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FISCAL YEAR 1989 ABATEMENT PROGRESS REPORT FOR THE TWIN CITIES METROPOLITAN AREA

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

October 1989

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



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SUMMARY

In fiscal 1989, the region generated an estimated 2,662,000 tons of solid waste, 2.3 percent more than the waste estimated for FY88. The annual growth rate projected by the Metropolitan Council's 1985 policy plan was one percent. Thus, the amount of solid waste generated is increasing faster than anticipated.

A waste composition study, conducted for the Council by Cal Recovery Systems in August 1988, indicated that residential recycling programs collecting traditional recyclable materials (newspaper, beverage cans and glass) would be unable to attain a 35 percent recycling goal, even with composted yard waste added in. To reach the 35 percent goal, such materials as plastics, corrugated cardboard and metal food containers will have to be added to residential programs and commercial/ industrial/institutional recycling will need to be expanded.

In fiscal 1989, counties and cities trying to meet goals for source separation started many new recyclables collection programs. But when newspaper market prices tumbled to zero and even below last April, they encountered the reality that collection is only one part of the recycling loop. Some collection programs were temporarily delayed or halted as a result.

Still the region reported recycling a total of 12.4 percent of the waste stream through source separation programs. In addition, an estimated 14.7 percent of the total waste generated was managed through undocumented programs, yielding a regional total of 27.1 percent recycling. The counties indicate that with continued program development and cooperation, the 35 percent recycling goal set by the recently enacted SCORE* legislation will be attainable by 1993, provided that markets for recyclable materials are secured.

Because of delays in the startup of two centralized processing facilities, the region did not achieve the centralized processing goal of 25 to 57 percent established in the 1985 policy plan. In addition, experience at currently operating facilities indicates that a larger than expected volume of the waste received at facilities is landfilled as rejects and residuals (46 percent rather than 23 percent). If the remaining processing facilities come on line during the next two years and if current facilities are able to increase the waste they actually process, the region will process approximately 50 percent of the generated waste stream by 1993.

*Select Committee on Recycling and the Environment

Thus, by 1993 the region will be able to manage 85 percent of the waste stream through recycling and centralized processing programs, 15 percent of the waste stream will be disposed of as unprocessed wastes and 23 percent of the 85 percent processed will be disposed of as ash, rejects and residuals. In addition, these percentages will be based on a waste stream that is larger than was projected in 1985.

The result is that, in spite of significant achievements in efforts to abate landfill use, the region will exhaust its remaining landfill capacity by the end of 1993, much sooner than anticipated in the 1985 policy plan. In addition to more landfill space for mixed municipal solid waste, the region will require landfill capacity for ash from processing facilities. Concerns over liability issues are prompting counties and facilities to seek separate locations for the disposal of each facility's ash, rather than combining ash in a single disposal site.

Therefore, the candidate landfill siting process must be completed without delay. If the process proceeds as rapidly as possible, given its complex nature, there will be barely enough time to select, acquire, develop and begin operation of a new landfill before existing capacity is exhausted (1993).

CONCLUSIONS

The region has made progress toward landfill abatement through the recycling and centralized processing of mixed municipal solid waste. Further progress will require taking steps to manage each component of the waste stream in the most appropriate way. This, in turn, will require increased cooperation among all those responsible for solid waste management and coordination among the various components of the system.

Increased efforts to ensure that markets exist for recyclable materials, energy products, and ash and residuals will be necessary if the region is to achieve its goals.

Landfills remain an integral part of the region's solid waste management system and, in spite of progress made, existing capacity will be exhausted in 1993. Currently permitted landfills will not be allowed to dispose of ash from processing facilities. It is, therefore, imperative that the landfill siting process be concluded without delay.

Based on the information contained in this report, the Metropolitan Council is not seeking additional legislative authority or a realignment of authority at this time. The Council currently has the authority to ensure that counties are making maximum efforts to abate the use of landfills through its charge to define processing, to certify waste as unprocessible and to set policies for the management of ash and residuals. The landfill siting process exists in current legislation and simply needs to be completed. The Metropolitan Council is presently revising its <u>Solid Waste Development</u> <u>Guide/Policy Plan</u>. Further discussions with all sectors of the waste management system of the issues identified in this report will be a part of the revision process. If this process identifies a need for additional legislative action, such recommendations will be contained in the policy plan. Adjustments and refinements to waste management practices suggested by this report will be reflected in revised policies and the regional system plan.

Major changes potentially include:

the redefinition of solid waste to be managed to include all waste generated rather than just mixed municipal solid waste;

the setting of goals more closely related to evaluating progress in terms of environmental protection and the abatement of landfills;

and an increased emphasis on assessing the economic impact of waste management components. This would include identifying places where resources could be shared to accomplish higher levels of landfill abatement.

Finally, the issues identified in this report are currently being addressed in several other forums. The Regional Solid Waste Management Task Force is considering ways to meet the need for more cooperation and coordination of the region's solid waste management system as part of its charge. This group, coordinated by Council staff, will be issuing a report in November. The Council will be an active member of the Markets Advisory Council, to be organized soon by the Office of Waste Management to focus on market development issues. Also, in another approach to measure the effectiveness of the system, the Council will undertake a comprehensive evaluation of its grants programs during 1990. All of these efforts will be considered in the Council's plan revision process.

ABOUT THIS REPORT

This is the fifth annual <u>Abatement Progress Report</u> to the Legislative Commission on Waste Management. This year's report has made one major change from previous reports. In the past the report has been done on a calendar year basis, but because of the report's deadline to the Legislative Commission on Waste Management (November 1), the data consisted of actual numbers for the first six months of the calendar year and estimates for the last six months. The 1989 report is based on a fiscal year of July 1, 1988 through June 30, 1989, with all county data being numbers based on experience, rather than projections of future performance. This shift from a calendar year to a fiscal year will not result in any time period being unreported to the legislature, and reporting actual results may be more helpful to policymakers than the projections used before.

The Abatement Progress Report is required by the Waste Management Act of 1980, as amended, Minn. Stat. 473.149, Subd. 6, which 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 contains four major sections, on 1) the generation and composition of the waste stream; 2) recycling; 3) centralized processing and 4) landfills. Each section reports on the current status of the subject matter, the amount of abatement achieved, trends and analysis. The appendix contains detailed information about source separation programs reported by county and by city within each county. The report is based on data from the seven metropolitan counties, the Council, its 1985 solid waste policy plan and its consultants.

WASTE STREAM GENERATION AND COMPOSITION

The <u>Abatement Progress Report</u> for fiscal year 1989 is being submitted to the Legislative Commission on Waste Management during a period of rapid transition and much activity within the solid waste management system.

Prompted in part by concern over recycling markets, but also by a growing sense that the solid waