-4 show the cities with recycling and yard-waste programs in 1985 and 1988. The figures show dramatic growth in the number of cities served by abatement programs compared to just four years ago.

Even with this progress, only four counties achieved the Council's source-separation abatement objectives and three are projected not to achieve the Council's goals. The counties meeting the Council's goals are Anoka, Carver, Dakota and Hennepin. The counties projected to fall short of the Council's goals are Ramsey, Scott, and Washington. Of the counties projected to achieve the Council's 1988 source-separation recycling goals, three reported greater levels of commercial/industrial recycling than residential recycling. Metropolitan Area counties have not initiated major programs to enhance commercial/industrial recycling and the estimates for this recycling were produced via surveys that were not consistent with one another.

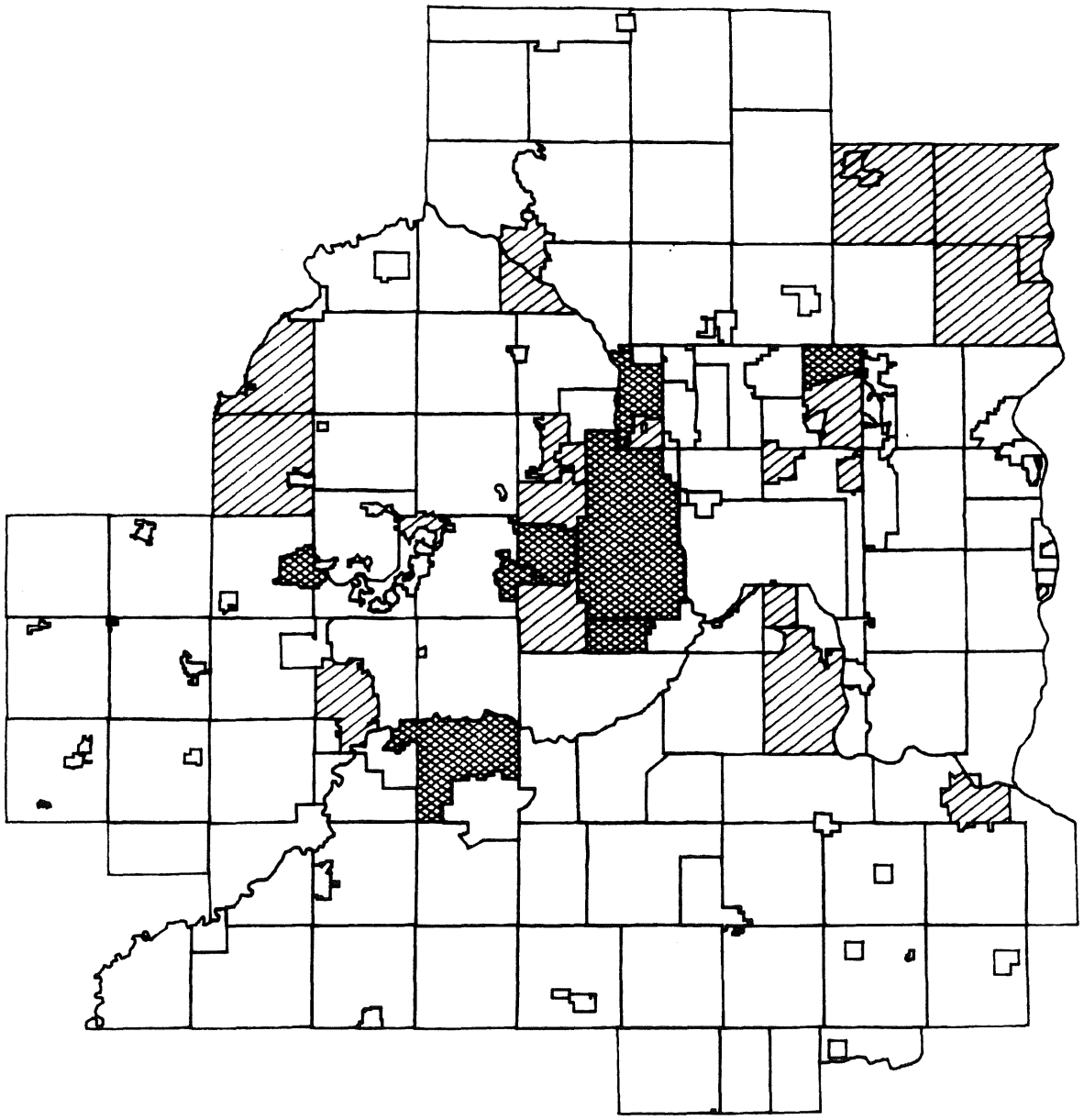
The recycling rate for 1988 reported by the Council does not reflect recycling occurring prior to 1985 or recycling that is occurring at waste-processing facilities. The lack of good data concerning existing recycling complicates the reporting of abatement progress because of the difficulty in determining what is new recycling and what is old recycling. The Council is currently reviewing recycling goals for the Metropolitan Area. The Council will address the issue of incomplete and inaccurate information in its revision of the regional solid-waste policy plan.

The abatement progress section of the report is required to contain an assessment of strategies to extend existing landfill capacity in the region until the year 2000, 2005 and 2010. The report indicates that existing capacity, without expansions, could last until the year 2003. However, that date depends on the recycling rate being increased to 26 percent, waste reduction achieving a six percent rate, and yard waste, processing residuals

Figure 1

TWIN CITIES METROPOLITAN AREA

RECYCLING PROGRAMS, 1985



Type of Service

Curbside Collection

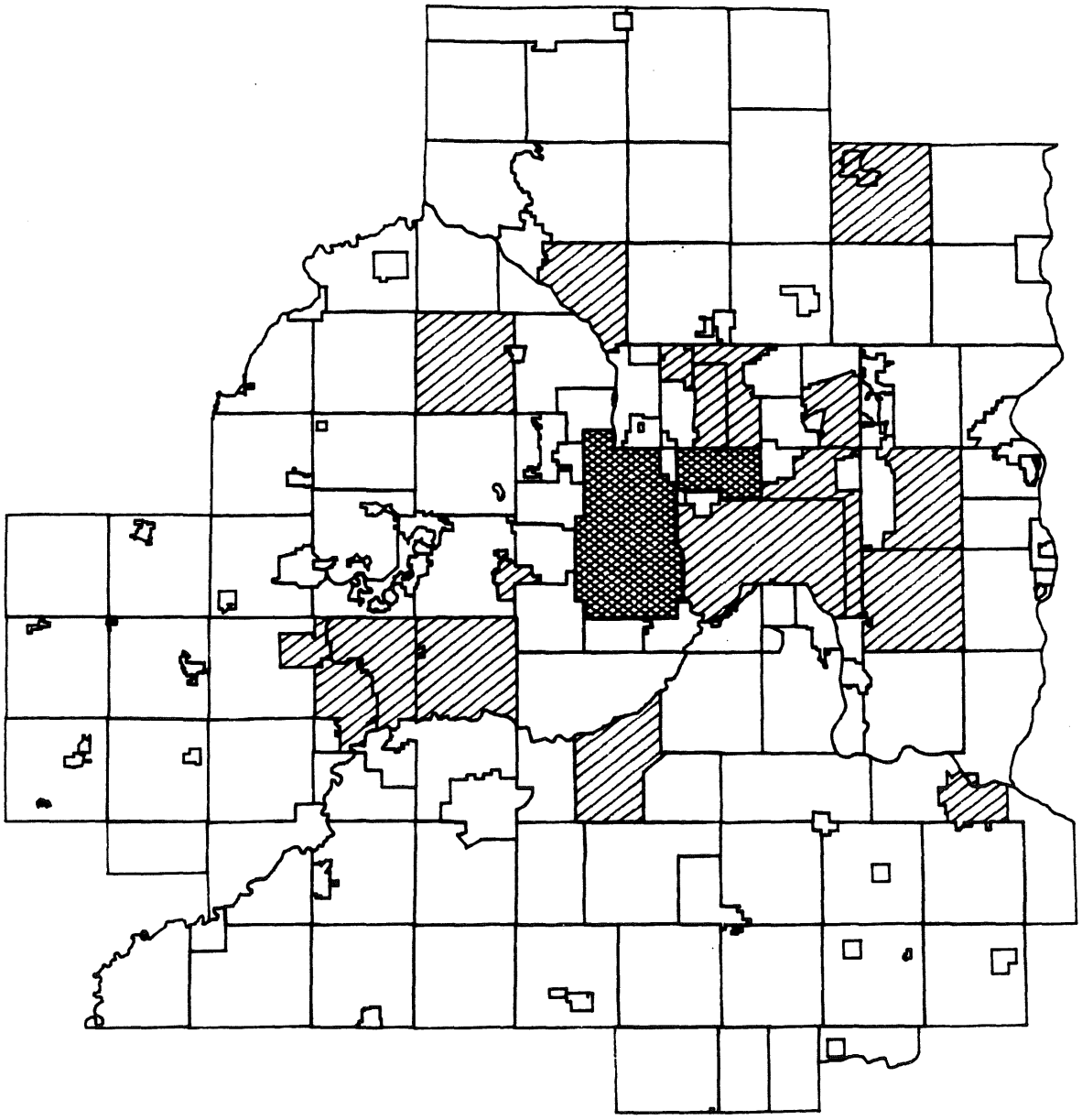
Dropoff

No Service

Figure 2

TWIN CITIES METROPOLITAN AREA

YARD WASTE COMPOSTING PROGRAMS, 1985



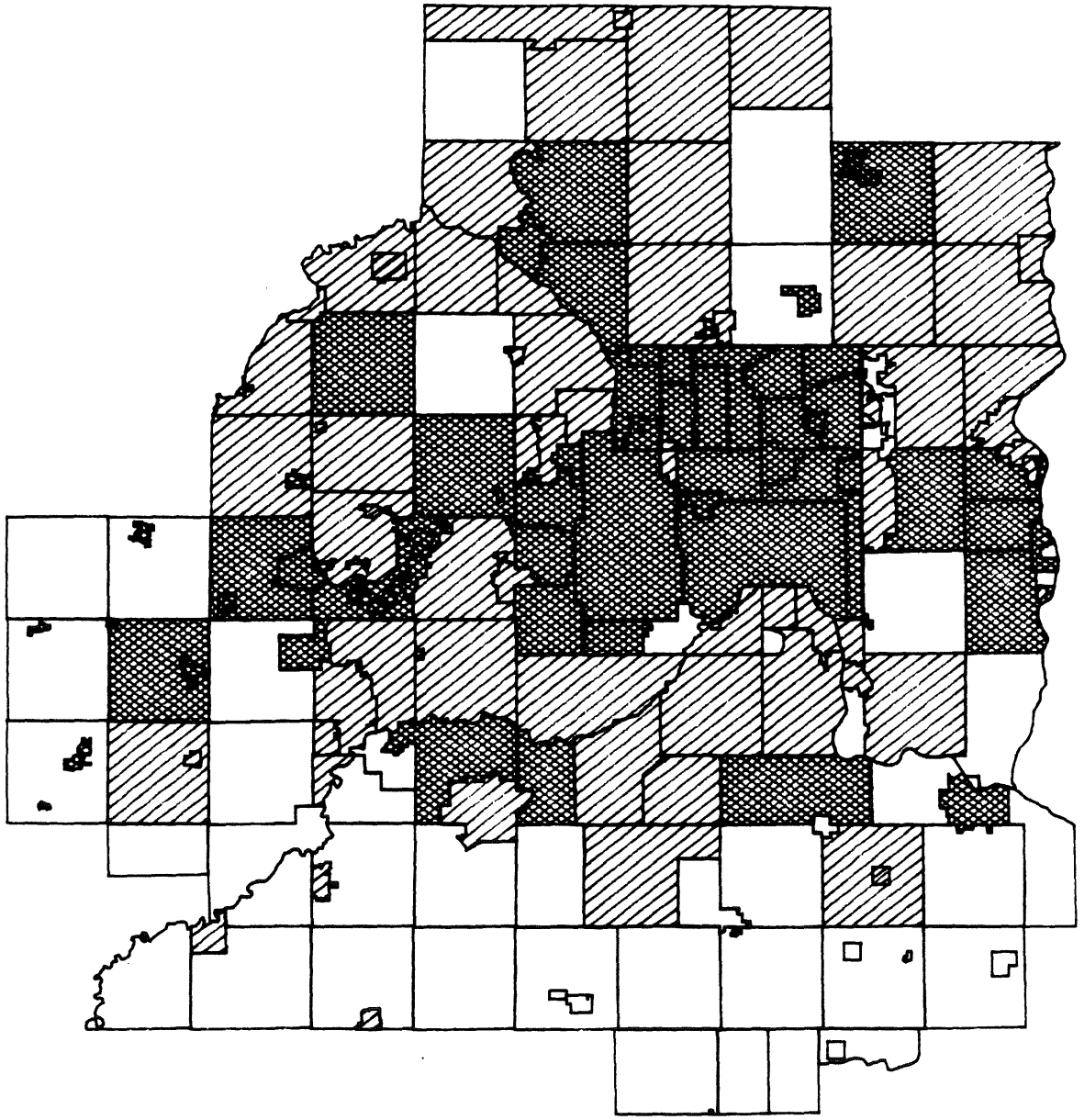
Type of Service

- Curbside Collection
- Dropoff
- No Service

Figure 3

TWIN CITIES METROPOLITAN AREA

RECYCLING PROGRAMS, 1988



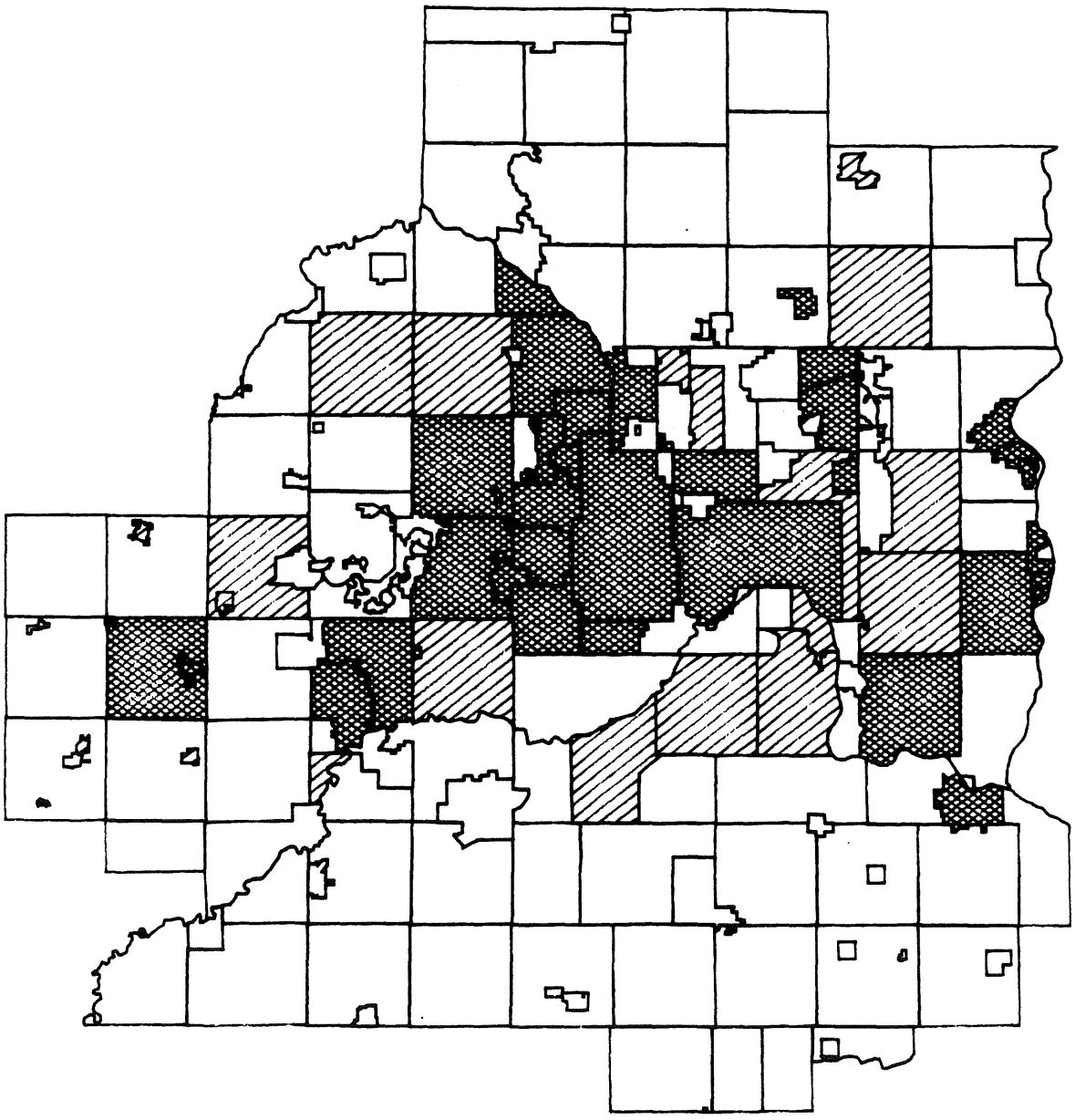
Type of Service

- Curbside Collection
- Dropoff
- No Service

Figure 4

TWIN CITIES METROPOLITAN AREA

YARD WASTE COMPOSTING PROGRAMS, 1988



Type of Service

- Curbside Collection
- Dropoff
- No Service

and food waste being composted starting in 1992. The existing landfill capacity could last until 2007 if, in addition to the strategies listed above, alternate ash management to avoid landfilling were employed.

This analysis does not consider the probability of success for various strategies. Many potential management methods have encountered opposition from implementing agencies. For example, the use of bottom ash (from waste-burning facilities) in the construction of roads is practiced in New Jersey, but may encounter opposition in Minnesota. If an expansion of Flying Cloud Sanitary Landfill is permitted and implemented, the region may, under ideal circumstances, have landfill capacity until 2014 instead of 2003 (with the Flying Cloud expansion only) and 2020 instead of 2007 (with the Flying Cloud expansion and the abatement strategies listed above).

The need for landfills is not simply a matter of space. Various waste streams must be managed by a variety of methods. No single facility will be able to accommodate the projected land-disposal needs of the region. The region will need at least two operating landfills and perhaps three to ensure land-disposal capacity in the event of a temporary closure of one of the landfills. The time required to develop a land-disposal facility is estimated to be a minimum of seven years. The region will need to carefully assess the actual rather than the hypothetical need for landfill capacity and plan sufficiently in advance to ensure that the capacity is developed as required.

The cost and finance section of the report reviews the costs for the various elements of the region's solid-waste management system. Many haulers have adopted a volume-based pricing method of charging customers. The rates for the volume-based collection of refuse are generally less than the traditional service fee charged by haulers. The least expensive collection service is organized collection combined with volume-based fees. The combined service averages $9.50 per month, compared with an average of $11.70 per month for free market service or the open-hauling system.

The region's most cost-effective recycling programs, based on limited data, are weekly curbside collection. The cost per ton for collection and processing of recyclable materials on a weekly basis is $40 per ton compared to $71 per ton for monthly collection. The current data, although preliminary, does show a significant difference between monthly and weekly collection. The Council did not have sufficient data to assess the impact of providing households and businesses with bins to increase recycling program participation.

The report collected data on lack of the counties' operating and planned waste processing facilities. The costs of processing a ton of waste at each facility was estimated for the year 1992, when all of the region's facilities are expected to be operational. The cost per ton of waste processed at county sponsored facilities ranges between $49 at the Ramsey/Washington facility to a projected $66 per ton at the Dakota County facility.

Landfill dumping rates have increased an average of 57 percent from 1986 to 1988. This is a slower increase than the region experienced between 1985 and 1986, when rates nearly doubled. The regional average cost of landfilling in September 1988 was $27.70 per ton. The cost to landfill waste is expected to increase 40 percent in 1989 as a result of the $8.66 per ton surcharge that Dakota County will collect at its landfills. (Most of the region's waste goes

to Dakota County landfills.) The development of new capacity through landfill expansions will require higher tipping fees to pay for the construction of the facilities. The average cost of landfilling a ton of waste is expected to reach $44 in 1990 and $53 in 1992.

The total cost of regional solid-waste management in 1988 is estimated to be approximately $185 million. This is a 28 percent increase from 1986 when the cost was estimated to be $145 million. In 1988 it is estimated that the cities, counties, Metropolitan Council and private companies will spend $10 million for recycling. Waste processing costs during 1988 are estimated to be approximately $10.8 million. For 1988 the region's waste generators will spend as much on recycling as they will on waste processing.

The Metropolitan Landfill Abatement Fund has spent $1,034,000 in support of abatement activities in fiscal year 1988. The fund has also encumbered $1,064,000 for programs currently under way or those that will be before the end of the calendar year, including the second distribution of the Local Recycling Development Grants. The unencumbered balance remaining is $1,604,000.

The abatement fund has provided grants to five businesses, three nonprofit organizations, one public institution, one city, and eight county programs. The monies went to fund two residential recycling programs, two yard-waste composting programs, four materials-processing and marketing programs, three commercial recycling programs, and seven other county abatement programs.

The Council has budgeted $2,852,000 for programs in fiscal year 1989 and anticipates revenues to the fund to be approximately $1,520,000 during fiscal year 1989. The revenue, plus unencumbered funds less budgeted programs, will leave an unencumbered balance of approximately $273,000 at the end of fiscal year 1989.

The Council anticipates surcharge revenues to exceed $2,700,000 in fiscal year 1990 and 1991. The Council is recommending the grant program be continued in the next biennium and to fund the following programs: local recycling development grants, demonstration grants, technology and research grants, and grants-program administrative expenses. The Council is also recommending that a portion of the fund be used to fund regional public education and solid-waste research efforts by the Council.

CONCLUSIONS AND RECOMMENDATION

CONCLUSIONS

The seven-county Twin Cities Area will not achieve either the Council's centralized processing or source separation goals for 1988. The region will achieve approximately 8 percent abatement in 1988 through source separation. This is compared to a 5.7 percent abatement rate for 1987, as reported in the county annual reports. The regional objective for 1988 for source separation abatement is 9 percent. This will escalate to 13 percent in 1989. The number of programs and the level of services offered in the region are an improvement from those reported in the 1987 Abatement Progress Report, but it was not as dramatic as the increase in programs from 1986 to 1987. The Metropolitan Area counties are beginning the process of assessing the growth rate in the level of abatement being achieved in the commercial/industrial sector. Anoka, Dakota, Hennepin and Ramsey Counties all noted significant recycling occurring in the commercial/industrial sector, which was not occuring in 1985. Despite this growth in commercial and industrial recycling, the estimated regional source-separated recycling rate will not meet the Council's goal for 1988.

The regional recycling rate of 8 percent for 1988 is based in large part on estimates of commercial/industrial recycling. Those estimates are based on data collected from unrepresentative studies. The counties have concluded from survey information that over two-thirds of the progress achieved to date has been in the commercial/industrial sector. The methods used to draw the conclusions are not standardized and appear speculative. Clearly, considerable recycling is occurring in the commercial and industrial sector. The actual measurement of progress as compared to 1985, however, may not be justified.

If counties are to be expected to achieve progress in commercial/industrial source separation activities, methods must be devised to accurately assess the abatement level achieved by county programs. Data on the commercial and industrial sector can be managed in two ways. The first is to require the companies shipping recyclable materials out of the state to report on the quantity and types of materials shipped, and require the materials brokers to report on the materials purchased by them by region and to whom the materials are sold or require companies to report materials recycled. The second method to determine abatement progress in the commercial/industrial sector is to conduct a thorough, scientific survey of generators to produce an estimate of recycling activities that is consistent throughout the region.

Although significant progress toward the development of processing facilities in the region has been achieved by most counties since 1985, some counties are lagging and the region will not need its 1988 or 1990 goals. No new facilities began operation in 1988. However, the existing facilities increased the rate of waste processing from a reported 130,000 tons in 1987 to 301,000 tons of waste processed in 1988.

The Council's goal for centralized processing in Anoka County for 1988 is 4 to 37 percent. The county anticipates that the resource recovery facility it sponsored in Elk River will begin operation in 1989. During 1988, however, no waste from Anoka County is known to have been processed. Scott County is slightly below the Council's centralized-processing goal for the county. The region as a whole, however, is significantly below the Council's goal for centralized processing. The region achieved a processing rate of 14 percent compared to the Council's goal of 25 percent. The Council's goal of regional

waste processing for 1989 is 57 percent. The current estimate of waste processing in 1989 based on projected facility start dates is 664,000 tons. The regional waste stream is expected to be approximately 2,500,000 tons in 1989. The waste that the Council is projecting to be processed in 1989 is 29 percent of the waste stream. The region will not attain the 1990 goal that no unprocessed waste be disposed. The disposal of unprocessed waste should be accompanied by a penalty surcharge to encourage additional abatement efforts in the region.

There are two regional goals that will not be met in 1988. These are (1) the centralized-processing goal and (2) the source-separation goal. The counties have the potential to achieve the source-separation goal if the abatement implementation strategies are successful. The region is not likely to achieve the goal for regional centralized processing in 1990. The current law does not provide any incentives for the region not achieving the regional goals. It is possible that some sort of incentives will be necessary to encourage the counties and waste generators to improve their source-separation and centralized-processing programs in an expedient manner.

The region faces problems in achieving centralized-processing abjectives. For example, haulers that work with transfer stations currently remove recyclable materials from the waste stream. Separation of materials from the waste stream at the transfer station can be considered processing. This interpretation is currently being challenged in court by Ramsey and Washington Counties. The transfer stations generally remove less than 10 percent of the waste stream that they receive. This does not comply with the Council's goal for waste processing.

The Ramsey/Washington facility which currently receives an average of 1,233 tons of waste per day. The facility processes an average of 824 tons per day. The remaining waste, having been received at a resource-recovery facility, is by legal definition "processed waste" although no reduction in weight has occurred. A method should be employed to discourage this activity on the part of the haulers and processing facilities.

A final example of the type of problem the region faces in achieving the centralized processing objectives is the lack of a facility to process county wastes. One metropolitan county and perhaps two others will not have any centralized processing in 1990. Most of the counties will be paying an increased cost for centralized processing and, as a consequence, will be encouraging additional source-separation and waste-reduction efforts in those counties in 1990. All generators should be encouraged to undertake additional efforts to reduce or recycle wastes and a mechanism should be used to encourage these efforts.

Even though current landfill capacity might conceivably be extended to the year 2000, and possibly somewhat beyond, the current landfill siting initiative is critically important to ensure that capacity is available when needed. The possible extensions are based upon very tenuous and optimistic circumstances. The lead time for planning replacement capacity would be at least seven years if the current landfill siting process were abandoned. The Council will have a need to determine whether or not new landfill sites are needed during the 1990s for facilities that will serve the region after the year 2000. The current planning horizon for the Landfill Development Schedule should be expanded beyond the year 2000.

Dependence on a single landfill as capacity nears exhaustion should be avoided. The region needs more than one landfill to provide capacity for both municipal solid waste (MSW) and incinerator ash, as well as to limit transportation costs and provide a degree of flexibility in the event of an unanticipated interruption in the operation of a single landfill serving the entire region. The region will need landfill capacity for the disposal of ash from resource-recovery facilities until, or if, alternate management methods can be implemented. The current status of ash disposal regulatory thinking suggests that single-waste landfills, or "monofill" ash disposal facilities will be required. The use of existing candidate landfill sites for ash disposal should be clarified or a new ash siting process be initiated as soon as possible.

The Metropolitan Area is expected to dispose of 1,800,000 tons of waste in landfills in 1988. The cost for the management of all wastes in the region during 1988 is $185 million. The cost for waste-disposal services in 1986 was $147 million. This is a 26 percent increase in waste management service costs from 1986 to 1988. The implementation of processing and additional recycling services contributed to the increase, along with the rise in the average price of landfills from $22 per ton to $27.70 per ton.

An interesting occurrence in the increase in solid-waste management costs has been the increase noted in solid-waste collection costs from residential generators. The rate of increase has been nine percent per year in excess of the cost of disposal. The average cost to collect and transport a ton of waste to a landfill or facility has increased from $77 per ton in 1986 to $92 per ton in 1988. Various models have developed for the assessment of costs to residential generators. The three basic types are free-market collection, organized collection, and volume-based fees for collection. The cost for the three services are $92 per ton for free market collection, $77 per ton for organized collection, and $66 per ton for volume-based fees for collection. Clearly the price for volume based fee service and its ability to encourage participation in recycling programs makes it a very attractive method for the funding of residential solid-waste collection.

The grants programs have been important in generating interest in the provision of recycling services to the Metropolitan Area. The distribution of funds through a Local Recycling Development Grant will not be necessary after 1990. Other grant programs that are currently being operated by the Council should continue in operation during the 1990 and 1991 fiscal years.

The Council will need to provide two new grants programs for larger grants than the Council typically distributes. These programs are the Applied Research Grant program to assist in collection of operational information on equipment to implement abatement programs; and the Abatement Capital Assistance Grant program for the development of facilities and acquisition of equipment for non-energy recovery abatement facilities.

The counties have asked the Council to help them develop regional public assistance programs. The Council has also been requested by the counties to provide them with sophisticated data related to abatement programs and waste-stream composition. The Council requires funds to provide these services and the use of the funds for these purposes will enchance abatement activities in the region. As a consequence, the Council should seek authority to use part of the abatement fund for these purposes.

RECOMMENDATION

The Council has been directed, by law, to provide specific recommendations related to the future use of the abatement fund and proposed mechanisms to enhance abatement progress in the region.

The Metropolitan Council should be authorized to use the funds in the metropolitan landfill abatement fund after July 1, 1989, as follows:

1. For existing grant programs which include the Demonstration Grant Program, Technology and Research Grant Program, Technical Assistance Grant Program, Administrative Expenses, and reauthorization of the Local Recycling Development Grant Program for fiscal year 1990 and 1991.

2. For use by the Council to provide regional waste management research and public education programs.

ABOUT THIS REPORT

This is the fourth annual Abatement Progress Report to the Legislative Commission on Waste Management (LCWM). This year's report will encompass the information required in the Abatement Progress Report requirement and will also provide the information required in the Metropolitan Landfill Abatement Fund Expenditures and Activities Report and the Bi-annual Cost and Finance Report.

The report is divided into four sections representing the three legislative requirements. The abatement progress section assesses the current level of abatement progress for source separation and centralized processing recycling, and compares the abatement levels to the Council's abatement goals. The Waste Management Act of 1980, as amended, Minn. Stat. 473.149, Subd. 6, states:

> Subd. 6. [REPORT TO THE LEGISLATURE]
> The council shall report on abatement to the legislative commission on waste management by November 1 of each year. The report must include an assessment of whether the objectives of the metropolitan abatement plan have been met and whether each county and each class of city within each county have achieved the objectives set for it in the council's plan. The report must recommend any legislation that may be required to implement the plan. If in any year the council reports that the objectives of the council's abatement plan have not been met, the council shall evaluate and report on the need to reassign governmental responsibilities among cities, counties, and metropolitan agencies to assure implementation and achievement of the metropolitan and local abatement plans and objectives.
>
> The report in each even-numbered year must include a report on the operating, capital, and debt service costs of solid waste facilities in the metropolitan area; changes in the costs; the methods used to pay the costs; and the resultant allocation of costs among waste of the facilities and the general public. The facility costs report must present the cost and financing analysis in the aggregate and broken down by county and by major facility.

The abatement progress section is also required to assess methods that could be employed to make the capacity of existing landfills last until the years 2000, 2005, and 2010. Minn. Stat. Chapter 671, Sec. 38, below, indicates the report requirement under the 1987 law:

> Chapter 671, Sec. 38. [REPORT]
> As part of the report required in 1988 by Minnesota Statutes 1987 Supplement, section 473.149, subdivision 6, the council shall estimate the disposal capacity available in the metropolitan area for mixed municipal solid waste and incinerator ash and shall describe the abatement implementation strategies and actions that would be necessary to make that capacity last until the years 2000, 2005, and 2010.

The second section of the report, on cost and finance, describes the facilities that are operating and planned in the seven-county Twin Cities Area to manage solid waste. This section also describes the costs for the facilities and the financing of the projects. This report also describes the cost of recycling and composting programs, in addition to the current cost of collection and disposal of waste in the region. The reporting of costs and finance is required every two years as sited above in Minn. Stat. 473.149, Subd. 6.

Since 1986 all but two counties, Scott and Carver, have entered into agreements for waste-processing capacity. Scott and Carver are expected to enter into a joint project for solid-waste composting by early 1989 and have a facility operating by late 1990. Other changes have occured since the last Cost and Finance Report, including a change in vendors for Dakota County's proposed facility and significant changes in Hennepin County's proposed transfer station network. The cost and finance section details these changes.

The third section of the report describes the activities for which money from the Landfill Abatement Fund has been spent during fiscal year 1988. The report is required under Minn. Stat. 473.846, which states:

> Minn. Stat. 473.846 [REPORT TO THE LEGISLATURE]
> By November 1, 1986, and each year thereafter, the agency and metropolitan council shall submit to the senate finance committee, the house appropriations committee, and the legislative commission on waste management separate reports describing the activities for which money from the landfill abatement and contingency action funds has been spent during the previous fiscal year. The council may incorporate its report in the report required by section 473.149. In its 1988 report, the council shall make recommendations to the legislature on the future management and use of the metropolitan landfill abatement fund.

The abatement fund expenditures section details the funds collected during the fiscal year and projections for receipt of funds for the next biennium. The report also describes the programs funded and the extent of local match, in addition to a description of programs funded during the fiscal year. The 1988 Abatement Fund Expenditures Report is required to suggest recommendations for the future use of the fund. In order to complete this requirement, the 1988 Abatement Fund Expenditures Report also contains information on the impact of previous grants in promoting abatement activities with conclusions related to the future use of the abatement fund.

I. ABATEMENT PROGRESS

INTRODUCTION

This section provides information on regional solid waste abatement progress. The report has been developed annually since it was first required in 1985. This section reviews the abatement levels achieved in the region and the conclusions and recommendations provide action suggested by the Council to enhance abatement activities in the seven-county Metropolitan Area.

The Abatement Progess Report is also required to provide an analysis of what abatement methods could be employed to extend the existing landfill capacity until the year 2000, 2005, and 2010. The final part of this section of the report provides an analysis of existing landfill capacity and use rates and a discussion of abatement methods that could be employed to extend landfill capacity as indicated in the legislation.

WASTE-STREAM COMPOSITION

The 1987 Abatement Progress Report provided information related to the composition of the waste stream as disposed in facilities and landfills. The waste-composition studies and waste-generation information does not include wastes which are recycled by private companies and individuals prior to 1985. To avoid the confusion surrounding the 1987 Abatement Progress Report concerning pre-existing recycling activities, discussion of that data has been left out of this report. The Council still firmly believes that the level of recycling activity occurring prior to 1985 in the region was very significant. The progress noted in this report is only that progress measured through the development of county programs since 1985 and increases in the amount of material recycled by commercial firms in excess of amounts recycled in 1985.

The composition estimates in the Pope-Reid study have been severely questioned by various governmental units in the region. Consequently, the Council has contracted to complete a waste-stream analysis to augment the information from previous studies. The Council has hired Cal Recovery Systems, Inc. to determine the current composition of the waste stream and to analyze generation rates during 1988. The waste stream composition analysis has been conducted at the NSP Newport facility. As a consequence, the analysis does not include non-processible materials that are in the waste stream, materials that would contribute to the inorganic fraction of the waste stream. The composition of the waste stream has been analyzed and a comparison to the 1985 Pope-Reid study has been provided in Table I-1.

The Pope-Reid study accumulates all of the organics other than wood and yard waste in a single category. Other studies in Benton and Wright counties have specifically looked at food waste and found it to be approximately 16 percent of the waste stream. A September 1988 draft of the Cal Recovery composition study indicated that the summer waste stream contained 6.8 percent food waste and 11.8 percent yard waste. In many areas of the country, food waste is managed through animal feeding (as in New Jersey) or composting (as in Washington state). The addition of food and wood wastes to the list of potentially recyclable materials, in addition to traditionally recycled materials and yard waste, equals roughly 56 percent of the waste stream. Discounting paper that is difficult to recycle, roughly 46 to 50 percent of

the waste stream is potentially recyclable. Assuming a growth rate in recycling of 4 percent per year of all the waste generated, it would require 11 years for the region to achieve the maximum possible recycling rate.

The metropolitan area counties have not yet considered food waste programs and are in the planning stages for the development of commercial recycling programs. The counties are in the early stages of developing data on commercial recycling activities that have been initiated or expanded since 1985. The commercial recycling chapter and the county recycling activities chapter, both in this section, describe the activities of the counties and cities in the region and their abatement levels for 1988.

The total waste generated in the region will be estimated in the Cal Recovery study. The initial conclusions are that the Metropolitan Area waste stream will increase at a rate of 3.2 percent per year through 1990 and then taper off to a 0.9 percent growth rate from 1990 to the year 2000. This would predict a regional waste stream of 2,162,000 tons of waste in 1988. The records of landfill receiving rates in the region and the Elk River Landfill (which receives significant quantities of Metropolitan Area waste) equal an annual receiving rate estimate of 5,830,000 cubic yards in 1988 or approximately 1,700,000 tons (Table I-2) excluding non-rocessiable wastes which include foundry snad and construction debris. The total waste processed equals 301,000 tons and mechanically recycled equals 18,200 tons. The estimate of recycled material, based on information in the county recycling activities chapter, is 198,000 tons for 1988. The total waste stream managed by the counties and private landfills in 1988 is estimated to be 2,190,000 tons. This is higher than the totals projected for each country. The total for 1988 is apportioned to each individual county based on projected waste generation for 1988 as a percentage of the total projected waste stream.

The waste-generation estimate for 1988 of 2,162,000 tons is 30,000 tons or 1.3 percent less waste than the 1988 estimate based on landfill and facility waste receiving rates. The increase, above the Cal Recovery estimates, occurred in a year when very little yard waste was generated due to drought conditions. Either the waste stream is growing at an unexpected rate or waste generation is being measured that had not previously been measured (commercial/industrial recycling). Data does not exist to distinguish between the two possibilities.

Based on the estimated waste stream and a maximum recycling rate of 50 percent, up to 1,080,000 tons of waste may be potentially recyclable in 1988. The actual recycling rate is provided in the abatement achieved chapter of this section.

Table I-1

MATERIALS IN THE WASTE STREAM
(in tons)

	Residential		Commercial/Industrial	
	Percent[1] of Total: Pope-Reid 1985	Percent of Total: Cal Recovery 1988	Percent of Total: Pope-Reid 1985	Percent[4] of Total: Cal Recovery 1988
Organics:				
High-grade paper		0.9		8.5
Newspaper	9.00	7.3	4.32	3.3
Corrugated paper	4.23	6.7	16.74	27.6
Mixed paper	10.83	19.1	18.47	15.2
Yard waste	16.15	33.8	1.93	1.0
Wood waste	6.31	3.5	9.23	9.2
Food waste	NA	8.8		
Plastics	NA	7.3		13.2
Other organics[2]	35.35	8.9	33.15	4.9
Inorganics:				
Ferrous metals	5.34	3.2	4.99	2.7
Aluminum	0.91	1.0	0.81	0.8
Nonferrous metals	0.12	0.7	0.18	0.8
Glass containers	4.71	4.9	2.88	2.2
Other inorganics[3]	7.04	3.9	7.30	3.4
Total	99.99	110.0	100.00	92.8

1 All data from Pope-Reid Associates, Inc., Hennepin County Comprehensive Recycling Study, Vol. 2, July 1985, Metropolitan Council, Solid Waste at What Cost?

2 Rubber, textiles, plastics, other combustibles.

3 Rock, dirt, cement, plaster, ceramics.

4 Cal Recovery, 1988, draft composition study.

Table I-2

1988 ESTIMATED LANDFILL RECEIVING RATES

Landfill	88 Est. Cu/Yd
Anoka	334,600
Burnsville	1,098,900
Dakota (closed)	0
Flying Cloud (closed 4/1/88)	5,907
Freeway	89,900
Louisville	493,000
Pine Bend	3,001,500
Wood Lake	605,500
REGIONAL TOTAL	5,629,307
Elk River (extra regional shipments)	200,000
TOTAL	5,829,307

COMMERCIAL RECYCLING

The most troublesome area for measuring abatement progress is in the commercial/industrial sector. The Twin Cities Metropolitan Area has been a leader in the reuse and recycling of materials from the commercial and industrial sector. The cost of transporting materials to the area to produce products has encouraged the use of recycled materials in production to be more competitive in the manufacture of products. The region is the home of Waldorf Corporation, a box board manufacturer that uses up to 800 tons of recyclable paper per day. The region also is the home of an Anchor Glass Company facility that produces food and beverage bottles. Anchor consumes approximately 40 tons of glass per day. Other major markets of recycled materials have not provided figures on the materials recycled. The Council does know that most of the post-consumer glass picked up by curbside programs was shipped to Illinois in the beginning of 1988. This has changed recently with the installation of a glass benification system at Anchor and an increase in the amount paid for recycled glass by $5 per ton.

The market for scrap steel has traditionally been very strong in the region. North Star Steel Company alone consumes over 480,000 tons of scrap steel per year. It is commonly believed that the total of North Star's scrap use is for auto hulks. In fact, only 44 percent of the steel used by North Star comes from auto hulks and the rest comes from other scrap sources. Approximately one

half of the 264,000 tons of nonauto hulk steel scrap comes from the Metropolitan Area. North Star Steel has also investigated the possibility of recycling food and beverage containers and already recycles approximately 5,000 tons of appliances annually. The appliance consumption is expected to grow as the mechanisms to remove potentially hazardous capacitators is improved.

The cursory information gathered on the marketing of recyclable materials collected in the Metropolitan Area may be seen below:

Table I-3

COMMERCIAL MATERIALS RESUE
METROPOLITAN AREA 1988
(estimated from market contacts)

Material	Quantity Recycled (tons)
Paper	240,000
Glass	12,500
Metals	141,000
TOTAL	393,500

Of the 393,500 tons estimated by contacting only local markets for materials, approximately 60,000 tons is derived from new commercial/industrial or residential curbside collection programs. The commercial and industrial materials marketed in the region appear to be approximately 333,500 tons per year or 16 percent of the waste stream. This figure does not assess the quantity of recyclable material that is shipped to national or global markets from the Metropolitan Area. Materials shipped from the Metropolitan Area are about 175,000 tons per year based on studies by Pope-Reid and MRI for regional waste generation and management patterns. This data does not indicate abatement progress but simply activities that the generators in the region have traditionally engaged in to manage their wastes. The counties have made attempts, through surveys, to assess the progress being made by companies in abatement activities.

The county surveys have had a low rate of return and the data, consequently, will not be representative of the actual progress being made in abatement activities. The counties have reported only on the rate of abatement observed since 1985 for credit toward county abatement progress. The counties have not all estimated increased activities in commercial and industrial recycling. Those that have provided information are listed below.

Table I-4

COMMERCIAL AND INDUSTRIAL
ABATEMENT PROGRESS
1985 - 1988
(based on county estimates)

County	Tons Recycled
Anoka	14,170
Carver	318
Dakota	18,383
Hennepin	48,138
Ramsey	26,000
Scott	Not Reported
Washington	403
TOTAL	107,412

The commercial/industrial recycling rate reported for Anoka, Dakota, Hennepin, and Ramsey Counties is greater than the residential recycling rate. The information presented by the counties was from surveys except for information from Ramsey. Ramsey County simply assumed that 50 percent of the reduction in receipt of waste at the Newport Facility could be accounted for by commercial/industrial recycling. Without actual data from market receipts of recyclable materials, the commercial/industrial recycling results are very suspect.

As noted previously, approximately half of the materials recycled are marketed locally. The commercial/industrial recycling information represents advancement in abatement activities occurring in the region from 1985 to 1988. The estimated recycling figure of 107,412 tons is equal to 5 percent of the Metropolitan Area waste stream and represents over half of the abatement progress reported by the counties.

Several major holes exist in the commercial and industrial recycling data. The operations of private companies and markets of recyclable materials are not tracked by the region or the counties. Many companies simply refuse to provide requested data on the types and quantities of materials recovered and marketed. Data on the commercial and industrial sector can be managed in two ways. The first is to require the companies shipping recyclable materials out of the state to report on the quantity and types of materials shipped, and require the materials brokers to report on the materials purchased by them by region and to whom the materials are sold. The second method to determine abatement progress in the commercial/industrial sector is to conduct a thorough, scientific survey of generators to produce an estimate of recycling activities that is consistent throughout the region. Both methods will require additional staff to collect and analyze the data.

Table I-5
SUMMARY OF ANOKA COUNTY ABATEMENT PROGRAMS, 1988

			Tons Resid. Recyc.	Tons Yard Waste
Cities under 5,000 Population++				
Bethel	292	drop-off late-1988	.52	-
Burns Twp.	2,302	no current program	3	-
Centerville	1,229	curbside yard waste, curbside recycling	14	-
Circle Pines	4,846	drop-off with Lexington	83	-
Columbus Twp.	3,686	no current program	-	-
Hilltop	781	drop-off with Col. Hgts.	9	-
Lexington	2,215	drop-off with Circle Pines, curbside recycling late 1988	53	-
Linwood Twp.	3,377	drop-off June 1988	11	-
Oak Grove	4,971	drop-off April 1988	32	-
St. Francis	1,938	drop-off late 1988	3	-
Cities over 5,000 Population++				
Andover	13,086	drop-off and curbside recycling mid-1988	171	-
Anoka	16,408	curbside recycling late 1988, office paper	1,315	-
Blaine	36,258	curbside recycling and curbside yard waste Jan. 1989, drop-off private	352	-
Columbia Heights	19,170	curbside recycling pilot mid-1988, curbside city-wide late 1988, drop-off	489	-
Coon Rapids	45,774	pilot curbside recycling May 1988, curbside city-wide early 1989, drop-off, office paper	1,103	-
East Bethel	8,159	drop-off	104	-
Fridley	29,336	curbside recycling, office paper, drop-off, yard waste curbside	1,390	-
Ham Lake	9,439	drop-off June 1988	27	-
Lino Lakes	7,600	private collection	252	-
Ramsey	12,181	drop-off	134	-
Spring Lake Pk.	6,722	curbside recycling	124	-

Anoka County Recycling Activity Totals 1988

Commercial/Indus.	14,170
Compost	2,428
Residential	5,670
Total	22,268

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

Table I-6
SUMMARY OF CARVER COUNTY ABATEMENT PROGRAMS, 1988

			Tons Resid. Recyc.	Tons Yard Waste
Cities under 5,000 Population++				
Benton Twp.	957	drop-off	5	-
Camden Twp.	945	no current program	-	-
Carver	728	served by Chaska drop-off, yard waste drop-off site	6	-
Chaska Twp.	211	served by Chaska drop-off	2	-
Cologne	613	drop-off Sept. 1988, yard waste drop-off site	1	6
Dahlgren Twp.	1,330	no current program	-	-
Hamburg	489	curbside recycling May 1988	-	-
Hancock Twp.	426	no current program	-	-
Hollywood Twp.	1,166	no current program	-	-
Laketown Twp.	2,432	no current program	-	-
Mayer	396	curbside recycling July 1988	3	-
New Germany	377	curbside recycling July 1988	3	-
Norwood	1,359	curbside recycling May 1988	-	-
San Francisco Twp.	737	no current program	-	-
Victoria	2,190	curbside recycling June 1988	15	-
Waconia	3,354	curbside recycling, yard waste curbside, yard waste drop-off	250	133
Waconia Twp.	1,487	Scouts curbside, yard waste curbside	-	-
Watertown	2,188	curbside recycling, drop-off, yard waste drop-off site	60	72
Watertown Twp.	1,501	no current program	-	-
Young America	1,358	curbside recycling May 1988, yard waste drop-off site	45	66
Young America Twp.	1,027	drop-off (alum. only)	-	-
Cities over 5,000 Population++				
Chanhassen	9,229	curbside recycling Jan. 1989, curbside yard waste, compost drop-off site, drop-off	30	464
Chaska	10,478	two compost drop-off sites, drop-off, yard waste curbside, recycling curbside 1989-90	600	145
		Other compost	-	120
		Community programs	218	-

Carver County Recycling Activity Totals 1988

Yard Waste	1,230
Commercial/Indus.	318
Residential	1,238
Total	2,786

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

Table I-7
SUMMARY OF DAKOTA COUNTY ABATEMENT PROGRAMS, 1988

			Tons Resid. Recyc.	Tons Yard Waste
Cities under 5,000 Population++				
Castle Rock Twp.	1,503	drop-off by Spring '89		
Coates	192	drop-off by Spring '89		
Douglas Twp.	623	drop-off by Spring '89		
Empire Twp.	1,370	drop-off by Spring '89		
Eureka Twp.	1,375	drop-off by Spring '89		
Greenvale Twp.	675	drop-off by Spring '89		
Hampton	322	drop-off by Spring '89		
Hampton Twp.	964	drop-off by Spring '89		
Lilydale	575	drop-off by Spring '89		
Marshan Twp.	1,595	drop-off by Spring '89		
Mendota	219	drop-off by Spring '89		
Miesville	179	drop-off by Spring '89		
New Trier	115	drop-off by Spring '89	22	
Nininger Twp.	851	drop-off by Spring '89		
Randolph	356	drop-off by Spring '89		
Randolph Twp.	425	drop-off by Spring '89		
Ravenna Twp.	1,936	drop-off by Spring '89		
Sciota Twp.	276	drop-off by Spring '89		
Sunfish Lake	379	drop-off by Spring '89		
Vermillion	559	drop-off by Spring '89	44	-
Vermillion Twp.	1,229	drop-off by Spring '89		
Waterford Twp.	502	drop-off by Spring '89		
Cities over 5,000 Population++				
Apple Valley	31,674	Goodwill drop-off, curbside by Spring '89	233	-
Burnsville	46,687	Goodwill drop-off, compost drop-off site, curbside by Spring '89	684	90
Eagan	42,556	compost drop-off site, drop-off center, curbside by Spring '89	520	553
Farmington	5,350	curbside recycling Spring 1989	145	-
Hastings	14,493	curbside recycling April 1989, yard waste drop-off site, curbside yard waste	196	256
Inver Grove Hts.	21,477	yard waste drop-off site, Goodwill drop-off, curbside by Spring '89	70	-
Lakeville	20,500	Goodwill drop-off, curbside by Spring '89	179	-
Mendota Hts.	8,680	Goodwill drop-off, curbside by Spring '89	29	-
Rosemount	7,420	served by Goodwill drop-off, curbside recycling Fall 1988	285	-
South St. Paul	20,361	yard waste drop-off, Goodwill drop-off, curbside by Spring '89	141	131
West St. Paul	18,591	Goodwill and school drop-off, curbside by Spring '89	868	-
		County compost	-	185

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

Table I-7 (Continued)

Dakota County Recycling Activity Totals 1988

Yard Waste	1,215	
Commercial/Indus.	17,402	
Residential	3,782	(Difference between city program and total based on additional from private programs.)$_0$
Total	22,399	

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

Table I-8
SUMMARY OF HENNEPIN COUNTY ABATEMENT PROGRAMS, 1988

Cities under 5,000 Population++			Tons Resid. Recyc.	Tons Yard Waste
Corcoran	4,952	curbside recycling Aug. 1988, yard waste drop-off	84	3
Dayton	4,295	city drop-off	16	-
Deephaven	3,741	curbside recycling, drop-off	182	-
Excelsior	2,574	curbside recycling, drop-off and yard waste curbside planned	165	-
Fort Snelling	216	no current program	-	-
Greenfield-WHRC(*)	1,545	drop-off	(*)	-
Greenwood	656	curbside recycling, drop-off	12	3
Hanover	266	drop-off volunteer only	40	-
Hassan Twp.	1,981	drop-off	-	-
Independence-WHRC(*)	2,770	city drop-off	(*)	-
Long Lake-WHRC(*)	1,988	private drop-off	(*)	-
Loretto-WHRC(*)	345	private drop-off	(*)	-
Maple Plain-WHRC(*)	1,803	curbside recycling	(*)	-
Medicine Lake	398	curbside recycling and yard waste, drop-off	(with Plymouth)	-
Medina-WHRC	3,035	city drop-off	(*)	-
Minnetonka Beach WHRC(*)	596	private drop-off	(*)	-
Minnetrista	3,662	curbside recycling, yard waste drop-off site	60	-
Osseo	2,707	drop-off	-	-
Rockford	469	drop-off, recycling curbside Sep. 1988	28	-
Rogers	716	drop-off, curbside recycling planned 1989	60	-
St. Bonifacius	1,086	curbside recycling	46	4
Spring Park	1,584	curbside recycling, drop-off	30	-
Tonka Bay	1,479	curbside recycling	60	69
Wayzata	3,711	drop-off, curbside recycling	238	-
Woodland	496	curbside recycling	38	-
Cities over 5000 Population++				
Bloomington	85,299	private drop-off, curbside recycling & yard waste planned	216	-
Brooklyn Center	29,420	drop-off, haulers curbside yardwaste	111	-
Brooklyn Park	53,842	drop-off, haulers curbside yard waste	128	-
Champlin	14,500	city drop-off, curbside recycling planned, yard waste curbside	218	365

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

Table I-8 (Continued)

Cities over 5000 Population++			Tons Resid. Recyc.	Tons Yard Waste
Crystal	24,900	drop-off, curbside recycling planned, curbside yard waste	483	736
Eden Prairie	34,906	drop-off, yard waste drop-off site (county), yard waste collection license/ordinance	-	-
Edina	46,095	curbside recycling, drop-off, yard waste curbside	1,506	2,500
Golden Valley	21,318	curbside recycling, season curbside yard waste, drop-off	991	-
Hopkins	14,850	drop-off, yard waste drop-off site, yardwaste curbside	953	509
Maple Grove	35,882	2 yard waste drop-off sites	-	-
Minneapolis	355,800	curbside recycling, yard waste curbside, drop-off	9,590	23,087
Minnetonka	43,742	drop-off, yard waste curbside plan Fall 1988	275	1,000
Mound	9,951	curbside recycling, drop-off	182	80
New Hope	22,944	planned curbside Jan. 1989, drop-off	-	-
Orono-WHRC(*)	7,284	drop-off	(*)	-
Plymouth	47,800	curbside recycling, drop-off, yard waste curbside	3,000	3,000
Richfield	36,760	curbside recycling, drop-off, yard waste curbside	600	600
Robbinsdale	14,588	curbside recycling, yard waste curbside	2,133	600
St. Anthony	5,448	drop-off, curbside recycling and yard waste planned in 1989	-	-
St. Louis Park	43,700	curbside recycling, curbside yard waste, drop-off	1,388	4,000
Shorewood	5,094	curbside recycling, drop-off	224	-
(*)West Hennepin Recy.	19,366		496	100

Hennepin County Recycling Activity Totals 1988

Commercial/Indus.	48,138	
Residential	23,636	(Difference between city programs and total based on additional from private programs.)
Yard Waste	20,000	(County estimates total for yard waste to be much less than estimate prepared by the cities.)
Reuter	986	
Total	92,760	

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

Table I-9
SUMMARY OF RAMSEY COUNTY ABATEMENT PROGRAMS, 1988

Cities under 5,000 Population++			Tons Resid. Recyc.	Tons Yard Waste
Gem Lake	410	curbside recycling	4	-
Lauderdale	2,307	Goodwill drop-off, curbside recycling	88	-
North Oaks	3,205	curbside recycling	205	-
St. Anthony	2,797	drop-off, yard waste curbside	202	100
Cities over 5,000 Population++				
Arden Hills	9,737	curbside recycling, yard waste drop-off site	320	648
Falcon Hts.	5,386	curbside recycling	220	-
Little Canada	8,623	curbside recycling	216	-
Maplewood	29,305	drop-off, yard waste drop-off site, recycling curbside planned Nov. 1988	296	743
Mounds View	13,025	curbside recycling, yard waste drop-off site	101	372
New Brighton	23,343	curbside recycling	497	-
North St. Paul	12,350	curbside recycling, curbside yard waste	320	500
Roseville	34,785	curbside recycling, yard waste curbside	920	1,880
St. Paul	265,100	curbside recycling, drop-off, yard waste drop-off, yard waste curbside	9,925	1,397
Shoreview	23,898	curbside recycling	455	-
Vadnais Hts.	9,720	curbside recycling planned Oct. 1988	70	-
White Bear Lake	23,605	curbside recycling, yard waste curbside	312	1,605
White Bear Twp.	8,600	curbside recycling, yard waste curbside, yard waste drop-off site	257	966

Ramsey County Recycling Activity Totals 1988

Commercial/Indus.	26,000	(per Progress Report)
Residential	14,440	
Yard Waste	8,211	
Total	48,651	

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

Table I-10
SUMMARY OF SCOTT COUNTY ABATEMENT PROGRAMS, 1988

Cities under 5,000 Population++			Tons Resid. Recyc.	Tons Yard Waste
Belle Plaine	3,159	drop-off, curbside recycling planned 1989	1,612	-
Belle Plaine Twp.	790	curbside recycling planned 1989		
Blakeley Twp.	508	curbside recycling planned 1989		
Cedar Lake Twp.	1,709	curbside recycling planned 1989		
Credit River Twp.	2,897	curbside recycling planned 1989		
Elko	296	curbside recycling planned 1989		
Helena Twp.	1,263	curbside recycling planned 1989		
Jackson Twp.	1,490	curbside recycling planned 1989		
Jordan	2,830	drop-off, curbside recycling planned 1989	18	-
Louisville Twp.	890	curbside recycling planned 1989		
New Market	308	curbside recycling planned 1989		
New Market Twp.	1,993	curbside recycling planned 1989		
New Prague	2,364	drop-off, curbside recycling planned 1989	172	-
St. Lawrence Twp.	416	curbside recycling planned 1989		
Sand Creek Twp.	1,585	curbside recycling planned 1989		
Spring Lake Twp.	2,905	curbside recycling planned 1989		
Cities over 5,000 Population++				
Prior Lake	10,640	drop-off, curbside recycling planned 1989	100	-
Savage	8,251	drop-off, two haulers curbside recycling to customers	138	-
Shakopee	11,733	drop-off, curbside recycling	221	-
		MSD	18	
		Appliance Recycle	86	

Scott County Recycling Activity Totals 1988

Residential	2,365
Yard Waste	No data
Commercial/Indus.	No data
Total	2,365

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

Table I-11
SUMMARY OF WASHINGTON COUNTY ABATEMENT PROGRAMS, 1988

Cities under 5,000 Population++			Tons Resid. Recyc.	Tons Yard Waste
Afton	2,675	curbside recycling, curbside yard waste C.C.(*)	70	345
Bayport	3,106	shared Goodwill drop-off (with Stillwater), curbside yard waste		
Baytown Twp.	913	curbside late 1988		
Birchwood	1,049	no current program		
Dellwood	815	no current program		
Denmark Twp.	1,288	no current program		
Grant Twp.	3,680	private drop-off-transfer station	(Not reported)	
Grey Cloud Twp.	339	no current program		
Hugo	4,250	drop-off, yard waste drop-off site	70	80
Lakeland	2,109	curbside recycling, curbside yard waste C.C.(*)	12	-
Lake St. Croix Beach	1,179	curbside yard waste C.C.(*)		
Lakeland Shores	188	curbside yard waste C.C.(*)		
Landfall	635	no current program		
Mahtomedi	4,650	no current program		
Marine on St. Croix	552	served by New Scandia drop-off		
May Twp.	2,430	served by New Scandia drop-off		
Newport	3,567	shared Goodwill (with Cottage Grove)		
New Scandia Twp.	3,186	drop-off	178	-
Oak Park Hgts.	3,751	shared Goodwill (with Stillwater) curbside yard waste		
Pine Springs	470	no current program		
St. Mary's Point	351	curbside yard waste C.C.(*) curbside recycling		
St. Paul Park	4,915	shared Goodwill (with Cottage Grove)		
Stillwater Twp.	2,015	served by drop-off		
West Lakeland Twp.	1,593	curbside recycling late 1988		
Willernie	672	curbside yard waste		

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

Table I-11 (Continued)

Cities Over 5,000 Population++			Tons Resid. Recyc.	Tons Yard Waste
Cottage Grove	21,800	Goodwill drop-off, curbside yard waste, yard waste drop-off site	212	219
Forest Lake	5,430	recycling drop-off, curbside recycling, yard waste drop-off site	356	740
Forest Lake Twp.	6,160	served by drop-off, curbside recycling	-	-
Lake Elmo	6,189	curbside recycling, yard waste drop-off site	126	2,158
Oakdale	16,026	Goodwill drop-off	318	-
Stillwater	13,485	Goodwill drop-off, curbside yard waste	268	-
Woodbury	18,500	curbside recycling early 1989, yard waste drop-off site	-	156
Junker Sanitation/ Washington County Compost		yardwaste drop-off	-	3,353
(*)Compost Concepts Compost		yardwaste collection	-	345

Washington County Recycling Activity Totals 1988

Yard Waste	3,699	
Commercial/Indus.	806	
Residential	1,888	(Difference between city programs and total based on additional from private programs.)
Total	6,393	

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

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COUNTY RECYCLING ACTIVITIES

The counties have all experienced growth in their recycling activities. In more urbanized areas, the counties have sponsored biweekly and even weekly collection of recyclable materials. Many programs in counties, such as Anoka, are experiencing a shift from drop-off programs to curbside collection of residential materials. The programs for each city in a county and county source separation programs are identified with the tons of waste abated by each program in Tables I-5 through I-11. Tables I-5 through I-11 provide some information on the characteristics of programs that govern their rate of materials recovery.

Tables I-12 and I-13 show the number of recycling programs in the region by county for 1987 and 1988. All of the counties, except Washington County, have made gains in recycling program development during 1988. Washington County has recently hired a full-time abatement coordinator to promote recycling in the county. All of the counties have significantly increased the number of yard waste composting programs during 1988. This is in response to the ban on yard waste disposal at landfills and processing facilities after 1990 was made law during the last legislative session.

Table I-12

REGIONAL SOURCE-SEPARATION ABATEMENT PROGRAMS, 1987

(from 1987 County Annual Reports)

	Curbside Recycling	Drop-Off	Curbside Yard Waste	Drop-Off Yard-Waste
Anoka	4	7	2	2
Carver	4	3	7	4
Dakota	0	10	1	3
Hennepin	17	26	6	4
Ramsey	13	3	3	5
Scott	2	6	0	0
Washington	3	7	4*	5
TOTAL	43	62	23	23

* 55 total cities with program and/or facility.

Table I-13

REGIONAL SOURCE-SEPARATION ABATEMENT PROGRAMS, 1988
COUNTY YARD WASTE PROGRAMS* (8/18/88)

	Curbside Recycling	Drop-Off	Curbside Yard Waste	Drop-Off Yard Waste
Anoka	9	7	2	2
Carver	6	3	4	7
Dakota	2	10	1	5
Hennepin	19	26	13	4
Ramsey	16	3	6	5
Scott	3	6	0	0
Washington	3	7	10	5
TOTAL	58	62	36	28

* 55 total cities with program and/or facility

The counties are in the process of completing their abatement implementation strategy as required by law. It is anticipated that all of the counties will submit their abatement implementation strategy for Council review prior to the December 1, 1988, deadline. The counties were required to submit progress reports concerning their strategies by August 1, 1988. The information contained in the progress reports is described in section III.

CENTRALIZED PROCESSING ABATEMENT

The three facilities operating in 1988 all began operations in prior years. The rate of processing during 1988 did, however, increase from 129,000 tons in 1987 to an estimated 301,000 tons in 1988. The Hennepin County mass burn facility and the Anoka County refuse-derived fuel processing facility are expected to begin operations in mid-1989. Likewise, the proposed composting facility planned for Carver and Scott counties' waste is expected to be operational in late 1989 or early 1990. The planned Dakota County mass burn facility, however, is not projected to begin operations until mid-1992. Table I-14 shows the quantities of waste from each county that will be processed in 1988. It is anticipated that all of the counties in the Metropolitan Area will achieve a centralized processing rate within the range of abatement expected in the Council's policy plan goals. Most counties are, however, achieving a centralized processing rate at the lower end of the anticipated range. The rate of processing in the region in 1988 is estimated to be 14 percent, which does not meet the Council's 1988 regional goal of 25 percent centralized processing.

Table I-14

ESTIMATE OF REGION'S CENTRAL PROCESSING ACTIVITY, 1988*
(in tons)

County	Richards	Reuter	Ramsey/Washington	Total	Waste	Percentage of Central Processing Abatement	Council's 1988 Goal
Anoka	0	0	0	0	199,199	0	4 - 37
Carver	0	0	0	0	30,304	0	0
Dakota		11,700 (est.)		11,700	235,618	5	4 - 30
Hennepin	13,011	14,880		27,891	1,076,998	3	2 - 11
Ramsey			202,960	202,960	506,055	40	5 - 62
Scott	7,622			7,622	46,402	16	18
Washington			50,739	50,739	97,808	52	25 - 59
TOTAL	20,633	26,580	253,700	300,913	2,192,385	14	25

* Estimate waste deliveries based on first nine months of operation in 1988.

The projected delay in the development of regional processing capacity will mean in 1990 only 3,672 tons of waste per day, or 1,340,000 tons per year, will be processed. The estimated 1990 waste-generation rate is 2,312,000 tons per year. The percent of waste that may be processed in 1990 is equal to 58 percent of the waste stream. Assuming that the 1990 goals of 16 percent source separation and 4 percent waste reduction are met in the region, 23 percent, or 531,000 tons of waste, will be landfilled in 1990 without being processed.

In 1992, when the Dakota County mass burn facility is projected to begin operation, the waste-generation rate is estimated to be 2,360,000 tons per year according to a recent Cal Recovery study prepared for the Council. The total processing capacity anticipated in 1992 would equal 4,472 tons per day or 1,632,000 tons per year. This is equal to 69 percent of the anticipated waste stream in the region. The addition of the Council's source-separation and waste-reduction abatement objectives equals 89 percent of the waste through processing or abatement. In order to avoid landfilling unprocessed waste, the region will need to reduce, abate, and/or process an additional 11 percent of the waste stream in 1992. After 1992 the processing capacity planned decreases as a percentage of the waste stream.

Assuming a one percent annual growth rate in the Metropolitan Area waste stream from 1990 to the year 2000, the total waste generation rate would equal 2,550,000 tons per year in the year 2000. If processing capacity does not increase beyond the project rate in 1992, 64 percent of the waste stream would be processed and 36 percent would need to be recycled or reduced at the source to avoid disposal of unprocessed waste. This is equal to a two percent annual rate of growth in recycling and waste reduction activities from 1990 to the year 2000.

ABATEMENT ACHIEVED

The region is expected to achieve an overall waste-abatement rate of eight percent in 1988. The data indicates that approximately 159,000 tons of recyclable materials will be recovered in the Metropolitan Area and 37,000 tons of yard waste will be composted. The recyclable materials recovered was achieved through both the commercial/industrial and residential sectors. The counties reported that the commercial/industrial sector recycled 107,000 tons of materials and residential programs recovered 48,000 tons of materials. The combined total of waste abated through recycling and yard waste composting is 191,000 tons. In 1987, the region abated 108,000 tons of waste through recycling and yard-waste composting. The 1988 results represent a 77 percent increase in the abatement achieved above last year's level. To meet the 1990 goal of 16 percent, the counties must double their recycling during 1989.

Much of the abatement progress noted by the counties comes from estimates of commercial/industrial recycling. The mechanisms used to derive the estimates were not consistent among the counties and the accuracy of the data is not known. The commercial/industrial estimate is more than twice that of the residential sector. Future abatement progress reports will require much more rigorous collection of data on the commercial/industrial sector to be included in the report. Unless, or until, an overall recycling goal is established for all waste generated, including waste that was recycled prior to 1985, the estimates of commercial/industrial recycling should not include levels achieved prior to 1985. Currently it is virtually impossible for the counties or Council to discern between "old," pre-1985, recycling and "new," post-1985,

recycling. Until this data can be collected in an accurate way, the estimate of abatement progress for the region will be a rough approximation.

The abatement levels reported by each county are provided in table I-15. The counties that achieved the Council's 1988 source-separation goal were Anoka, Carver, Dakota and Hennepin counties. Ramsey, Scott, and Washington counties are not projected to achieve the Council's source-separation goal. The counties are all required to submit a local recycling implementation strategy to the Council by December 1, 1988. The plans are expected to detail how source-separation goals will be achieved by the counties. The Council may need to use further encouragement in counties not achieving source-separation goals to enact programs and increase abatement activities.

The Council's regional goal for recycling and yard-waste composting for 1988 was nine percent. The region will achieve an estimated rate of abatement of eight percent. To achieve the nine percent rate, the region would have to recycle or compost an additional 10,000 tons of waste during 1988. The increase from 1987, however, is dramatic in that the rate of recycling increased by nearly 90,000 tons.

The Council did not achieve the centralized processing goal for 1988. The regional goal of 25 percent equals 548,000 tons of waste. The actual processing level is 301,000 tons for 1988. The region achieved only 14 percent centralized processing, a three percent increase from the estimate reported in the 1987 Abatement Progress Report. Facilities in Elk River and Hennepin County are expected to begin operation and add 2,300 tons per day of processing capacity in the region. The projected waste processing for 1988 is 721,000 tons or 32 percent of the waste stream. The Council's goal for 1989 is 57 percent centralized processing. As noted under the centralized processing section, in 1992 the rate of processing with existing and planned facilities is only 69 percent of the waste stream. In discussions related to the revision of the Council's Solid Waste Management Policy Plan/Development Guide, the Council has noted the processing gap. The Council will address the issues of the processing gap and the measurement of regional abatement progress in the policy plan revision.

EXTENSION OF LANDFILL CAPACITY

CURRENT LANDFILL CAPACITY

Capacity in the regional system is calculated by subtracting the capacity used as measured by aerial photos taken between October 1984 and October 1986 from the remaining capacity determined from the 1986 photos. Remaining capacity at the beginning of 1989 is estimated at approximately 7,800 acre-feet. Aerial photos are scheduled during October 1988. This analysis will be available by the end of the year. Landfill owners generally feel they have somewhat more capacity remaining than is indicated by these estimates.

Table I-16 projects system capacity and expected remaining life for the municipal solid waste landfills operating in the Metropolitan Area in 1986. Half the landfills were projected to exhaust their capacity in 1987. Two of these, Dakhue and Flying Cloud, have closed while the others have severely restricted intake in order to technically remain open while options to expand are explored.

Table I-15
COUNTY ESTIMATES OF ABATEMENT ACTIVITY 1988
(AND COMPARISON TO 1987 ACTUAL FIGURES AND ESTIMATES)

County	Est.* Total Waste (tons)	Council's 1988 Percent Goal	Est. 1987 Recycling (tons)	Ratio Actual 1987 Recycling (tons)	Actual/ Est. 1987 Recycle	Source Separation 1988 Total (tons)	1988 Est. Yard-Waste (tons)	1988 Percent of Yard Waste Abatement	Est. 1988 Recycling (tons)	1988 Percent of Recyclables Abatement	1988 Percent of Overall Abatement
Anoka	199,199	9	3,995	6,870	1.72	22,268+	2,428	1	19,385	10	11
Carver	30,304	8	1,279	1,781	1.39	2,786	1,230	4	1,320	4	8
Dakota	235,618	9	2,548	12,071	3.98	22,399+	1,215	1	21,184	9	9.5
Hennepin	1,076,998	9	25,138	67,536	2.69	92,760+	20,000	2	72,760	7	9
Ramsey	506,055	11	16,254	13,910	0.86	48,651+	8,211	1	40,440	8	9.6
Scott	46,402	8	666	581	0.87	2,365	no data	-	2,365	5	5
Washington	97,808	8	3,372	6,807	2.02	6,393	3,669	4	2,280	2	6
TOTAL	2,192,385	9	53,252	109,556	2.02	197,622	36,753	1	159,734	7	8

* Partitioned by 1987 waste generation percentage.
+ Includes estimates of commercial/industrial recycling activity greater than residential programs.

Table I-16

CLOSURE AND SYSTEM CAPACITY PROJECTED FROM 1986

Landfill	1986 Capacity	1984-1986 Deposits	Closure Projection
Anoka	24 ac-ft.	732 ac-ft.	1987
Burnsville	2,098 ac-ft.	468 ac-ft.	1995
Dakhue	<50 ac-ft.	>157 ac-ft.	1987
Freeway	43 ac-ft.	158 ac-ft.	1987
Louisville	504 ac-ft.	91 ac-ft.	1997
Flying Cloud	174 ac-ft.	602 ac-ft.	1987
Pine Bend	7,970 ac-ft.	1,289 ac-ft.	1998
Woodlake	1,078 ac-ft.	432 ac-ft.	1991
TOTAL	11,891 ac-ft.	3,772 ac-ft.	

October 1988 Projection of System Capacity 8,119 AC-FT.

January 1, 1989 Projection of System Capacity 7,800 AC-FT.

Additional capacity can only be added through the approval of new landfills or the expansion of existing ones. The current landfill development schedule includes sites in three counties as indicated below:

o Anoka	3,000 acre-feet	1987
o Hennepin	3,232 acre-feet	1991
o Washington	2,494 acre-feet	1993
o Total Space	8,726 acre-feet	

Two proposals for expansion of existing landfills are being evaluated:

o Flying Cloud	5,644 acre-feet
o Anoka	635 acre-feet
o Total Space	6,279 acre-feet

Solid-waste incinerator ash is currently disposed of as a special waste in landfills in Minnesota. Ash is put in separate cells, placed over existing refuse as a last layer before final cover, or disposed in ash-only "monofills," landfills that contain only one type of waste. There are no ash-only monofills in the Metropolitan Area. Louisville Landfill is the only site deploying a separate cell for ash, but this is only being done on a temporary basis. State legislation this year established solid-waste incinerator ash as a special waste until either the U.S. EPA or the MPCA establishes testing and disposal requirements, or June 30, 1990; whichever occurs first. The anticipated outcome of this legislation is that ash-only monofills will be required as soon as they can be developed.

PROJECTED RATE OF CAPACITY EXHAUSTION

The volume that waste occupies in a landfill depends on its density after compaction with required cover material. Table I-17 indicates the densities of anticipated categories of municipal solid waste when deposited and covered in a landfill.

Table I-17

CAPACITY REQUIREMENTS FOR VARIOUS WASTE TYPES

Waste Type	Lbs./Cu. Yd.	Tons/Acre-Foot
Municipal solid waste	1200	970
Residuals and rejects from processing	1400	1130
Ash from waste incineration	1600	1290

If the Council's goals for source-separation recycling and centralized processing are achieved from now through the year 2000, waste streams will be delivered to landfills approximately as indicated in Table I-18. These figures assume that centralized processing facilities are developed as scheduled in the county solid-waste management master plans and perform at the levels anticipated.

Table I-18

PROJECTED LANDFILL DISPOSAL 1989 - 2000

	Generation (Tons)	Acre-feet
Unprocessed Municipal Solid Waste	5,626,000	5,800
Rejects & Residuals	3,222,000	2,850
Incinerator Ash	2,125,000	1,650
	10,973,000	10,300

The demand for landfill space under favorable conditions through year 2000 is 10,300 acre-feet. Much of the unprocessed waste to be disposed of will be generated between 1989 and 1992 when all of the planned processing facilities will have begun operation. This period accounts for over 4,000 acre-feet of disposal capacity use. Demand exceeds the 7,800 acre-feet currently available by 2,500 acre-feet. Ash from the NSP Newport Plant that may be disposed of outside the region represents 230 acre-feet.

Landfill space is currently being exhausted at an annual rate of 1,900 acre-feet. This rate declines only slightly until the 1990-1992 period when most of the central processing facilities are expected to begin operations. It then falls rapidly to slightly under 1,000 acre-feet per year for the rest of the century. Council staff estimate that if source-separation goals are only partially achieved and there are delays in implementing centralized processing plants, 7,900 additional acre-feet will be used by 2000. Thus, current capacity is not likely to be exhausted until sometime between 1992 and 1998.

ABATEMENT POTENTIAL

The most effective way to extend capacity in the region would be to have processing facilities begin operations on an accelerated schedule. This, unfortunately, is not possible due to the necessary steps involved in developing a facility, including environmental review, permitting, and construction. Other potential options for extending the existing capacity are provided below.

Table I-19 shows the impact of abatement options. It also suggests that inflows and outflows of solid waste from the region should be evaluated to ensure a complete picture.

Table I-19

IMPACT OF ADDITIONAL ABATEMENT STRATEGIES

Abatement Activity	Annual Abatement
Reduce waste generation by 1%	20 acre-feet
Dispose RDF ash outside the region	66 "
Source-separate additional waste (per percent)	20 "
Build additional 1,000 tons per day waste-to-energy facility	264 "
Alternate management of yard waste	95 "
Compost residuals from processing plants	200 "
Alternate management of processing rejects	95 "
Alternate management of food waste	95 "

It should be noted that the abatement methods listed above cannot all be implemented together. For example, waste reduction could reduce the need for additional processing capacity in the region. The compatible strategies in the list are alternate yard waste, processing rejects, and food-waste management plus waste reduction, and increased source separation. (Current law prohibits disposal of yard waste in landfills or processing facilities after 1990.) Assuming an additional 10 percent source separation and an additional two percent waste reduction in 1992, in addition to the current Council goals in conjunction with the other abatement methods, the total landfill space that could be saved per year would be 775 acre-feet. This represents a 70 percent reduction in the estimated consumption of landfill space for the period 1992 to 2000. The potential for implementation of the strategies listed varies, with alternate food-waste management being the least likely implemented. It is more likely that the actual reduction possible is in the order of approximately 480 acre-feet per year by these methods. If all of the strategies were to be implemented by 1992, the region would have 1,340 acre-feet remaining in the year 2000 and would use approximately 520 acre-feet of capacity annually. The landfill capacity would then last until the year 2003.

If alternate management of ash could be implemented, the region could reduce the need for additional landfill space by 200 acre-feet per year. This effort, along with the landfill abatement strategies described above, would extend the existing landfill capacity until 2007.

The ability to reuse, compost and reuse residual materials is highly speculative at this time. Further, technically feasible solutions frequently meet with political opposition. For example, the Metropolitan Waste Control Commission (MWCC) has demonstrated no adverse impact from use of sludge ash in asphalt. The extension of capacity, as noted above, does not take disposal restrictions into account. The following section on regional landfill planning discusses the need for facilities that are permitted to dispose of materials that will be generated and the planning lead times necessary to develop additional landfill capacity when it is needed.

In order to extend landfill capacity until 2000, it would be necessary to begin composting of residuals from solid-waste facilities in 1992 and marketing the

resulting product rather than landfilling the compost. Other combinations of alternate management of specific wastes or increased processing capacity development may be used to extend the existing capacity until the year 2000. In order to make existing capacity last until 2005, it would be necessary to employ all of the alternate materials management options, increase source separation, increase waste-reduction abatement efforts, and manage half of the ash by methods other than landfilling. The maximum period existing landfill capacity may be extended is through the year 2007. No combination of potential solutions will extend existing capacity until the year 2010.

The estimates provided above do not include the possible permitting and construction of the Flying Cloud Sanitary Landfill expansion. The Council acted in February 1988 to allow the issuance of a Minnesota Pollution Control Agency permit for Flying Cloud. The matter has since gone to a contested case hearing for review of the facts related to permit application. The expansion under consideration is for 5,644 acre-feet of capacity. The expansion of Flying Cloud Landfill would extend the regional landfill capacity without further abatement efforts until approximately 2002. The application of increased source separation and improved materials management would extend the capacity from the year 2003 until 2014. If recycling were conducted in conjunction with alternate ash and residuals management, the landfill capacity in the region would last until 2020 rather than 2007 with the addition of Flying Cloud Landfill.

REGIONAL LANDFILL PLANNING

Capacity exhaustion may not be the overriding issue. The Minnesota Pollution Control Agency has recently issued temporary ash-storage requirements that will lead into permanent ash-management rules. The new requirements proscribe facility characteristics that are inconsistent with existing regional landfills. As a consequence of the anticipated rules, the region will not have any facilities for the management of ash. The advent of operations of the Hennepin Waste-to-Energy facility and the proposed Dakota County facility indicate that the problem of ash management must be addressed now. The existing process for the siting of new landfill space does not specifically address ash. The controversy surrounding the issue of ash disposal in the candidate landfill sites needs to be clarified. If the existing sites may not be used for ash, an alternate ash-disposal site will need to be developed. In the long term it may be possible to use alternate management methods for ash; however, in the next three to five years it is not anticipated that alternate solutions will be commercially viable unless legislation is enacted requiring ash use. In any event, additional research would be required to determine which ash-management options could be employed.

Another issue that must be addressed in the discussion of landfill capacity is when additional landfill capacity will be needed. Under very optimistic assumptions, the current landfill capacity (excluding the need for separate ash management) will last until 2007. The premise that is used to develop this estimate is very speculative in nature and further requires all of the existing waste-management plans to be successful. The region has seen significant delays in the plans of certain counties to date and it is anticipated that the future may see additional delays in the development of abatement programs.

The uncertainty requires some flexibility in the planning for additional landfill capacity in the region. The current law requires the Council to set the landfill capacity needed in the region so that the capacity will be

exhausted in the year 2000. Based on the time required to develop additional landfill capacity, the proscription for development of landfill capacity to last beyond 2000 may not be prudent. The current landfill siting process has been under way since 1980 and the actual development of facilities is not anticipated until after 1989. The planning horizon required to ensure the timely development of landfill capacity is estimated to be seven years at a minimum. Consequently, the siting process to develop landfill capacity for 1996, for example, would need to be initiated in 1989. The existing capacity is expected to last from 1992 to 1998, depending on the success of county plans. With the seven to ten year lead time needed to establish new facilities, completing the landfill siting process is critical to providing needed landfill capacity after 1998.

The Council understands the need to limit the growth of landfill capacity as an encouragement to abate waste. The Council also recognizes the regional need to provide landfill capacity sufficient to manage regional wastes. The region needs to provide landfill capacity when it is needed in order to avoid disruptions in the solid-waste management system.

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II. COST AND FINANCE REPORT

INTRODUCTION

The cost and finance report is required to be completed every biennium. The first cost and finance report was delivered to the legislature in 1986. This report is the second in the series of these reports.

The report has added two parts this year. One of the new parts provides a discussion of collection cost in the region including free market, organized collection and volume-based collection. The other new part involves a review of the costs of county and municipal source-separation programs. The discussion of source-separation programs provides information on the cost of programs, the population served, a calculation of the cost per ton of waste managed, and the pounds per person per year collected by each program.

The other sections in the report include centralized processing, transfer stations, and landfill costs for existing and proposed facilities.

COLLECTION

The collection of waste is the first step in the management of solid wastes. The cost of collection exceeds all other costs including processing of mixed municipal waste at processing facilities. The Council has conducted a survey of residential waste-collection costs in each of the seven counties in the Metropolitan Area. The results of the survey are presented in Table II-1. The data shows the cost and services provided for the free-market collection system as well as volume-based pricing and organized collection.

Table II-2 provides summary information concerning the cost of residential waste collection services in the Metropolitan Area. The more densely populated areas of the Metropolitan Area generally experience lower waste collection costs than relatively rural areas. Washington and Ramsey Counties have higher costs than the rest of the region due in part to the implementation of designation to support the resource-recovery facility. The average cost of free-market collection in the region is $11.71 per month. Many haulers collecting in the open system currently use 90 gallon carts and charge extra for additional waste. The free market costs do not necessarily respond to unlimited waste collection for a fixed price. The cost in Ramsey and Washington Counties is approximately one dollar higher. The average cost for organized collection is $10.40 and volume-based collection is $9.50. The volume-priced cost is significantly less for waste collection than either free market collection or organized collection.

The cost of collection was calculated in 1986 to be approximately $77 per ton for mixed municipal waste collection. The information in Table II-2, subtracting the cost of waste processing or disposal, indicates that free-market collection costs an average of $92 per ton, organized collection costs $77.50 per ton and volume-based collection costs approximately $66 per ton. In the latter half of 1986, hauler insurance costs experienced an increase requiring a modest increase in the tipping fees collected from residential waste generators. The past year has shown regular and significant increases in waste disposal cost and waste collecton fees. The rate of increase in the free-market collection cost has been at a rate of nine percent per year above the cost of disposal in facilities or landfills.

The use of facilities will reduce the travel time for haulers to disposal sites and hence improve the efficiency of waste collection in the region. The wear and tear on vehicles delivering waste to processing facilities is significantly reduced, saving haulers the expense of new tires and repairs to vehicles. The cost of tipping at resource-recovery facilities is greater than the cost savings due to lower maintenance expenses. The cost of collection can be expected to rise as counties implement resource-recovery facilities. However, many haulers will take advantage of the increased disposal cost to further escalate collection costs. Consumers should be informed of the average increase in costs to be expected, due to the implementation of county designation. The consumer will then be able to judge whether or not rises in collection costs are justified.

As recycling programs are more successful, the volume of waste collected by mixed municipal waste haulers will decline. The reduction in the volume of waste collected by haulers will represent additional operational savings to haulers. The assessment of increased fees for waste collection may not be influenced by actual increases in operating costs for haulers.

The cost of commercial waste collection (excluding disposal) was estimated to be $27 per ton in 1986. The cost estimate for 1988 is $29 per ton. The modest increase is the result of the insurance costs being passed on to their customers. The competitive nature of the commercial hauling business has ensured that the commercial/industrial waste generators are not required to pay excessive waste-collection and transportation fees.

The Council is conducting more extensive research on waste collection in conjunction with the policy plan revision. The results of this work will be reported in the 1989 Abatement Progress Report.

Table II-1
SURVEY OF RESIDENTIAL SOLID WASTE COLLECTION COSTS

FREE MARKET***

County	City/Township	Cost Structure
Anoka	Circle Pines	- $12.00 Mo. - 90 gal. cart - $.50 extra bags
	Fridley	- $12.00 Mo. - 90 gal. cart - $.50 extra bags - $11.00 Mo. - 4 cans per week limit
Carver	Chaska	- $10.00 Mo.
	Chanhassen	- $10.00 Mo.
Dakota	Rosemount	- $12.00 Mo. - (pay by quarter, 4th month free to new families)
	Burnsville	- $13.00 Mo. - $11.50 Mo. (pay by quarter, 1st month free) $ 2.50 Mo. extra for 90 gal. cart
	Eagan	- $13.00 Mo. - $11.50 Mo. (pay by quarter, 1st month free) $ 2.50 Mo. extra for 90 gal. cart
Hennepin	Dayton	- $11.00 Mo. - 90 gal. barrel
	Eden Prairie	- $11.50 Mo. - 90 gal. cart - $11.50 Mo. - 90 gal. cart
Ramsey	Lauderdale	- $14.60 Mo.
	St. Anthony	- $11.50 Mo. - 3 cans or 3 bags
	Roseville	- $12.00 Mo. - 90 gal. cart - $.50 extra bags - $12.16 Mo. ($36.50 quarter) container holds 5-6 bags - $.50 extra bags
	Maplewood	- $12.50 Mo. OR 10.50 Mo. for 1-2 bags LOW RATE special - $13.00 Mo. - 90 gal. cont. - $.50 extra bags - $12.16 Mo. ($36.50 quarter) container holds 5-6 bags - $.50 extra bags
Scott	Prior Lake	- $11.50 Mo.
Washington	Afton	- $15.25 Mo. OR 13.50 for 2 32-gal. cans
	St. Paul Park	- $12.67 Mo. ($38.00 quarterly)
	Lake Elmo	- $12.00 Mo. - 90 gal. cont. - $.50 extra bags - $13.00 Mo. Limit 4 bags of yardwaste, $.25 per bag for extra yard waste

Table II-1 (continued)

County	City/Township	Cost Structure
	Cottage Grove	- $12.00 Mo. - $12.67 Mo. ($38.00 quarterly)
VOLUME BASED		
Hennepin	Wayzata	- $ 2.00 to Household 8.50 from General Fund 10.50 total for 3-30 gal. per week Recycling provided at no cost to household
Ramsey	North St. Paul	- $ 6.50 Mo. for 30 gal. or 1 container 9.25 Mo. for 90 gal. or 3 containers 12.75 Mo. for 150 gal. or 5 containers Recycling twice a month, $.60 per household billed to city
	White Bear Lake	- $11.75 Mo. for 90 gal. container 9.75 Mo. for 60 gal. container 6.50 Mo. for Senior Citizens Admin. fee $.50 per household Recycling included in admin. fee
Ramsey	White Bear Twp.	- $13.20 Curbside nonrecyclers 11.00 Curbside recyclers $16.50 In-yard nonrecyclers 14.00 In-yard recyclers 50% of above rates for Senior citizens
ORGANIZED		
Anoka	Blaine	- $22.84 Quarterly Admin. fee included in $4.00 quarterly charge for water/sewer/etc.
Dakota	Farmington	- $38.25 Quarterly
Hennepin	Robbinsdale	- $19.50 Quarterly for recyclers 28.50 Quarterly for nonrecyclers
	Osseo	- $27.75 Quarterly Admin. fee $.50
	Champlin	- $12.30 Mo. includes recycling
	Minneapolis	- $ 5.00 Mo.
	St. Louis Park	- $33.00 Quarterly (city pays $7.99 per household to hauler) Admin. fee 10% of bill $6.60 credit quarterly if use special bins for recycling

Table II-2

AVERAGE COSTS FOR VARIOUS COLLECTION SERVICES
BY COUNTY (DOLLARS PER MONTH)

	Free Market	Organized	Volume-Based With Recycling
Anoka	12 ($95/ton)**	8.90 ($ 64/ton)	
Carver	10 ($86/ton)		
Dakota	12 ($95/ton)	12.75 ($104/ton)	
Hennepin	11 ($87/ton)	8.95 ($ 65/ton)	8.50 ($60/ton)
Ramsey	12.50* ($93/ton)	11.00 ($ 77/ton)	10.50 ($72/ton)
Scott	11.50 ($91/ton)		
Washington	13* ($98/ton)		
AVERAGE COST	11.71 ($92/ton)	10.40 ($77.50/ton)	9.50 ($66/ton)

* Ramsey/Washington Counties have initiated organized collection to supply waste to a resource recovery facility.

** Transportation cost per ton of municipal solid waste managed.

*** Free market refers to the collection system where the individual household chooses which hauler will collect its waste. Many haulers provide containers and charge extra for additional waste under the free market system.

RECYCLING COLLECTION

The past two years have seen a tremendous growth in the implementation of curbside recycling services in most areas of the region. The data for both curbside and drop-off collection services as well as residential yard-waste collection services have been collected for Anoka, Hennepin and Ramsey Counties. The figures provided represent the total cost of operating the programs indicated in Tables II-3 through II-9, corresponding to the seven metropolitan counties. Many of the programs have annual budget figures presented for programs in operation for only part of a year. To provide a better understanding of recycling collection costs, Table II-10 has been produced.

Table II-3

SUMMARY OF ANOKA COUNTY ABATEMENT PROGRAMS AND COST

			Tons Resid. Recyc.	$ For** Recyc. Progm.	$ Per Ton Recyc.	Tons Yard Waste	$ For Yard Waste	$ Per Ton Yard Waste	Lbs. Year Per Person Recyc.	Yard.	Pick-Up Freq.	City Bin	Same Day
Cities under 5,000 Population++													
Bethel	292	drop-off late-1988	.52	1,144	2200	-	1,600	-	4	-	-	-	-
Burns Twp.	2,302	no current program	3	1,581	517	-	-	-	3	-	-	-	-
Centerville	1,229	curbside yard waste, curbside recycling	14	1,652	118	-	1,600	-	23	-	Twice Mo.	-	-
Circle Pines	4,846	drop-off with Lexington	83	6,049	73	-	800	-	34	-	-	-	-
Columbus Twp.	3,686	no current program	-	3,621	-	-	-	-	-	-	-	-	-
Hilltop	781	drop-off with Col. Hgts.	9	2,584	287	-	-	-	-	-	-	-	-
Lexington	2,215	drop-off with Circle Pines, curbside recycling late 1988	53	3,864	73	-	-	-	48	-	-	-	-
Linwood Twp.	3,377	drop-off June 1988	11	3,717	338	-	1,600	-	7	-	-	-	-
Oak Grove	4,971	drop-off April 1988	32	4,502	141	-	-	-	13	-	-	-	-
St. Francis	1,938	drop-off late 1988	3	2,872	957	-	-	-	3	-	-	-	-
Cities over 5,000 Population++													
Andover	13,086	drop-off and curbside recycling mid-1988	171	10,623	62	-	-	-	26	-	-	-	-
Anoka	16,408	curbside recycling late 1988, office paper	1,315	21,997	17	-	-	-	160*	-	Twice Mo.	-	-
Blaine	36,258	curbside recycling and curbside yard waste Jan. 1989, drop-off private.	352	42,069	120	-	-	-	19	-	-	-	-
Columbia Heights	19,170	curbside recycling pilot mid-1988, curbside city-wide late 1988, drop-off	489	21,334	44	-	-	-	51	-	Weekly	-	-
Coon Rapids	45,774	pilot curbside recycling May 1988, curbside city-wide early 1989, drop-off, office paper	1,103	54,120	49	-	-	-	48	-	Twice Mo.	-	-
East Bethel	8,159	drop-off	104	6,858	66	-	-	-	25	-	-	-	-
Fridley	29,336	curbside recycling, office paper, drop-off, yard waste curbside	1,390	40,045	29	-	1,600	-	95	-	Twice Mo.	-	-
Ham Lake	9,439	drop-off June 1988	27	8,356	309	-	-	-	6	-	-	-	-
Lino Lakes	7,600	private collection	252	6,942	28	-	800	-	66	-	-	-	-
Ramsey	12,181	drop-off	134	10,344	77	-	-	-	22	-	-	-	-
Spring Lake Pk.	6,722	curbside recycling	124	9,200	74	-	-	-	36	-	Twice Mo.	-	-

Anoka County Recycling Activity 1988

Commercial/Indus.	14,170
Compost	2,428
Residential	5,670
Total	22,268

* Partially due to Max Schwartzman & Sons buyback center serving Anoka County.
++ April 1, 1988 Population and Household Estimates, Metropolitan Council
** Total annual budget for a program. This is often misleading due to annual budget numbers being used for a partial year's program.

Table II-4

SUMMARY OF CARVER COUNTY ABATEMENT PROGRAMS AND COST

			Tons Resid. Recyc.	$ For Recyc. Progm.	$ Per Ton Recyc.	Tons Yard Waste	$ For Yard Waste	$ Per Ton Yard Waste	Lbs. Year Per Person Recyc.	Yard.	Pick-Up Freq.	City Bin	Same Day
Cities under 5,000 Population++													
Benton Twp.	957	drop-off	5	-	-	-	-	-	10	-	-	-	-
Camden Twp.	945	no current program	-	-	-	-	-	-	-	-	-	-	-
Carver	728	served by Chaska drop-off, yard waste drop-off site	6	-	-	-	-	-	16	-	-	-	-
Chaska Twp.	211	served by Chaska drop-off	2	-	-	-	-	-	19	-	-	-	-
Cologne	613	drop-off Sept. 1988, yard waste drop-off site	1	-	-	6	-	-	3	20	-	-	-
Dahlgren Twp.	1,330	no current program	-	-	-	-	-	-	-	-	-	-	-
Hamburg	489	curbside recycling May 1988	-	-	-	-	-	-	-	-	Once Mo.	-	-
Hancock Twp.	426	no current program	-	-	-	-	-	-	-	-	-	-	-
Hollywood Twp.	1,166	no current program	-	-	-	-	-	-	-	-	-	-	-
Laketown Twp.	2,432	no current program	-	-	-	-	-	-	-	-	-	-	-
Mayer	396	curbside recycling July 1988	3	-	-	-	-	-	15	-	Once Mo.	-	-
New Germany	377	curbside recycling July 1988	3	-	-	-	-	-	16	-	Once Mo.	-	-
Norwood	1,359	curbside recycling May 1988	-	-	-	-	-	-	-	-	Once Mo.	-	-
San Francisco Twp.	737	no current program	-	-	-	-	-	-	-	-	-	-	-
Victoria	2,190	curbside recycling June 1988	15	-	-	-	-	-	14	-	Once Mo.	-	-
Waconia	3,354	curbside recycling, yard waste curbside, yard waste drop-off	250	-	-	133	-	-	149	79	Once Mo.	-	-
Waconia Twp.	1,487	Scouts curbside, yard waste curbside	-	-	-	-	-	-	-	-	-	-	-
Watertown	2,188	curbside recycling, drop-off, yard waste drop-off site	60	-	-	72	-	-	55	66	Twice Mo.	-	-
Watertown Twp.	1,501	no current program	-	-	-	-	-	-	-	-	-	-	-
Young America	1,358	curbside recycling May 1988, yard waste drop-off site	45	-	-	66	-	-	66	97	Once Mo.	-	-
Young America Twp.	1,027	drop-off (alum. only)	-	-	-	-	-	-	-	-	-	-	-
Cities over 5,000 Population++													
Chanhassen	9,229	curbside recycling Jan. 1989, curbside yardwaste, compost	30	-	-	464	-	-	7	101	-	-	-
Chaska	10,478	drop-off site, drop-off two compost drop-off sites, drop-off, yard waste curbside, recycling curbside 1989-90	600	-	-	145	-	-	115	28	-	-	-
		Other compost	-	-	-	120	-	-	-	-	-	-	-
		Community programs	218	-	-	-	-	-	-	-	-	-	-

Carver County Recycling Activity 1988

Yard Waste	1,230
Commercial/Indus.	318
Residential	1,238
Total	2,786

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

SUMMARY OF DAKOTA COUNTY ABATEMENT PROGRAMS AND COST

			Tons Resid. Recyc.	$ For Recyc. Progm.	$ Per Ton Recyc.	Tons Yard Waste	$ For Yard Waste	$ Per Ton Yard Waste	Lbs. Year Per Person Recyc.	Yard.	Pick-Up Freq.	City Bin	Same Day
Cities under 5,000 Population++													
Castle Rock Twp.	1,503	drop-off by Spring '89											
Coates	192	drop-off by Spring '89											
Douglas Twp.	623	drop-off by Spring '89											
Empire Twp.	1,370	drop-off by Spring '89											
Eureka Twp.	1,375	drop-off by Spring '89											
Greenvale Twp.	675	drop-off by Spring '89											
Hampton	322	drop-off by Spring '89											
Hampton Twp.	964	drop-off by Spring '89											
Lilydale	575	drop-off by Spring '89											
Marshan Twp.	1,595	drop-off by Spring '89											
Mendota	219	drop-off by Spring '89											
Miesville	179	drop-off by Spring '89											
New Trier	115	drop-off by Spring '89											
Nininger Twp.	851	drop-off by Spring '89											
Randolph	356	drop-off by Spring '89											
Randolph Twp.	425	drop-off by Spring '89											
Ravenna Twp.	1,936	drop-off by Spring '89											
Sciota Twp.	276	drop-off by Spring '89											
Sunfish Lake	379	drop-off by Spring '89											
Vermillion	559	drop-off by Spring '89	44	-	-	-	-	-	157	-	-	-	-
Vermillion Twp.	1,229	drop-off by Spring '89											
Waterford Twp.	502	drop-off by Spring '89											
Cities over 5,000 Population++													
Apple Valley	31,674	Goodwill drop-off, curbside by Spring '89	233	-	-	-	-	-	15	-	-	-	-
Burnsville	46,687	Goodwill drop-off, compost drop-off site, curbside by Spring '89	684	-	-	90	-	-	29	4	-	-	-
Eagan	42,556	compost drop-off site, drop-off center, curbside by Spring '89	520	-	-	553	-	-	24	26	-	-	-
Farmington	5,350	curbside recycling Spring 1989	145	-	-	-	-	-	54	-	-	-	-
Hastings	14,493	curbside recycling April 1989, yard waste drop-off site, curbside yardwaste	196	-	-	256	-	-	27	35	-	-	-
Inver Grove Hts.	21,477	yard waste drop-off site, Goodwill drop-off, curbside by Spring '89	70	-	-	-	-	-	7	-	-	-	-
Lakeville	20,500	Goodwill drop-off, curbside by Spring '89	179	-	-	-	-	-	17	-	-	-	-
Mendota Hts.	8,680	Goodwill drop-off, curbside by Spring '89	29	-	-	-	-	-	7	-	-	-	-
Rosemount	7,420	served by Goodwill drop-off, curbside recycling Fall 1988	285	-	-	-	-	-	83	-	-	-	-
South St. Paul	20,361	yard waste drop-off, Goodwill drop-off, curbside by Spring '89	141	-	-	131	-	-	14	13	-	-	-
West St. Paul	18,591	Goodwill and school drop-off, curbside by Spring '89	868	-	-	-	-	-	93	-	-	-	-
		County compost	-	-	-	185	-	-	-	-	-	-	-

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

Table II-5 (Continued)

Dakota County Recycling Activity 1988

Yard Waste	1,215	
Commercial/Indus.	17,402	
Residential	3,782	(Difference between city program and total based on additional from private programs.)
Total	22,399	

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

SUMMARY OF HENNEPIN COUNTY ABATEMENT PROGRAMS AND COST

Cities under 5,000 Population++			Tons Resid. Recyc.	$ For Recyc. Progm.	$ Per Ton Recyc.	Tons Yard Waste	$ For Yard Waste	$ Per Ton Yard Waste	Lbs. Year Per Person Recyc.	Yard.	Pick-Up Freq.	City Bin	Same Day
Corcoran	4,952	curbside recycling Aug. 1988, yard waste drop-off	84	15,201	181	3	600	200	34	1	Bi-weekly	-	-
Dayton	4,295	city drop-off	16	5,000est.	313	-	-	-	7	-	-	-	-
Deephaven	3,741	curbside recycling, drop-off	182	9,843	54	-	-	-	97	-	Once Mo.	No	-
Excelsior	2,574	curbside recycling, drop-off and yard waste curbside planned	165	6,675	40	-	-	-	128	-	Once Mo.	-	-
Fort Snelling	216	no current program	-	-	-	-	-	-	-	-	-	-	-
Greenfield-WHRC(*)	1,545	drop-off	(*)	-	-	-	-	-	-	-	-	-	-
Greenwood	656	curbside recycling, drop-off	12	1,470	123	3	413	83	37	9	Once Mo.	-	-
Hanover	266	drop-off volunteer only	40	-	-	-	-	-	301	-	-	-	-
Hassan Twp.	1,981	drop-off	-	2,500est.	-	-	-	-	-	-	-	-	-
Independence-WHRC(*)	2,770	city drop-off	(*)	-	-	-	-	-	-	-	-	-	-
Long Lake-WHRC(*)	1,988	private drop-off	(*)	-	-	-	-	-	-	-	-	-	-
Loretto-WHRC(*)	345	private drop-off	(*)	-	-	-	-	-	-	-	-	-	-
Maple Plain-WHRC(*)	1,803	curbside recycling	(*)	-	-	-	-	-	-	-	Bi-weekly	Yes	-
Medicine Lake	398	curbside recycling and yard waste, drop-off	(with Plymouth)	-	-	-	-	-	-	-	Weekly	Yes	-
Medina-WHRC	3,035	city drop-off	(*)	-	-	-	-	-	-	-	-	-	-
Minnetonka Beach WHRC(*)	596	private drop-off	(*)	-	-	-	-	-	-	-	-	-	-
Minnetrista	3,662	curbside recycling, yard waste drop-off site	60	3,000est.	50	-	-	-	33	-	Once Mo.	-	-
Osseo	2,707	drop-off	-	-	-	-	-	-	-	-	-	-	-
Rockford	469	drop-off, recycling curbside Sep. 1988	28	2,240 (total cost not apportioned for Henn. Co.)	80	-	-	-	119	-	-	-	-
Rogers	716	drop-off, curbside recycling planned 1989	60	2,500est.	42	-	-	-	168	-	-	-	-
St. Bonifacius	1,086	curbside recycling	46	1,290	28	4	140	35	85	7	Once Mo.	-	-
Spring Park	1,584	curbside recycling, drop-off	30	2,704	90	-	-	-	38	-	Once Mo.	-	-
Tonka Bay	1,479	curbside recycling	60	6,550	109	69	13,150	191	81	93	Twice Mo.	Yes	-
Wayzata	3,711	drop-off, curbside recycling	238	22,800	96	-	-	-	128	-	Twice Mo.	Yes	-
Woodland	496	curbside recycling	38	2,120	56	-	-	-	153	-	Twice Mo.	Yes	-
Cities over 5000 Population++													
Bloomington	85,299	private drop-off, curbside recycling & yard waste planned	216	11,000est.	51	-	-	-	5	-	-	-	-
Brooklyn Center	29,420	drop-off, haulers curbside yard waste	111	13,054est.	118	-	-	-	9	-	-	-	-
Brooklyn Park	53,842	drop-off, haulers curbside yard waste	128	12,000est.	94	-	-	-	5	-	-	-	-
Champlin	14,500	city drop-off, curbside recycling planned, yard waste curbside	218	79,080	363	365	12,870	35	30	50	-	Yes	-

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

Table II-6 (Continued)

Cities over 5000 Population++			Tons Resid. Recyc.	$ For Recyc. Progm.	$ Per Ton Recyc.	Tons Yard Waste	$ For Yard Waste	$ Per Ton Yard Waste	Lbs. Year Per Person Recyc.	Yard.	Pick-Up Freq.	City Bin	Same Day
Crystal	24,900	drop-off, curbside recycling planned, curbside yard waste	483	81,611	169	736	47,796	65	39	59	-	-	-
Eden Prairie	34,906	drop-off, yard waste drop-off site (county), yard waste collection license/ordinance	-	-	-	-	-	-	-	-	-	-	-
Edina	46,095	curbside recycling, drop-off, yard waste curbside	1,506	71,365 (subtract revenue from sale of recyclables - city markets materials)	47	2,500	-	-	65	-	Once Mo.	-	-
Golden Valley	21,318	curbside recycling, season curbside yard waste, drop-off	991	90,789	92	-	-	-	93	-	Twice Mo.	Yes	-
Hopkins	14,850	drop-off, yard waste drop-off site, yard waste curbside	953	17,000	18	509	33,500	66	128	69	-	-	-
Maple Grove	35,882	2 yard waste drop-off sites	-	-	-	-	-	-	-	-	-	-	-
Minneapolis	355,800	curbside recycling, yard waste curbside, drop-off	9,590	842,754 (includes some capital costs)	88	23,087	1,477,684	64	54	130	Twice Mo.	Yes Test Area	-
Minnetonka	43,742	drop-off, yard waste curbside plan Fall 1988	275	5,000est.	18	1,000	5,000	5	13	46	-	-	-
Mound	9,951	curbside recycling, drop-off	182	21,896 (includes some capital costs)	120	80	144	2	37	16	Monthly	Yes	-
New Hope	22,944	planned curbside Jan. 1989, drop-off	-	-	-	-	-	-	-	-	-	-	-
Orono-WHRC(*)	7,284	drop-off	(*)	-	-	-	-	-	-	-	-	-	-
Plymouth	47,800	curbside recycling,	3,000	119,580	40	3,000	12,000	4	126	126	Weekly	Yes	-

Table II-7

SUMMARY OF RAMSEY COUNTY ABATEMENT PROGRAMS AND COST

			Tons Resid. Recyc.	$ For Recyc. Progm.	$ Per Ton Recyc.	Tons Yard Waste	$ For Yard Waste	$ Per Ton Yard Waste	Lbs. Year Per Person Recyc.	Lbs. Year Per Person Yard.	Pick-Up Freq.	City Bin	Same Day
Cities under 5,000 Population++													
Gem Lake	410	curbside recycling	4	860	215	-	-	-	20	-	Twice Mo.	-	-
Lauderdale	2,307	Goodwill drop-off, curbside recycling	88	4,544	52	-	-	-	76	-	Once Mo.	No	No
North Oaks	3,205	curbside recycling	205	18,000	88	-	-	-	128	-	Once Mo.	Yes	-
St. Anthony	2,797	drop-off, yard waste curbside	202	-	-	100	-	-	144	72	Weekly	-	-
Cities over 5,000 Population++													
Arden Hills	9,737	curbside recycling, yard waste drop-off site	320	21,860	68	648	8,000	12	66	133	Bi-weekly	Yes	No
Falcon Hts.	5,386	curbside recycling	220	16,751	76	-	-	-	82	-	Twice Mo.	-	-
Little Canada	8,623	curbside recycling	216	17,902	83	-	-	-	50	-	Once Mo.	Yes	No
Maplewood	29,305	drop-off, yard waste drop-off site, recycling curbside planned Nov. 1988	296	15,265	52	743	8,000	11	20	51	Twice Mo.	-	Yes
Mounds View	13,025	curbside recycling, yard waste drop-off site	101	16,145	160	372	8,000	22	16	57	Once Mo.	No	-
New Brighton	23,343	curbside recycling	497	38,602	78	-	-	-	43	-	Once Mo.	No	No
North St. Paul	12,350	curbside recycling, curbside yard waste	320	21,156	66	500	-	-	52	81	Twice Mo.	Yes	-
Roseville	34,785	curbside recycling, yard waste curbside	920	58,224	63	1,880	60,000	32	53	108	Twice Mo.	-	-
St. Paul	265,100	curbside recycling, drop-off, yard waste drop-off, yard waste curbside	9,925	610,351	61	1,397	32,000	23	75	11	-	-	-
Shoreview	23,898	curbside recycling	455	36,790	81	-	-	-	38	-	Once Mo.	No	No
Vadnais Hts.	9,720	curbside recycling planned Oct. 1988	70	16,600	237	-	-	-	14	-	Twice Mo.	No	-
White Bear Lake	23,605	curbside recycling, yard waste curbside	312	45,867	147	1,605	-	-	26	136	Weekly	No	Yes
White Bear Twp.	8,600	curbside recycling, yard waste curbside, yard waste drop-off site	257	60,000	23	966	8,000	8	60	225	Twice Mo.	-	-

Ramsey County Recycling Activity 1988

Commercial/Indus.	26,000 (per Progress Report)
Residential	14,440
Yard Waste	8,211
Total	48,651

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

Table II-8

SUMMARY OF SCOTT COUNTY ABATEMENT PROGRAMS AND COST

			Tons Resid. Recyc.	$ For Recyc. Progm.	$ Per Ton Recyc.	Tons Yard Waste	$ For Yard Waste	$ Per Ton Yard Waste	Lbs. Year Per Person Recyc.	Yard.	Pick-Up Freq.	City Bin	Same Day
Cities under 5,000 Population++													
Belle Plaine	3,159	drop-off, curbside recycling planned 1989	1,612	-	-	-	-	-	1,021*	-	-	-	-
Belle Plaine Twp.	790	curbside recycling planned 1989											
Blakeley Twp.	508	curbside recycling planned 1989											
Cedar Lake Twp.	1,709	curbside recycling planned 1989											
Credit River Twp.	2,897	curbside recycling planned 1989											
Elko	296	curbside recycling planned 1989											
Helena Twp.	1,263	curbside recycling planned 1989											
Jackson Twp.	1,490	curbside recycling planned 1989											
Jordan	2,830	drop-off, curbside recycling planned 1989	18	-	-	-	-	-	13	-	-	-	-
Louisville Twp.	890	curbside recycling planned 1989											
New Market	308	curbside recycling planned 1989											
New Market Twp.	1,993	curbside recycling planned 1989											
New Prague	2,364	drop-off, curbside recycling planned 1989	172	-	-	-	-	-	146	-	-	-	-
St. Lawrence Twp.	416	curbside recycling planned 1989											
Sand Creek Twp.	1,585	curbside recycling planned 1989											
Spring Lake Twp.	2,905	curbside recycling planned 1989											
Cities over 5,000 Population++													
Prior Lake	10,640	drop-off, curbside recycling planned 1989	100	-	-	-	-	-	19	-	-	-	-
Savage	8,251	drop-off, two haulers curbside recycling to customers	138	-	-	-	-	-	33	-	-	-	-
Shakopee	11,733	drop-off, curbside recycling	221	-	-	-	-	-	38	-	-	-	-
		MSD	18										
		Appliance Recycle	86										

Scott County Recycling Activity 1988

Residential	2,365
Yard Waste	No data
Commercial/Indus.	No data
Total	2,365

* Multi-community.

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

SUMMARY OF WASHINGTON COUNTY ABATEMENT PROGRAMS AND COST

Cities under 5,000 Population++			Tons Resid. Recyc.	$ For Recyc. Progm.	$ Per Ton Recyc.	Tons Yard Waste	$ For Yard Waste	$ Per Ton Yard Waste	Lbs. Year Per Person Recyc.	Yard.	Pick-Up Freq.	City Bin	Same Day
Afton	2,675	curbside recycling, curbside yard waste C.C.(*)	70	-		345	-	-	52	258	-	-	-
Bayport	3,106	shared Goodwill drop-off (with Stillwater), curbside yard waste											
Baytown Twp.	913	curbside late 1988											
Birchwood	1,049	no current program											
Dellwood	815	no current program											
Denmark Twp.	1,288	no current program											
Grant Twp.	3,680	private drop-off-transfer station	(Not reported)										
Grey Cloud Twp.	339	no current program											
Hugo	4,250	drop-off, yard waste drop-off site	70	-	-	80	-	-	33	38	-	-	-
Lakeland	2,109	curbside recycling, curbside yard waste C.C.(*)	12	-	-	-	-	-	11	-	-	-	-
Lake St. Croix Beach	1,179	curbside yard waste C.C.(*)											
Lakeland Shores	188	curbside yard waste C.C.(*)											
Landfall	635	no current program											
Mahtomedi	4,650	no current program											
Marine on St. Croix	552	served by New Scandia drop-off											
May Twp.	2,430	served by New Scandia drop-off											
Newport	3,567	shared Goodwill (with Cottage Grove)											
New Scandia Twp.	3,186	drop-off	178	-	-	-	-	-	112	-	-	-	-
Oak Park Hgts.	3,751	shared Goodwill (with Stillwater) curbside yard waste											
Pine Springs	470	no current program											
St. Mary's Point	351	curbside yard waste C.C.(*)											
St. Paul Park	4,915	shared Goodwill (with Cottage Grove)											
Stillwater Twp.	2,015	served by drop-off											
West Lakeland Twp.	1,593	curbside recycling late 1988											
Willernie	672	curbside yard waste											

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

Table II-9 (Continued)

Cities Over 5,000 Population++			Tons Resid. Recyc.	$ For Recyc. Progm.	$ Per Ton Recyc.	Tons Yard Waste	$ For Yard Waste	$ Per Ton Yard Waste	Lbs. Year Per Person Recyc.	Lbs. Year Per Person Yard.	Pick-Up Freq.	City Bin	Same Day
Cottage Grove	21,800	Goodwill drop-off, curbside yard waste, yard waste drop-off site	212	-	-	219	-	-	19	20	-	-	-
Forest Lake	5,430	recycling drop-off, curbside recycling, yard waste drop-off site	356	-	-	740	-	-	131	273	-	-	-
Forest Lake Twp.	6,160	served by drop-off, curbside recycling	-	-	-	-	-	-	-	-	-	-	-
Lake Elmo	6,189	curbside recycling, yard waste drop-off site	126	-	-	2,158	-	-	41	697	-	-	-
Oakdale	16,026	Goodwill drop-off	318	-	-	-	-	-	40	-	-	-	-
Stillwater	13,485	Goodwill drop-off, curbside yard waste	268	-	-	-	-	-	40	-	-	-	-
Woodbury	18,500	curbside recycling early 1989, yard waste drop-off site	-	-	-	156	-	-	-	17	-	-	-
Junker Sanitation/ Washington County Compost		yard waste drop-off	-	-	-	3,353	-	-	-	-	-	-	-
(*)Compost Concepts Compost		yard waste collection	-	-	-	345							

Washington County Recycling Activity 1988

Yard Waste	3,699
Commercial/Indus.	806
Residential	1,888 (Difference between city programs and total based on additional from private programs.)
Total	6,393

++ April 1, 1988 Population and Household Estimates, Metropolitan Council

PHENV3@6/JU504C Update 10-31-88

Table II-10 contains a summary of average program costs and is an indicator of how effective each program type operating for more than one year has been. The programs were divided into three categories. These are: monthly, bimonthly, and weekly collection service. The average cost per ton of waste collected for monthly services in the region is $71 per ton. The average cost per ton for weekly collection, on the other hand, is only $40 per ton. Similarly, the recyclables collected by monthly programs average only 66 pounds per person in a year while weekly collection nets an average of 115 pounds per person in a year. This is equal to 14 percent of the average household waste generated in the case of weekly collection. Most of the recyclable material collection programs collect only newspaper, cans, bottles, and cardboard.

Table II-10

SUMMARY OF RESIDENTIAL RECYCLING COSTS
AND EFFECTIVENESS INDICATORS*

	Monthly			Bi-monthly			Weekly		
	Cost Ton	lb/Person Year	# of Prog.	Cost Ton	lb/Person Year	# of Prog.	Cost Ton	lb/Per. Year	# of Prog.
Anoka	55	57	3	67	50	5	41	51	1
Carver	--	68	7	--	53	1	--	--	0
Dakota	--	83	0	--	--	0	--	--	0
Hennepin*	69.50	64	9	96	87	8	40	209	3
Ramsey*	90	59	6	83	48	8	--	85	2
Scott			--------NO DATA----------						
Washington			--------NO DATA----------						
AVERAGE	71	66	25	82	60	22	40	115	6

* Many programs have been operating less than one year and the data is limited by the number of operating programs. Five programs have not been in operation sufficient time to utilize the data. Not all of the counties reported cost data.

Yard-waste collection programs have grown significantly from 1986 to 1988. The average collection of yard waste equals 88 pounds in Hennepin County and the average cost per ton averages 44 dollars per ton. The combined weekly recyclable collection in conjunction with yard-waste collection yields an average of 202 pounds of materials recovered per person per year, or 23 percent of the residential waste stream. As programs develop and mature, the costs have tended to decline. The cost per ton for recyclable collection is expected to reach $34 to $36 dollars per ton of recyclable materials collected within the next three years.

The total program costs for Hennepin, Ramsey and Anoka counties is reported to be $2,900,000 for recycling programs and $1,900,000 for yard-waste programs. This is estimated to represent approximately 75 percent of the monies being spent annually on recycling programs in the region. The total cost of recycling programs is expected to equal approximately $6,400,000 dollars per year in the Metropolitan Area, exclusive of private recycling for the commercial/industrial sector.

In the next two years, the cost of recycling services is expected to double in the region. Currently, the cost of recycling services is paid through the landfill surcharge, or in the case of Ramsey and Washington Counties, it is charged as a service fee added to the property tax bill. When Hennepin County enacts designation, four dollars of the cost for the facilities will go into a recycling fund for the county.

Table II-11 describes aspects of the major recycling and processing centers in the Twin Cities Area.

Table II-11

MAJOR MULTI-MATERIAL RECYCLING/PROCESSING CENTERS

CENTER/LOCATION	ANNUAL PROCESSING	MATERIALS PROCESSED	CLIENTS	OUTSIDE FUNDING	OPERATING EXPENSES	PROCESSING COST
Minneapolis Education and Recycling Coalition (MERC) (Minneapolis)	4,500 tons current year's estimate	glass aluminum used beverage containers newsprint cardboard	residential	Mpls. contract for services	$390,000 current yr (includes pickup cost)	$40 per ton
Super Cycle (St. Paul)	24,000 tons current year's estimate	corrugated cardboard aluminum ferrous bimetal cans glass newspaper	residential commercial	Metro Council $150,000 City grants City contracts for services	$800,000 current yr est.	$33 per ton
Recycle Minnesota Resources (St. Paul - shared facility with Super Cycle)	8,775 tons current year's estimate	used beverage containers plastic glass corrugated cardboard PET newsprint foil	residential commercial	none	NA	NA
Goodwill (St. Paul)	1,200 tons current year's estimate	glass aluminum paper corrugated cardboard	residential commercial	Metro Council $30,000 City grants $151,108	NA	NA
Schwartzman & Sons (Anoka)	24,592 tons current year's estimate	ferrous nonferrous	residential commercial	none	NA	NA

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RECYCLING PROCESSING FACILITIES

Currently, there are four facilities that process recyclable materials for the market. The information related to the facilities is in Table II-11. Cost information on two of the facilities indicates that the average market cost of processing materials is $34 per ton. The value of materials sold exceeds the cost of processing the materials.

Table II-12 shows the value of recyclable materials recovered by selling the materials after they have been processed. The average revenue generated by the sales of recyclable materials in the region is approximately $39.75/ton. The value ofaluminum is $1,400 per ton for clean material; but since this is collected in such a small quantity, it has little impact on the average value recovered per ton of recyclable materials collected. The vast majority of material, approximately 75 percent, is newspaper which receives only $15 per ton in the Metropolitan Area.

Table II-12

RECYCLABLE MATERIAL VALUE

Material	Material Prices (1)
Waste paper:	
newspaper	25 - 60
corrugated	25 - 70
office paper	60 - 250
Glass bottles:	
color-sorted	40 - 70
color-mixed	-- - --
Metals:	
aluminum cans	800 -1400
aluminum scrap	200 -1600
white goods	15 - 20
tin cans	40 - 65
Tires	-- - --
Plastics:	
HDPE	100 - 300
PET	80 - 240
mixed	-- - --

Source: Resource Conservation Consultants
(1) Dollars per ton, FOB consuming mill.

TRANSFER STATIONS

The same seven transfer stations are operating in the Metropolitan Area that were operating in 1986. Table II-13 shows the operating transfer stations and the cost of delivering waste to the stations by the public or other haulers. The information indicates that the cost of depositing waste at transfer stations has increased from an average of $31 per ton of waste delivered in 1986 to $45 dollars per ton of waste delivered in 1988. This is a 45 percent increase in the last two years. During the same period, the average cost of landfilling has increased from $17.50 per ton to an average of $27.70 per ton. The marginal cost of operating the transfer station is equal to the tipping fee, less disposal costs at a landfill or processing facility.

The marginal cost for Bellaire Sanitation is $1.00 plus or minus one dollar (see Table II-13). The facility performs hand separation of recyclable materials which it sells to brokers in the Metropolitan Area. Bellaire is able to compete very effectively in their hauling business as a result of their separation of recyclable materials from the waste they receive.

All of the privately owned transfer stations perform some waste separation for recycling materials they receive. The marginal cost for Gallagher's and North Hennepin are $12.30 and $19.30 per ton respectively. The cost estimated for the transfer of waste and secondary hauling costs is $10.00 per ton. The two operations are projected to generate a profit in addition to the service performed and the quantity of materials recycled.

The Minneapolis North and South transfer stations charge $26.30 more than the average cost of waste disposal for users of their facilities from outside the City of Minneapolis. The city pays $14.30 more than the average cost of waste disposal. The added expense compared to the estimated cost of transferring waste is related to the long-term contract negotiated between the Minneapolis and Browning Ferris Industries for waste disposal at a BFI landfill in conjunction with operating a transfer station.

As designation plans are implemented by the counties, the potential cost avoidance offered by separation of recyclable materials from the waste stream will increase.

Hennepin County plans to expand the Minneapolis South transfer station and build three other facilities in Bloomington, Brooklyn Park, and Plymouth. All of the facilities will have dedicated space for recycling activities. The county has not yet made a decision whether the facilities will be operated by the county or private companies. The use of space at the facilities for recycling will help to reduce the need for processing capacity and reduce overall waste-management costs. All of the proposed Hennepin County transfer stations should be operational in 1990.

Table II-13

TRANSFER STATIONS

FACILITY/ LOCATION	AVE REC (1) RATE (TPD)	TIPPING FEES/TON (2) (1988)	(1986)	OPEN TO ALL HAULERS	OTHER ACTIVITIES	DISPOSAL FEE	MARGINAL COST
Bellaire (Stillwater)	100	$35	$25	no	recycling/ composting	$36	$(-1)
Poor Richards (St. Paul)	60	$24/pickup truck $8-$12 car	$22/pickup truck	no	recycling	$36	NA
Gallagher's (Blaine)	130	$40	$33	yes	recycling	$27.70	$12.30
Minneapolis North (Minneapolis)	300	$54 $42 Mpls. residtl.	$40 $26 Mpls. residtl.	yes	no		
Minneapolis South (Minneapolis)	300	$54 $42 Mpls. residtl.	$40 $26 Mpls. residtl.	yes	no	$27.70	$26.30
North Hennepin (Maple Grove)	90	$47	$26	no	recycling	$27.70	$19.30
Twin City Refuse (St. Paul)	24	$25/pickup trailers $5 car	$30	no	recycling	$36	NA
Metro Totals	1000 TPD est.	$45 avg.	$31 avg.				

(1) Receiving rates for some facilities are rough estimates; these facilities do not weigh or keep precise figures on the amounts received. TPD refers to tons per day.
(2) Tipping fees are rounded to the nearest dollar.

Proposed

Bloomington 500 TPD
Brooklyn Park 425 TPD Fees will be set by Hennepin County.
Plymouth 450 TPD

PROCESSING FACILITIES

OVERVIEW

This section discusses the current status of existing and proposed waste processing facilities. Table II-14 shows the known and planned costs and the resultant cost impact among users of the facilities and the general public. The costs were obtained directly from facility operators, public-sector staff reports and published reports. Where cost information was not available, an estimate was made based on discussions with project representatives. The costs reflect current costs unless otherwise noted. The cost to the user and general public has been calculated for a 1992 base year when all facilities will be operational, instead of 1990 as the current policy plan anticipates.

Eight processing facilities, with a total available capacity of 4,628 tons per day (TPD), are expected to serve the region. Currently, three facilities are in operation; two have begun construction; one is under contract to begin construction; and two remain in the planning stages. Most of the facilities will be privately owned and operated. The Dakota County facility will be county owned and privately operated. Ownership and operational decisions have not been made for the Carver/Scott counties' and Farmington facilities. Waste flow designation will be used to direct waste supplies to at least five of the facilities.

To date, about $168 million has been invested in the capital costs of the processing facilities. Capital expenditures are expected to eventually total around $301 million, and total development costs are expected to reach well over $400 million. Current tipping fees at the operating facilities average about $30 per ton. The 1992 tipping fees (based on escalating costs for existing and planned facilities) average in the mid-$40 per ton range. However, this is probably low because it is unknown to what extent private facilities may presently subsidize their tipping fees to attract waste supplies. Future tipping fees will likely reflect the fees set at the largest facilities under waste designation.

OPERATIONAL FACILITIES

Richards Asphalt

The Richards Asphalt Company built the first solid-waste processing facility in the region. Located at the company's manufacturing facilities in Savage, the mass-burn facility has been operational since 1984. The facility operates on a 365-day per year basis, providing 85-90 per cent of the company's process steam needs. The facility's permitted operating capacity is 80 TPD, and it currently operates at approximately 60 TPD. Roughly about 50 TPD comes from Hennepin County and 10 TPD from Scott County. Residential and commercial waste make up the majority of the incoming waste. The plant burned 20,548 tons in the 12-month period ending April 30, 1987, and 20,633 tons in the 12-month period ending April 30, 1988. About 40 per cent by weight of the processed waste remains as residuals requiring land disposal. About 80 tons of ferrous material is recovered annually and 50 tons of nonprocessibles is sent to landfills.

The initial cost of the facility was $1.5 million, but with equipment modifications the total cost is now at $3.5 million. The plant's current tip fee

Table II-14

PROCESSING FACILITY COSTS

FACILITY/START-UP YR/TYPE/ DAILY AVAILABLE CAPACITY	CAPITAL(1) COST	TOTAL DEVLPMT. COST & METHODS OF FINANCING	ANNUAL DEBT SERVICE	ANNUAL OPER. & MAINTENANCE	RESIDUAL/BYPASS COSTS PER TON	TIPPING FEE PER TON	COST TO USER/ GEN. PUBLIC	COST TO USER/(2) GEN. PUBLIC 1992
Operational								
Richards Asphalt (1984, mass burn, 80 TPD)	$3,500,000	private	--	unknown	$21	$30	$30	$35
Reuter(3) (1987, dRDF, 475 TPD)	$30,000,000	private	--	unknown	$32	$24	$24	$28
Ramsey/Washington Counties (1987, RDF, 908 TPD)	$21,700,000	$27,700,000 IDB* $4,000,000 GO**	$1,698,350	$7,574,628	$24	$36	$42 est.	$49
Under Construction								
Hennepin County (1989, mass burn, 1,000 TPD)	$81,000,000	$129,250,000 IDB $12,400,000 IDB	$13,848,000	$12,042,000	$70 est.	$75(4)	mid $50s(5)	$62
NSP Elk River (1989, RDF, 1,300 TPD)	$41,701,000	$29,750,000 IDB $29,950,000 IDB(6) $1,700,000 GO	$5,150,000	$12,974,000	$18	$48-52	$48-52	$56
Under Contract								
Dakota County (1991, mass burn, 640 TPD)	$92,237,000	$134,630,000 (7) $12,710,000 (8)	$11,020,400	$6,246,000	$42 est.	$66	$66	$66
Planning Stages								
Carver/Scott Counties (1990, MSW compost, 200 TPD)	$9,000,000 est.	IDBs GO	--	$1,000,000 est.	$39 est.	$45-$55	$45-$55	$54
Farmington (1989, co-compost, 25 TPD)	$2,000,000 est.	WMB grant County grant City Bonds	--	$250,000 est.		Upper $30s	Upper $30s	$43
Metro Area Estimated Costs (Capacity 4,628 TPD)	$301 million	$417 million	$32 million	$40 million				$46 avg.

* IDB = Industrial Development Bonds
** GO = General Obligation Bonds

(1) The construction price includes facility engineering and design, buildings and equipment, site development and start-up and testing.
(2) Base costs escalated 4 per cent per year to 1992.
(3) Reuter plans to expand the dRDF facility to 800 TPD; an approximate $10 million will be invested in the Chaska compost facility.
(4) Solid-waste service fee that includes the cost of the transfer stations, landfills and other county recycling and composting programs.
(5) This figure is what Hennepin County pays HERC; it may represent the approximate cost of the facility to the user/general public.
(6) Financed retrofit of United Power Association boilers to burn RDF plus air pollution control equipment.
(7) Tax-exempt municipal revenue bonds.
(8) Taxable resource-recovery revenue bonds.

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is $30 a ton, increasing from $28 in May 1988. Richards is paying $21 per ton to dispose of residuals at a landfill. This facility was totally privately developed and financed.

Reuter

The Reuter Company started operation of its densified refuse derived fuel facility (dRDF) in the spring of 1987. Located in Eden Prairie, the facility is permitted at 475 TPD. There are, however, plans to expand the facility's permitted capacity to 800 TPD. The facility is expected to produce from its incoming waste the following proportions: 50 per cent waste fuel (pellets and fluff), 15 per cent recyclables, 25 per cent compostable material and 10 per cent rejects. Its potential landfill space savings is about 72 per cent of the incoming waste material, taking into account recovery at "downstream" compost-posting and waste-burning facilities and the residuals they produce.

The facility operates on a five-day per week basis. In the first six months of 1988 the facility received 13,290 tons of waste; produced 5,243 tons of recoverable material; sold 1,645 tons of recyclables; sent 1,911 tons to a landfill for composting; and landfilled 5,446 tons. Waste supplies coming to the facility have steadily increased, and currently the facility receives 144 to 200 TPD of mixed solid waste. About 75 TPD comes from Dakota County and the rest largely from Hennepin County. Reuter has a 400 TPD exclusion from the Hennepin County waste flow designation.

Reuter is currently marketing aluminum and bimetal cans, paper, plastics and corrugated paper. Reuter has had trouble marketing ferrous material because of contaminants. The facility does not recycle glass. Under Minnesota Pollution Control Agency (MPCA) rules any incinerator or boiler facility must be permitted to burn refuse derived fuel (RDF). As a result, Reuter cannot sell or give away its waste fuel at the present time in Minnesota, except to Northern States Power. An estimated 69 per cent of the facility's products (waste fuel and recyclables) are currently being stored for future sales.

Capital costs of the dRDF facility are about $20 million. The facility's current tipping fee is $24 a ton. Future tipping fees established under Hennepin County and other county waste designations will have a direct bearing on the fees set by Reuter (see the following discussion). Reuter is currently paying $32 a ton to dispose of residuals at a landfill. This is higher than the Richards and Ramsey/Washington processing facilities, because the company does not have a long-term contract with a landfill.

Reuter is in the process of obtaining approvals to build a composting facility in Chaska. This would be a 300 TPD "downstream" facility that would take the compostable material from the dRDF facility plus source-separated yard waste. It is expected to be operational in 1989. The cost of this facility is estimated at $10 million. This facility will offset the disposal costs that Reuter currently pays to landfill compostable materials produced at the dRDF facility.

Ramsey/Washington Counties

Northern States Power owns and operates the RDF facility in Newport under an agreement with Ramsey and Washington Counties. This facility began operation in July 1987. It processes mixed municipal solid waste and produces an RDF that NSP uses in its Red Wing and Willmar power plant operations. The two

counties direct waste to the facility under designation authority, and through a joint-county project board they pay a service fee to NSP in accordance with the provisions of a long-term contract. The facility has a permitted capacity of 1,700 TPD, but its guaranteed processing capacity under the contract is 280,000 TPY (908 TPD average).

In its first twelve months of operation, the facility received 379,731 tons (1,233 TPD average) of waste; processed 253,672 tons (824 TPD average); produced approximately 170,000 tons of RDF and 11,000 tons of ferrous material; and landfilled 127,929 tons of bypass waste and 74,237 tons of process residuals. Burning the RDF produces about 10 per cent by weight ash residuals. This material is disposed of at an NSP ash landfill.

The capital cost of the RDF facility is $21.7 million. The total development cost, including the cost of financing, is $28.2 million. Washington County issued general obligation bonds in 1983 for $4 million to begin the initial work on the project. These bonds were retired in 1987. In 1986, the two counties issued jointly $27.7 million in industrial development bonds backed by the credit of NSP. The debt service on these bonds for 1988 is $1.69 million. The two counties paid NSP service fees totaling $2.89 million for the first twelve months of operation. The facility's current tipping fee of $36 a ton is based on 130 percent of the average of the landfill tipping fees in the region. This fee may be adjusted to 140 percent effective January 1989.

The facility's tipping fee is subsidized by the two counties to ease the transition of designation for the waste haulers. Ramsey County levies a special waste-management service charge with its annual property tax statement to homeowners and businesses. In 1986, the county assessed a flat fee of $7.76 for single-family homes and $81.34 for all improved commercial and industrial properties. A total of $1.8 million was collected. In 1987, the county assessed waste generators on the basis of waste volume: single-family homeowners $13.30; individual apartment units $8.64; and commercial and industrial generators of less than 520 cubic yards municipal solid waste (MSW) per year $46.84, of 520 to 2,600 cubic yards $299.26 and over 2,600 cubic yards $2,777.92. This raised $4.9 million. In 1988, the county began phasing out its subsidy, assessing these categories at $5.36, $3.48, $16.18, $101.26 and $1,248.78, respectively. The county is expected to phase out its subsidy altogether by 1990.

For the last two years, Washington County subsidized the tip fee through its general property tax levy. By doing this the county was able to collect $440,312 in 1986 and $735,094 in 1987. This resulted in enough revenues that there will be no levy in 1988. Beginning in 1989, the county will assess a separate solid-waste service charge with its annual property tax statement. This charge will subsidize the tipping fee, plus contribute to the cost of other abatement activities. It is estimated this charge will average $23 for each parcel and will raise about $503,000.

The current cost to users of the facility and the general public in both counties is estimated to be about $42 a ton.

FACILITIES UNDER CONSTRUCTION

Hennepin County

In May 1987, the Hennepin Energy Resource Company (HERC) began construction of a mass-burn facility in downtown Minneapolis. This facility will be owned and operated by HERC. Under a long-term agreement, the county will provide waste to the facility through its designation authority and pay HERC a service fee. Construction is proceeding ahead of the January 1990 start-up schedule, and the facility may start operations as early as the summer of 1989. The facility has an annual guaranteed processing capacity of 365,000 TPY (1,000 TPD average). The facility will be capable of co-generating steam and electricity; however, it is expected to generate only electricity for sale in the near future. The facility will produce by weight 25 per cent residuals that must be landfilled. As part of the recovery system, Hennepin County will own and operate four transfer stations. Locations have been proposed in south Minneapolis, Bloomington, Brooklyn Park and Plymouth.

The facility will cost $81 million to build. Total development costs are expected to be around $141 million, including the cost of the four transfer stations. The county has issued $129.2 million and $12.4 million in industrial development bonds backed by HERC. The annual debt service costs will be $13.8 million. The annual operation and maintenance costs are expected to be $12.4 million. The cost to dispose of residuals is estimated to be $70 per ton. The anticipated 1989 tipping fee is $75 per ton. This solid waste service fee also includes the cost of the transfer stations, landfills and other county recycling and composting programs. The county expects to pay HERC a service fee in the mid-$50 per ton range, that may represent the approximate cost to users of the facility and general public. All county waste generators served by the facility will pay the same costs, except generators served by the Reuter facility may pay lower costs.

NSP Elk River

Construction began on an RDF facility in Elk River in May 1987. The facility will be owned and operated by NSP, and it is expected to be operational in June 1989. The project will produce RDF for use by the United Power Association to produce electricity in its Elk River electrical generation plant. The facility is permitted for an average operating capacity of 1,500 TPD, with up to 800 TPD coming from Hennepin County, 500 TPD from Anoka County and the remainder from non-metropolitan counties. Both Anoka and Hennepin Counties will provide waste to the facility under designation and pay NSP a service fee in accordance with a long-term contract.

The capital cost of the project is $41.7 million. Anoka County has issued the following financial instruments on the project: $29.7 million in industrial development bonds backed by the credit of NSP; $29.9 million backed by the National Rural Utilities Corporate Finance Corporation supported by an obligation of the United Power Association; and $1.7 million in general obligation bonds. Debt service and service fees are paid by the counties on a pro-rata share of the assigned capacity of the facility. The debt service for 1988 is $5.15 million, with Anoka County's portion at $1.7 million, Hennepin County at $2.7 million and the non-metropolitan counties having the remainder. The annual operating and maintenance costs are expected to be $12.9 million, with Anoka County's portion at $4.4 million, Hennepin County at $6.9 million and the non-metro counties with the remainder.

The expected 1989 tipping fee is in the range of $48 to $52 per ton, and it reflects the expected cost to the user of the facility and general public.

Dakota County

Dakota County is proposing to build an 800 TPD mass-burn facility in Rosemount. The facility will have an on-line availability of 640 TPD. Wastes will be burned to produce electricity. The facility is expected to start up in 1991 and be fully operational in 1992. The county will use its designation authority to direct solid wastes to the facility. The facility will be county owned. The county has negotiated a long-term contract with Combustion Engineering, Inc. to construct and operate the facility.

The facility will cost $92.2 million to build. The county will issue approximately $134.6 million in nontaxable bonds and $12.7 million in taxable bonds to finance the project. These bonds will be repaid over a 20-year period by project revenues. The annual debt service on these bonds in 1992 is $11 million. The operating and maintenance costs in 1992 will be $6.2 million. Residual disposal costs are estimated at $42 a ton. The 1992 tipping fee under a base economic scenario is $66 a ton. This figure would also reflect the cost to the user of the facility and the general public.

FACILITIES IN PLANNING STAGES

Carver/Scott Counties

These two counties are working cooperatively on the development of a municipal solid waste compost facility. The facility would have a 200 TPD capacity, providing Scott County with 110-115 TPD of capacity and Carver County with 80-85 TPD of capacity. The facility is planned to be operational in 1990.

The facility is still in the planning stages, and firm decisions have not been made about the cost, financial and ownership arrangements. Rough estimates are that the project would have capital costs of $9 million and annual operating and maintenance costs of $1 million. Residuals disposal is estimated at $39 a ton. If the project is publicly owned, 1991 tipping fees are estimated at $45 a ton. If the project is privately owned, 1991 tipping fees are estimated at $55 a ton.

Farmington

Farmington is planning the development of a 25 TPD co-compost project. This facility would compost the city's MSW with the Metropolitan Waste Control Commission's (MWCC) sewage treatment sludge. The facility is planned to be operational in 1989.

Rough estimates of the costs are $2 million for capital expenditures and $1 million for operating and maintenance expenses. Residual disposal costs are estimated at $39 a ton. Tipping fees are estimated in the $45 to $55 a ton range. Financial instruments may include city bonds, a Waste Management Board grant and a grant from Dakota County.

LAND DISPOSAL FACILITIES

The cost of land disposal of waste has increased an average of 58 percent between 1986 and 1988, compared to a 91 percent increase from 1985 to 1986. Table II-15 shows the cost of disposal at metropolitan area landfills. The average landfill cost in 1988 is $27.70 per ton. The number of operating facilities has also declined by two, with the closure of Dakhue and Flying Cloud landfills. The largest operating facility, Pine Bend landfill, has recently installed a liner under an expansion area. The cost of construction of the liner and leachate collection system as well as the environmental remediation cost borne by the landfill have contributed to the 32 percent increase in the cost of the landfill, to $27.70 per ton.

The cost of landfilling waste is expected to rise sharply January 1, 1989. Dakota County intends to place a surcharge of $8.33 per ton on waste disposed in the county. Currently, over 85 percent of all permitted capacity for landfills is in Dakota County. BFI has indicated to customers that the cost of landfilling at its Pine Bend facility will increase to $40 per ton by January 1, 1989. Other area landfills are expected to follow suit and raise their fees by an equiv-alent amount. Dakota County intends to use the fees for development of its recycling system in the county.

Woodlake Landfill has noted a reduction in the cost per ton for disposal. The facility has a liner and leachate collection system in three of its four phases. The anticipated closure date for the Woodlake Sanitary Landfill is 1991, only five years after the construction of the second phase.

The overall cost of landfilling is expected to rise as the landfills are required to provide a closure, post-closure fund for maintenance of facilities after they close. The cost of this effort is expected to add approximately 2 to 4 dollars per ton of waste disposed.

The current tipping fees reflect the environmental impairment costs borne by the landillls. The cost of remedial actions is quite high. As an example, cost of remedial action at the Oak Grove Landfill is estimated to $5,000,000 with annual operating costs of over $200,000. The purchase and construction of the next generation of landfills will be more expensive than the cost of the existing facilities as environmental impairmanet costs are factored into the pricing of the facilities.

The cost of environmental review alone of the new candidate landfill sites is $3,850,000. The acquisition of each site will be approximately $1,000,000 and the construction costs will exceed $5,000,000 per site. The new generation of landfills should be more environmentally benign; however, new evidence suggests that even the most advanced liner systems are prone to leakage of contamination below the site. The more expensive technology for the development of landfills will not eliminate the need for funds for environmental cleanup actions.

The cost of landfilling is expected to rise to an average of $44 per ton in 1990 and $53 per ton by 1992 according to Council projections.

Table II-15

LAND DISPOSAL FACILITIES

Facility	Location	1985 Receiving Rate (Tons)	Tipping Fees (1) (9/85)	(7/86)	(11/86)	(9/88)	Percent Increase 9/85-11/86	Percent Increase 11/86-9/88	Percent Construction Debris or Nonprocessible
SANITARY LANDFILLS									
ANOKA COUNTY									
Anoka	14730 Sunfish Lake Blvd. Ramsey	264,260	$12.30	$14.55	$24.50	$43.23	99%	76%	1%
DAKOTA COUNTY									
Burnsville	1000 W. 122nd St. Burnsville	132,509	$15.00	$18.00	$25.00	$27.50	67%	10%	1%
Dakhue	County Hwy. 85 Hampton	65,937	$ 9.45	$14.25	$17.48	Closed	85%	----	---
Freeway	1001 Black Dog Rd. Burnsville	35,581	$15.00	$15.00	$23.30	$29.75	55%	27%	15%
Pine Bend	2495 E. 117th St. Inver Grove Heights	630,000	$15.20	$17.50	$22.50	$29.70	48%	32%	2%
HENNEPIN COUNTY									
Flying Cloud (2)	9813 Flying Cloud Dr. Eden Prairie	270,000	$14.50	$17.50	NA	Closed	----	----	---
Woodlake	4000 Hamel Rd. Medina	103,000	$10.20	$13.20	$28.50	$24.26	179%	(-15%)	0%
SCOTT COUNTY									
Louisville Sanitary Landfill	3601 W. 130th St. Louisville Twp.	238,506	$ 7.30	$10.00	$15.00	$19.80	105%	32%	3%
WEIGHTED AVERAGE (4)					$17.50	$27.70		5%	

Table II-15 (continued)

DEMOLITION LANDFILLS

East Bethel	217 NE. Hwy. 65 Cedar Twp.	102,727	$7.20	NA	$21.65	Closed	201%	----
Dem Con (3)	3331 Akers Lane, Jordan	408,000	----	----	$ 6.66	$ 7.50	----	100%
Crosby America	2400 E. 117th St. Inver Grove Heights	52,600	----	----	$ 8.33	$10.00	----	100%
Port Crosby	63 S. Robert St., St. Paul	6,000	----	----	-----	-----	----	100%

All others are privately owned and operated, handling only company-generated waste.

(1) Surcharge included in tipping fee.
(2) Waste volumes have been severely restricted due to capacity constraints.
(3) Opened mid-1985.
(4) Weighting skews costs to the largest operating facilities.

REGIONAL SOLID-WASTE COST SUMMARY

The total cost estimated for solid-waste management in the Metropolitan Area for 1988 is $185 million annually. The largest portion of the cost is for collection and transportation of waste to landfills and resource recovery facilities. Over $115 million is estimated to be spent in the region for collection in 1988. This represents 62 percent of the regional solid-waste system cost for collection and transportation. Table II-16 provides the quantity of waste estimated for the residential and commercial/industrial sector for each county. Table II-16 also provides information on the cost of solid-waste management services by management method for each sector in each county.

The combined expenditures for recycling and composting in the region is projected to be nearly $12 million in 1988. This compares with a regional cost of approximately $2 million spent for recycling and composting 1986. The processing rate of 14 percent in the region in 1988 cost a total of approximately $10 million. As new programs are initiated to enhance source separation, the monies spent on abatement programs are expected to triple by 1992 to approximately $30,000,000 in the region.

The total waste processing effort is expected to grow approximately five fold by 1992. The cost of processing facilities that will come on-line after 1988 are more expensive than existing facilities. Instead of paying $36 per ton for waste processed, the region is expected to pay an average of $46 dollars per ton in 1992 (excluding transfer-station costs and recycling fees paid at facilities). The total cost of waste processing will be aproximately $64 million in 1990.

Between 1988 and 1992 the amount of waste landfilled is expected to decline by 50 percent as the cost increases from an average of $27.70 dollars per ton to an average projected cost of $53 per ton. The total cost of landfilling in the region will decline very slightly from the $47 million estimated to be spent in 1988 to $45 million projected to be spent in 1992.

The cost of collection is not expected to rise faster than the rate of inflation between 1988 and 1992. The cost in 1992 is projected to be $137 million for collection and transportation of waste.

The total projected cost for waste management in the Metropolitan Area in 1992 is $276 million. This represents a 49 percent increase in solid-waste management costs from 1988. Based on current programs, the cost of collection could be reduced by the implementation of volume-based collection services. The difference in free-market collection to volume-based collection for residential waste in 1992 is $27,000,000. This would represent a ten percent reduction in total solid-waste management costs in the region in 1992.

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Table II-16
1988 SOLID WASTE SYSTEM COSTS (ESTIMATED)***

COUNTY / SECTOR	Waste Generated (tons)	Waste Recycled (tons)	$ For Recycling	Waste Composted (tons)	$ For Waste Composted	Waste Processed (tons)	$ For Waste Processed**	Waste Landfilled (tons)	$ For Landfilling	$ For Waste Collection	Total Cost ($)
Anoka											
Residential	143,065	5,670	374,220	2,428	106,832	-----	-----	134,967	3,738,586	12,416,964	16,636,602
Commercial/Industrial	56,133	14,170	935,220*	----		-----	-----	41,963	1,162,375	1,216,927	3,314,522
Carver											
Residential	20,458	1,238	81,708	1,230	54,120	-----	-----	17,990	498,323	1,655,080	2,289,231
Commercial/Industrial	9,849	318	20,988	----		-----	-----	9,531	264,009	276,399	561,396
Dakota											
Residential	139,555	3,782	249,612	1,215	98,780	11,700	421,200	121,828	3,374,636	12,284,576	16,428,804
Commercial/Industrial	96,063	17,402	656,304	----		-----		86,119	2,385,496	2,497,451	5,539,251
Hennepin											
Residential	496,960	23,636	1,559,976	20,000	880,000	27,891	1,004,076	425,433	11,784,494	41,705,808	56,934,354
Commercial/Industrial	580,038	48,138	3,177,108	----				531,900	14,733,630	14,029,098	31,939,836
Ramsey											
Residential	239,750	14,440	953,040	8,211	361,284	202,960	7,306,560	14,139	391,650	19,973,108	28,985,642
Commercial/Industrial	266,305	26,000	1,716,000					240,305	6,656,448		8,372,448
Scott											
Residential	27,758	2,365	156,090	----		7,622	274,392	17,771	492,257	2,336,156	3,258,895
Commercial/Industrial	18,644					-----		18,644	516,439	540,676	1,057,115
Washington											
Residential	67,193	1,888	124,608	3,699	162,756	50,739	1,826,604	10,867	301,016	(5,667,752)	8,082,736
Commercial/Industrial	30,615	806	53,196	----				29,809	825,709	(864,461)	1,743,366
TOTAL	2,192,386	152,395	$10,058,070	37,813	$1,663,772	300,912	$10,832,832	1,701,276	$47,125,068	$115,464,456	$185,144,198

* Commercial recycling paid by companies receiving service.
** Processing includes cost of residential disposal.
*** Estimates based on the average cost per ton of waste for each waste management method. Figures good to only the first significant digit.

III. METROPOLITAN LANDFILL ABATEMENT FUND EXPENDITURES AND ACTIVITIES

INTRODUCTION

The Waste Management Act includes a requirement that the Metropolitan Council submit a report describing the activities for which money from the Landfill Abatement Fund has been spent during the previous fiscal year.

Minnesota Statute Section 473.846:

> By November 1, 1986, and each year thereafter, the agency and Metropolitan Council shall submit to the Senate Finance Committee, the House Appropriations Committee and the Legislative Commission on Waste Management separate reports describing the activities for which money from the landfill abatement and contingency action funds has been spent during the previous fiscal year. The Council may incorporate its report in the report required by Section 473.149. In its 1988 report, the Council shall make recommendations to the Legislature on the future management and use of the Metropolitan Landfill Abatement Fund.

This report provides details on the amount of funds collected through the landfill abatement surcharge and forwarded to the Metropolitan Council by the Minnesota Pollution Control Agency, the amount of funds that were expended and encumbered as a result of the programs that were operated during fiscal year 1988, descriptions of the funding programs, the estimated annual amount of solid waste that will be diverted from landfilling as a result of these programs, summaries of each project that received grant funds from the Metropolitan Landfill Abatement Fund and recommendations on the future management and use of the fund.

SOURCES OF FUNDS

Section 473.843 of the Waste Management Act authorizes the establishment of a metropolitan solid-waste landfill fee. Operators of mixed municipal solid waste disposal facilities pay a fee on solid waste accepted and disposed of at facilities at the rate of 50 cents per cubic yard. Of this amount, 25 cents per cubic yard is deposited in the Metropolitan Landfill Abatement Fund. The remainder of the fee is deposited in the Minnesota Pollution Control Agency's (MPCA) Metropolitan Landfill Contingency Action Fund.

The Council maintains a separate account for the Metropolitan Landfill Abatement Fund and invests the funds the same day they are received from the MPCA. The type of instruments used for investment vary in length depending on the cash flow needs of the programs. The investment options include purchase agreements of commercial paper, bankers acceptance, U.S. government securities, certificates of deposit, and federal agency securities. The interest figure in Table III-1 represents the actual cash receipts of funds from the MPCA and interest earned.

Table III-2 shows the monthly receipt of revenue from the MPCA during fiscal year 1988. A larger adjustment payment was made to the fund in July of 1987 after the Legislature appropriated all funds collected to the landfill abatement fund rather than placing a ceiling on the funds transferred.

Table III-1

METROPOLITAN LANDFILL ABATEMENT FUND
Fund Statement
July 1, 1987 to June 30, 1988

Revenues		
Fund Cash Balance	$1,480,316.07	
Deposits	2,132,870.52	
Interest Earnings	90,310.69	
Total Revenues		$3,703,497.28
Expenditures		
Grants	$ 895,999.10	
Administrative Expenses	138,413.84	
TOTAL	$1,034,412.94	
Fund Cash Balance (6/30/88)		$2,669,084.34
Encumbrances	$	
FY 1987 Grants	14,823.30	
FY 1988 Grants	166,408.00	
Local Recycling Development Grants FY 89	883,336.00	
TOTAL	$1,064,567.30	
Unencumbered Balance	$1,604,517.04	

TABLE III-2

METROPOLITAN LANDFILL ABATEMENT FUND
Fund Deposits and Interest
July 1, 1987 through June 30, 1988

	Surcharge Funds	Interest
July 1987	$ 605,830.18*	
August	401,713.59	
September	32,482.47	
October	146,545.14	
November	137,970.58	
December	0	
January 1988	121,830.48	
February	146,003.00	
March	127,466.14	
April	0	
May	262,677.54	
June	150,351.40	
Total	$2,132,870.52	$ 90,310.69
Total Deposits	$2,223,181.21	

* Funds transferred to the fund represent appropriation of remaining funds from FY 1987.

GRANT FUNDING PRIORITIES

Section 473.844, Subd. 1 and Subd. 4 of the Waste Management Act authorizes the Metropolitan Council to administer landfill abatement grant programs. The Legislature appropriated all surcharge monies collected to be deposited in the Metropolitan Landfill Abatement Fund in 1987.

The funds may be granted for the development of the following projects:

- Market development for reusable or recyclable waste materials;
- Solid-waste reuse or recycling public education;
- Planning for abatement projects; and
- Technical assistance for development of reuse or recycling programs.

The 1987 legislature also developed a program for Local Recycling Development grants to promote the development and implementation of local recycling development plans. More information on specific grant programs is provided under a description of each of the grant programs in this section.

The Council provided financial and technical assistance to businesses, non-profit organizations, public institutions, and local governments to support a variety of landfill abatement activities (recycling, waste reduction, reuse, yard-waste composting, and materials processing and marketing). Grant programs were targeted to projects that addressed the following priorities:

- Abatement of high-quality office papers and corrugated cardboard from commercial generators; and aluminum, glass, clean newspaper and yard waste from residential generators;
- Innovative regional solutions to barriers that inhibit greater abatement;
- Waste-reduction techniques for the reuse of in-house commercial industrial waste; and
- Environmentally sound systems for collecting and reclaiming problem materials.

Review and selection criteria were established by the Metropolitan Council for each grant program. These criteria included the demonstrated abatement experience and administrative ability of the project sponsor, the amount and type of solid-waste to be abated, the number and types of solid-waste generators to be served, demonstrated commitment to the project, and plans for securing on-going operating funds from other sources after the grant assistance ends.

Each of the landfill abatement grant programs required that the project sponsor contribute matching funds. These matching funds included both cash and in-kind contributions and ranged between a minimum of 25 to 75 percent of the total cost of the project activities. In FY88, landfill abatement grant project sponsors contributed more than $1.5 million in matching funds. The Council also established maximum amounts of grant funds that could be requested for a single project. This grant maximum varied according to the funding program and ranged between $10,000 and $50,000.

Recipients of the Council's landfill abatement grants generally receive 50 percent of the grant award at the time the grant agreement is executed. Approximately half-way through the grant period, after the initial portion of the grant funds have been spent by the grantee, a project progress report and project expenditure report are submitted to the Council. After approval of these reports, an interim payment of 40 percent of the grant award is released. The final 10 percent of grant funds are paid by the Council only after the final project progress report, final expenditure report and brief narrative report are submitted and approved. This process for grant payments assures that the Council will receive adequate documentation for the expenditure of grant funds, as well as any local matching funds that have been pledged to projects, and written reports that can be easily shared with other interested parties in the region or state. On-site visits and periodic meetings with grantees are also used to maintain contact and to provide technical assistance in a timely and efficient manner.

LANDFILL ABATEMENT FUND EXPENDITURES

ONGOING GRANT PROGRAM EXPENDITURES

The Metropolitan Council provided technical assistance, monitoring and administrative services to grant projects that were originally funded in FY87. The projects begun in FY88 that were ongoing during the fiscal year were granted funds through the Public Information and Education grants and the 1987 Incentive Grants programs. Each of the programs is described in the Metropolitan Landfill Abatement Fund Expenditures and Activities Report, November 1987. Copies of this report are available through the Legislative Reference Library or by contacting the Council Data Center at 291-8140. Table III-3 provides information on the grantees from FY87 that have projects ongoing through FY88.

Table III-3

GRANTS ONGOING IN FY88
AWARDED IN FY87

Program/Grantee/Contract No.	Amount	FY87 Payments	FY88 Balance
1987 Incentive Grants			
District 14 SG-87-64	$ 7,930.00	$7,137.00	$ 793.00
Lakes Area Recycling SG-87-109	4,296.00	3,866.40	429.60
Mississippi Street Metals SG-87-63	10,000.00	9,000.00	1,000.00
North Oaks SG-87-59	4,997.00	4,497.00	499.70
Northland Recycling (SLP) SG-87-98	10,000,00	5,000.00	5,000.00
Spring Lake Park SG-87-99	1,010.00	909.00	101.00
St. Paul Neighb'd Energy. Con. SG-87-65	10,000.00	9,000.00	1,000.00
U of MN - Phys. Plant SG-87-66	10,000.00	9,000.00	1,000.00
Public Information and Education Grants			
Columbia Heights SG-87-24	10,000.00	5,000.00	5,000.00
TOTALS	$68,233.00	$53,409.70	$14,823.30

NEW GRANT PROGRAM EXPENDITURES

In FY88 the Council awarded $1,087,480 for 18 new landfill abatement projects through the following programs:

- Demonstration Project Grants
- Research and Development Grants
- Local Recycling Development Grants
- Special Grant

Table III-4 shows the grants awarded by program in FY88.

Table III-4

GRANTS AWARDED BY PROGRAM

	Number of Grants	Grant Funds Awarded	Matching Funds	Annual Tons
Demonstration Projects	8	$ 196,300	$1,256,325	33,759
Research & Development	2	198,110	75,844	
Special Grant	1	76,406	55,978	
Local Recycling Development	7	616,664	1,565,425	
TOTAL	18	$1,087,480	$3,088,442	

The grants awarded during FY88 were given to a variety of different types of recipients. Table III-5 provides information on the number of grantees by type and the distribution of abatement funds by type of grantee.

Table III-5

TYPES OF PROJECT SPONSPORS

	Number of Grants	Grant Funds Awarded	% Total Grant $
Business	5	$ 190,000	17.5
Nonprofits	3	154,410	14.5
Public Institutions	1	76,406	7
Cities/Towns	1	30	3
Counties	8	636,664	58
TOTAL	18	$1,087,480	100%

Table III-6 shows how the funds were allocated by the type of project undertaken. It should be noted that the Council is the only agency in the state that may make grants to assist companies to initiate abatement service programs.

Table III-6

TYPES OF ABATEMENT ACTIVITIES

	Number of Grants	Grant Funds Awarded	% Total Grant $
Other Residential Abatement (1)	2	$56,300	5
Yard-Waste Composting	2	50,000	4.5
Materials Processing/ Marketing	4	236,406	22
Commercial Recycling	3	128,110	11.5
Other Abatement	7	616,664	57
TOTAL	18	$1,087,480	100%

Note 1: Other Residential Abatement includes projects where more than one abatement method is used, such as curbside recycling along with yard-waste composting, and Public Information and Education grants focus on the spectrum of abatement alternatives available to residential generators.

ADMINISTRATIVE EXPENDITURES

A total of $245,000 was appropriated to pay for administrative expenses incurred for the Metropolitan Landfill Abatement programs in FY88. Of this, the Council spent $138,413.84 during FY88. The Council had intended to use the remaining funds allocated to contract for independent evaluation of grant program results and promotion of abatement concepts proven effective in the evaluation process. The Council intends to pursue the activity during FY89 and anticipates appropriate use of the remaining administrative budget. The administrative cost breakdown for FY88 appears in Table III-7.

Table III-7

METROPOLITAN COUNCIL
ADMINISTRATIVE EXPENSES
July 1, 1987 - June 30, 1988

Item	Expense
Salaries/Fringe	$ 75,551.89
Indirect Labor	29,758.94
Rent & Utilities	9,749.30
Travel Expenses	2,514.53
Phone	1,390.48
Postage	2,033.44
Printing	3,987.97
Computer Use	(36.74) credit
Other Indirect Costs	16,464.03
TOTAL	$138,413.84

The budget for administrative expenses for the biennium equal $490,000.00. The remaining balance in the administrative budget as of July 1, 1988, was $351,586.16.

SUMMARY OF GRANT PROGRAM EXPENDITURES

A total of $1,034,412.94 was expended from the Metropolitan Landfill Abatement Fund during FY88 for payments to grantees and administrative expenses. The grant awards by program and grantee are listed in Table III-8. An additional $1,049,744 was encumbered for grant payments that will be made after June 30, 1988, for grants awarded during fiscal years 1987 and 1988.

The Council paid grantees $13,130.10 during FY88 to close out grants made in fiscal years 1986 and 1987. The Council continues to have $14,823.30 encumbered for grants awarded during FY87.

The two continuing programs (the second-year demonstration grants and the second phase of the Research and Development grants) account for $226,205 of the funds spent during FY88. These two programs will also require $128,205 in FY89 to meet grant obligations and close out the grants.

The Council has several grant programs approved in the FY88-89 work plan. The descriptions of the programs may be found in the description of Landfill Abatement Grant Programs. During FY88 one new program was inititated, the Local Recycling Development Grant program. During FY88 the Council awarded $616,644 to the counties for the development of the Local Recycling Implementation Strategy and funding improved or expanded abatement programs.

The guidelines for the Technology and Research and Technical Assistance grant programs have been publicized and the Council has approved the FY89 Guidelines for the Demonstration grant program as described in the FY89 Work Program and Budget.

Table III-8
METROPOLITAN LANDFILL ABATEMENT FUND
GRANTS AWARDED FISCAL YEAR 1988 (July 1, 1987 - June 30, 1988)
(Revised 6/01/88)

Demonstration Project Second-Year Grants (11/87-11/88)	Activity	Grant	Payment **	Encumbered
Super Cycle, Inc.	Corrugated Recovery	$ 20,000	$ 18,000	$ 2,000
Recycling Services	Office Paper Recovery	10,000	9,000	1,000
Columbia Heights	Recycling in Multi-Unit	30,000	0	30,000
St. Paul Neighborhood Energy Consortium	Recycling in Multi-Unit	26,300	13,150	13,150
Goodwill Industries	Cooperative Marketing	30,000	15,000	15,000
Super Cycle, Inc.	Intermediate Processing	30,000	27,000	3,000
Carver County	Composting	20,000	18,000	2,000
Compost Concepts	Composting	30,000	27,000	3,000
PROGRAM TOTAL		$ 196,300	$ 127,150	$ 69,150
Research and Development Grants				
Phase II (Research and Development) (5/88-1/89)				
Super Cycle, Inc.	Mobile processing	100,000	$ 90,000	10,000
Minnesota Public Interest Research Group	Commercial/industrial abatement	98,110	49,055	49,055
PROGRAM TOTAL		$ 139,055	$ 139,055	$ 59,055
Local Recycling Development Grants (1/88-1/89)		First Distribution		2nd Phase FY 89
Anoka County		$ 64,750	$ 64,750	$ 79,500
Carver County		33,833	33,833	17,667
Dakota County		69,166	69,166	88,334
Hennepin County		241,416	241,416	432,834
Ramsey County		126,583	126,583	203,167
Scott County		33,833	33,833	17,667
Washington County		47,083	47,083	44,167
PROGRAM TOTAL		$ 616,664	$ 616,664	$ 883,336
Special Grant	Activity			
University of Minnesota	Recyclable Materials Market Outlook	$ 38,203		$ 38,203
PROGRAM TOTAL		$ 38,203		$ 38,203
Contracts	Activity			
	Waste Generation/Composition			$ 40,000
GRANT TOTAL	18 Grant Awards TOTAL	$1,087,410	$882,869	$1,049,744*

* Includes 2nd year recycling development grants
** Payments for previous years grants total $13,130.10 for a total of payments of $895,999.10

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The Council is currently in the process of drafting guidelines for the Link Deposit program and anticipates receiving proposals for this program in the latter half of FY89.

A detailed description of the abatement programs may be found in the Landfill Abatement Grant Programs section that follows.

LANDFILL ABATEMENT GRANT PROGRAMS

CONTINUATION OF FY87 GRANTS

Demonstration Project Grants

Type of Funding: Two-Year Grants

Purpose:
To plan and implement innovative working models for landfill abatement activities.

Eligible Applicants:
Businesses, nonprofit organizations, units of government, public institutions, special districts (school districts and solid-waste management districts), and trade or industry associations.

Eligible Use of Funds:
Salaries, consultant contracts, and other costs directly associated with the planning and implementation of specific comprehensive, innovative projects. Demonstration project descriptions for new activities in FY88-89 will be published in the program application materials as Requests for Proposal (RFPs).

Funding Limitations:
Grants of up to 75 percent of eligible costs, not to exceed $50,000 during the first year; up to 50 percent of eligible costs, not to exceed $30,000 during the second year.

Grants Continuing from FY86-87:

A portion of the Demonstration Project grants has been encumbered for the continuation of grants originally funded in FY86-87. The following projects will be considered for second-year Demonstration Project grants during FY88.

Super Cycle, Incorporated (St. Paul) $20,000 to continue recovery of corrugated cardboard from retail generators located in shopping complexes.

Recycling Services (Minneapolis) $120,000 to continue recovery of high-quality office paper from multi-tenant office buildings.

St. Paul Neighborhood Energy Consortium (St. Paul) $30,000 to continue recycling household materials generated by residents in multi-unit housing.

Center for Community Action/Minneapolis Education and Recycling Center (Minneapolis) $4,300 to continue recycling household materials generated by residents in multi-unit housing.

City of Columbia Heights $30,000 to continue recycling household materials generated by residents in multi-unit housing.

Goodwill Industries/Easter Seals (St. Paul) $30,000 to continue cooperative marketing of materials collected at drop-off centers.

Ramsey/Washington Resource Recovery Board and Northern States Power Company (St. Paul) $30,000 to continue the development of balanced source- and mechanical-separation system between existing and potential Intermediate Processing Facilities and other resource-recovery facilities.

Super Cycle, Incorporated (St. Paul) $30,000 to continue operation and expansion of an Intermediate Processing Facility to process and market recyclable materials.

Carver County (Chaska) $20,000 to continue large-scale collection and composting of yard wastes.

Compost Concepts (Afton) $30,000 to continue large-scale collection and composting of yard wastes.

Funds Granted FY88: $196,300 (continuing projects only)

Program Time frame:
Applications were accepted for continuing funding of projects begun in FY86-87 until November 31, 1987.

Research and Development Grant Program

Type of Funding: Phased Grants

Purpose:
To encourage applied research and development of new projects, processes and services that will address significant barriers to increasing the utilization of reuseable or recyclable waste materials.

Eligible Applicants:
Businesses and nonprofit organizations that received Phase I (feasibility study) grants during 1987 are eligible to apply for Phase II (primary research and development) and Phase III (implementation) grants during FY88-89.

Eligible Use of Funds:
Salaries, consultant contracts, equipment/machinery leases and other direct costs associated with completing primary research and development or implementation of the research results.

Funding Limitations:
Phase II grants cannot exceed 75 percent of the total cost of the primary research and development and are limited to $100,000. Phase III grants cannot exceed $25,000.

Total Funds Granted FY88-89: $139,055

Program Time frame:
Application materials were available in August 1988. The deadline for submitting applications is May 15, 1989. Grant decisions for Phase II and III grants will be made on an on-going basis throughout the biennium.

Other Information:
A minimum of 50 percent of the primary research and development activities must be performed by the project sponsor.

Continuing Grants from FY86-87:

The following projects will be considered for continuing Research and Development Grants during FY88-89:

Super Cycle, Incorporated (St. Paul) for continuing research and development of a mobile multi-material processing center for recyclable materials.

Minnesota Public Interest Research Group (Minneapolis) for continuing research and development of a waste exchange program for nonhazardous reusable materials generated by small businesses.

NEW FY88 GRANTS

Local Recycling Development Grants

Type of Funding: Two-Year Grants

Purpose:
The Local Recycling Development Grant program was created through amendments to the Waste Management Act in 1987 to encourage the development of permanent local recycling programs throughout the Metropolitan Area.

Eligible Applicants:
Metroplitan Area Counties (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington).

Eligible Use of Funds:
Direct costs, when matched by equal county expenditures, associated with the planning, development and operation of permanent local recycling and yard-waste composting programs.

Grant and matching funds may be used to assist projects which are:

- Consistent with the Metropolitan Council's solid waste management policy plan and development guide and the county solid-waste master plan;
- New activities or to enhance or increase the effectiveness of existing activities in the county; or
- Effective municipal recycling programs that are already established.

Funding Limitations:

Each county will receive grant funds based on the following distribution formula: $25,000 base plus an allocation of the balance of funds based on the county's percentage of the total number of households in the region.

County	FY88 First Distribution	FY89 Second Distribution	Total FY88-89
Anoka	$ 64,750	$ 79,500	$ 144,250
Carver	33,833	17,667	51,500
Dakota	69,166	88,334	157,500
Hennepin	241,416	432,834	674,250
Ramsey	126,583	203,167	329,750
Scott	33,833	17,667	51,500
Washington	47,083	44,167	91,250
TOTAL	$ 616,664	$ 883,336	$1,500,000

Total Funds Available FY88-89: $1,500,000

Program Time frame:

Application materials were available in August 1987. The deadline for submitting applications for the first distribution of funds was December 1, 1987. The deadline for submitting applications for the second distribution of funds is December 1, 1988.

Other Information:

As a condition of the Local Recycling Development Grant program, each county must submit the following items to the Metropolitan Council:

- A report on expenditures and activities by December 1, 1988;
- A local recycling implementation strategy identifying materials to be recycled (yard waste and at least three other materials), the parties to be responsible for the recycling, the methods for recycling the materials, and funding to ensure continuation of local recycling (needs, sources and methods for securing permanent funding) by December 1, 1988;
- A performance funding system that will allocate all of the second distribution for recycling implementation activities according to performance.

A county must have received funds in the first distribution in order to be eligible to receive funds during the second distribution. If a county does not apply for one or both distributions, that portion of the funds will be allocated to the remaining counties participating in the program.

Special and Contract Grants

- The contract with Cal Recovery Systems, Inc. for a Metropolitan Area Solid Waste Generation and Composition Study was approved by the Metropolitan Council. The contracted research is to provide a reliable base of data and information on Metropolitan Area solid waste generation rates and waste characteristics, to develop projections of

regional waste generation rates and composition characteristics through 2020 and to define reliable waste generation and composition measures and measurement techniques.

The contract is $84,934. $45,000 in funds was carried forward from the Council's 1987 budget and an additional $40,000 was allocated to perform this research from unspent Metropolitan Landfill Abatement Fund monies.

- The applied research project from the University of Minnesota, Department of Agriculture and Applied Economics, will result in the development of a historical time series data base for high-priority recyclable materials; publication of two newsletters for policy makers, planners, recycling contractors and local program staff; a presentation of the information at the 1988 National Recycling Congress; and other oral and written reports to the Council.

  The Recycled Materials Market Research project grant was approved on March 24, 1988, by the Metropolitan Council. The total from the Metropolitan Landfill Abatement Fund Special Grant is $132,384; of which $76,406 was the grant request and $55,978 was the local in-kind match. The grant period is from April 1, 1988 through June 30, 1989.

  The results of this project will provide information that will be of value to the Metropolitan Council when revising the policy plan, to the counties in the process of preparing their Recycling Implementation Strategies, and to cities, nonprofits and businesses in the region regarding on-going program development activities.

NEW FY89 GRANTS

Technology and Research Program

Type of Funding: Grants and Contracts

Purpose:
To investigate, develop and implement appropriate strategies to address specific needs and opportunities that exist for increasing landfill abatement.

Eligible Applicants:
Businesses, nonprofit organizations, units of government, public institutions, and trade or industry associations.

Eligible Use of Funds:
Salaries, consultant contracts, machinery/equipment leases, and other direct costs associated with specific project activities. Technology and Research grants and contracts will be solicited through Requests for Proposals (RFPs), which will thoroughly describe the proposed project activities. The RFPs will be developed with the assistance of the Recyclable Materials Promotion Group.

Total Funds Available FY89: $565,000

Program Time frame:
Application materials were available in August 1988. The deadline for submitting applications is May 15, 1989.

Potential Program Activities:
Technology and research activities may include:

- o Regional collection and processing systems for problem materials and unacceptable wastes such as white goods, lead-acid batteries, used motor oil, tires, brush, lumber, yard wastes and household hazardous wastes;
- o Promotion, procurement or production of biodegradable or degradable bags or containers for yard wastes, recyclables and refuse;
- o Production and marketing of new finished products made from recycled/recyclable materials;
- o Information on current and future trends in the manufacturing of goods, transportation methods, and market prices for high-priority materials (aluminum, glass, newspaper, etc.); and
- o Improved systems for recovering and marketing residential and commercial/retail recyclable materials.

Technical Assistance Program

Type of Funding: Grants, Contracts and Inter-Agency Agreements

Purpose:
To provide technical assistance programs and services to abatement implementers, decision-makers, and the public that will increase the quality and quantity of landfill abatement opportunities in the Metropolitan Area.

Eligible Applicants:
Businesses, nonprofit organizations, units of government, public institutions, special districts (school districts and solid-waste management districts), and trade or industry associations.

Eligible Use of Funds:
To plan, implement and promote specific technical assistance programs and services identified by the Metropolitan Council. Proposals will be solicited through published Request for Proposals (RFPs) which will detail the requirements of each program/service.

Total Funds Available FY89: $290,000

Program Time frame:
Application materials were available in August 1988. The deadline for submitting applications is May 15, 1989.

Potential Program Activities:

- o Plan and implement a regional phone number (hot line), using a listing fee and per-call charge as long-term funding, for information on abatement programs and opportunities available in the Metropolitan Area.

- o Conduct free or low-cost workshops, seminars and short courses on subjects, such as:
  - Abatement practice and theory courses for manufacturers, commercial and retail generators, public works officials, refuse haulers and others;
  - Focus-group interview training for abatement implementers, policy makers and solid-waste management professionals;
  - Starting or expanding abatement services and businesses; developing business and marketing plans; and
  - Liability insurance, worker safety and regulations for landfill abatement.
- o Sponsor and co-sponsor seminars on critical emerging issues such as problem materials, unacceptable wastes, new technologies and generator participation.

New Demonstration Project Grants

Funds Available FY89: $945,000

Program Time frame:

Applications will be available in October 1988. The deadline for submitting proposals will be December 1988. Funds will be awarded in March, 1989.

Other Information:

Projects or programs that have received Metropolitan Council, Minnesota Pollution Control Agency or Waste Managment Board grants in the past for the same or similar activities will not be eligible to receive funds through this program. Approval for second-year grants will be considered by the Metropolitan Council based on satisfactory performance during the first year of the project and after submission of an updated budget and work program for continuing project activities.

New demonstration projects may include the following:

- o Alternative technologies for composting large volumes of yard waste;
- o Volume-based refuse fees used in combination with recycling and yard-waste collections for residential generators;
- o Same-day collections for refuse, recyclables and yard wastes;
- o Recycling collection systems for low-density population areas;
- o Models for collection and marketing of recyclables from commercial/retail generators;
- o Mechanical-separation techniques for residential and commercial/retail recyclable materials; and
- o Comprehensive education and implementation projects in post-secondary educational institutions (colleges, Area Vocational Technical Institutes, etc.) to develop and test landfill abatement curriculum materials and to implement abatement activities in offices, classrooms, dormitories and on campus grounds.

Linked Deposit Program

Type of Funding: Revolving Fund for Loan Interest Write-Downs

Purpose:

To provide reduced interest rates for qualifying loans for the purchase of machinery, equipment, improved real estate and working capital for landfill abatement implementers.

Eligible Applicants:

Businesses, nonprofit organizations, units of government, public institutions, and solid-waste management districts.

Eligible Use of Funds:

To write-down the interest paid to a bank by the borrower for landfill abatement start-up and expansion activities that will directly result in increased recovery of high-priority materials from mixed municipal solid waste.

The Metropolitan Council will purchase a one- to three-year certificate of deposit in an approved lending institution when a specific qualifying landfill abatement loan is to be made. The interest earned by the certificate will be applied toward the interest payment of the loan.

The interest portion of the loan to be paid by the borrower will not exceed 60 percent of the total annual interest charges for the loan.

Funding Limitations:

Certificates of deposit will be limited to lending institutions approved by the Metropolitan Council's Management Committee. The total amount of funds to be deposited in a single lending institution will be determined by the Management Committee based on existing Council investments and the need for additional collateral for investments.

Linked deposits are not guarantees for loans that receive assistance with interest payments through the program.

Total Funds Available FY89: $700,000

Program Time frame:

Application materials will be available in March 1989. The deadline for submitting applications will be June 1989.

Other Information:

The term, rate and other loan negotiations will occur between the borrower and the lending institution. The lending institution will provide the Metropolitan Council with the information necessary for determining eligibility for the Linked Deposit program and the amount of funds required for deposit.

Example of Interest Write-Down through the Linked Deposit Program:

$ 12,500 annual interest on working capital loan at 12.5% for one year

\- 7,500 annual interest paid by borrower of $100,000 for one year

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$ 5,000 annual interest write-down on working capital loan

The interest write-down on this loan will cost $5,000 for one year. A $76,923 certificate of deposit at 6.5% per year will generate the $5,000 interest write-down.

Other Information:

The Linked Deposit program will be developed, promoted and implemented through an inter agency agreement between the Metropolitan Council and the Department of Trade and Economic development.

Administration

Purpose:

To develop, publish and disseminate information on Metropolitan Landfill Abatement funding and assistance programs to potential project sponsors/proposers, solid waste professionals, abatement implementers and units of government in the region; to provide services to potential and existing project sponsors; to administer grant and contract solicitation, selection and agreement execution process, grant/contract amendments, and payments; to prepare reports and presentation materials on programs and projects; to monitor progress of projects, conduct periodic meetings with project sponsors; to conduct evaluations of funding programs administered by the Metropolitan Council in FY86-87 (Cost Recovery Programs, Incentive, Public Information/Education, Planning Assistance and Demonstration Project grant programs); and to participate in inter agency and inter governmental landfill abatement planning and policy activities.

Total Funds Available FY88-89: $490,000

FUTURE USE OF THE LANDFILL ABATEMENT FUND

The 1988 Landfill Abatement Fund Expenditures and Activities Report is required to recommend how the future funds collected should be managed. The Coucil, in development of the Demonstration Grant Program guidelines, conducted a series of focus-group discussions to solicit program ideas from persons employed in public and private abatement programs. The Metropolitan Council members have also discussed this subject in relation to their values related to the revision of the Solid Waste Policy Plan/Development Guide and grant guidelines approval. It was believed that the Council should continue to offer grants for abatement projects and that the existing funds should not be used for on-going operating expenses for existing programs.

Table III-9 shows the level of receipts anticipated from the surcharge for the years 1988 through 1992. The total anticipated receipts from the fund are $6,442,000 over the five years. In 1992, when all of the regional processing facilities are expected to be operational, the surcharge collections will be approximately one million dollars. Major areas of interest for use of the funds are:

- Public education and information programs to serve the region.
- Programs to assist the commercial and industrial sector to effectively recycle materials.
- Development of separation processes that could be used to separate recyclable materials from waste after collection and before processing.
- Development of recycling programs for use in parks and special cultural and social events (such as the state fair).

All of these programs involve large projects that require reasonably large capital investments or operational expenses. The public information program and the commercial/industrial recycling assistance programs would cost up to $250,000 each or more to implement. The region has been very successful in the development of a number of models for residential recycling where comparisons of service and abatement achieved can be readily made. These programs and many of the recyclable materials and yard-waste processing programs have also been successful after their initial assistance from the Landfill Abatement Grant Program. These projects are also smaller in scope than the ideas promoted for future grant activities.

The Council has reached a stage in the development of the abatement programs where larger projects should be funded to promote recycling and the Council has a need to develop programs for the enhancement of understanding of abatement programs and abatement progress. The regional waste stream is still poorly understood and the data collected in the region to date is insufficient to target programs to maximize abatement. The Council has also been called upon, with increasing frequency, to assist in the promotion of abatement activities on a regional scale. The Council pursuit of the public education efforts would be consistent with the objectives of the Landfill Abatement Fund.

The Council has undertaken a very limited waste-composition study to discover the quantities of materials that could be recycled. A much more comprehensive analysis will be needed to determine if waste-reduction efforts have had an impact and the extent to which abatement programs will be able to reduce the

Table III-9

PROJECTED WASTE-DISPOSAL RATES
AND SURCHARGE REVENUES FOR
1988 THROUGH 1992

	Total Waste Stream Cubic Yards	Removed Facilities* Cubic Yards	Abatement Goals Cubic Yards	Volume Landfilled** Cubic Yards	Projected Surcharge Revenues (dollars)
1988	7,537,325	1,108,952	365,950	6,062,423	1,515,605.7
1989	7,759,786	1,444,232	373,270	5,942,284	1,485,571.0
1990	7,988,847	2,602,954	380,736	5,005,157	1,251,289.2
1991	8,072,543	3,214,095	388,349	4,470,099	1,117,524.7
1992	8,157,152	3,473,579	396,116	4,287,457	1,071,864.2

* Residuals and ash have been added back into waste stream because all facilities except Reuter, Inc. will achieve less than 85% weight reduction required to avoid paying the entire surcharge.

** Volume of waste that will be disposed of in the Metropolitan Area.

need for waste processing and landfilling. The determination of abatement progress and assistance to the counties in assessing program effectiveness would contribute to abatement progress and be consistent with the objectives of the Landfill Abatement Fund.

The abatement fund should continue to appropriate funds for the management of priority recyclable materials in the Demonstration Grant Program. The grant funds should not be used to support or expand residential recycling programs. The region has a tremendous diversity of operating abatement programs from which models can be drawn eliminating the need for demonstration grants for residential programs. The development of the Local Recycling Implementation Strategy by the counties with the encumbered funds from the Landfill Abatement Fund will assure that long-term commitments will be made by counties for the support of residential recycling programs.

The Demonstration Grant Program should be used only for innovative approaches to increasing abatement in the region. The program must be evaluated carefully to assure that innovation is maintained in the program. If, at some future time, the program cannot find innovative programs to sponsor, the program should be discontinued.

The region currently needs an assessment of the alternate waste management methods attempted in the region. An evaluation of the most promising technologies for the management of yard waste, mixed municipal, waste incinerator ash, or multi-material recyclable material processing would provide needed data to the metropolitan counties for implementing programs. The evaluation, on a regional basis, would eliminate the need for individual counties to conduct trial-and-error tests of waste-management methods required to abate wastes. The program would establish applied research projects to hasten program implementation. The program would be called the Applied Research Grant program.

The concept of a penalty surcharge is discussed in the Abatement Progress section. If a penalty surcharge were implemented, these funds could be distributed in thirds to each of the following:the Metropolitan Council, the counties, and the Minnesota Pollution Control Agency. Table III-10 shows the projected revenues collected by a regional penalty surcharge. The projected revenue in 1990 would be over $18 million at a $12 per ton surcharge. The funds would decline rapidly after 1990. In the first three years, however, the total funds available would be approximately 40 million dollars. The Council's portion of these funds could be used to provide the capital to counties or private companies to establish solid-waste abatement facilities to serve the general public. The monies would provide facilities to serve the region for the next 20 years. Eligible facilities could be yard-waste processing facilities and equipment. Equipment should also be funded from the grants, specifically equipment for the separation of recyclable materials from mixed municipal waste at transfer stations that accept waste from all haulers and provide a cost reduction for waste delivered to the facility. The funds could also be used for the establishment of permanent household hazardous waste collection sites in each county, including redemption programs for materials that may require a deposit as a problem materials. This program could be called the Abatement Capital Facilities Grant Program.

Table III-10

REVENUES GENERATED BY HYPOTHETICAL
REGIONAL SURCHARGE ON WASTE LANDFILLED
AFTER 1990

Year	Tons Landfilled	Average Facility Cost ($ per ton)	Average Landfill Cost ($ per ton)	Facility Cost Minus Landfill Cost ($ per ton)	Surcharge Total (dollars)
1990	1,503,050	$56	$44	$12	$18,037,000
1991	1,342,372	$58	$48	$10	$13,424,000
1992	1,287,524	$60	$53	$ 7	$ 9,013,000

The Local Recycling Development Grant Program does not appear to be necessary after July 1, 1990. The counties have made major commitments to recycling programs that greatly exceed the required match by eight-fold. The funds provided by the Council, although significant, will represent a smaller fraction of the funds counties currently dedicate to abatement activities after designation plans are implemented. Most counties in the region are no longer experimenting with the development of abatement programs. Most programs are moving beyond implementation and will require operating funds in the future which the Council's grant programs are not intended to provide.

The grant programs that should be authorized for FY90 and 91 are shown in Table III-11. The application of funds to the Technology and Research Program and the Technical Assistance Program should be continued. In these programs new and innovative approaches must be continually developed to further Council abatement objectives. The Council needs to promote programs that will continue to expand the breadth and diversity of abatement programs to maximize abatement and further reduce the need for land disposal of waste in the region.

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Table III-11

GRANT PROGRAMS TO BE AUTHORIZED FOR FY90-91

Existing Programs:

Local Recycling Development Grant Program
Demonstration Grant Program
Technology and Research Grant Program
Technical Assistance Grant Program
Administrative Expenses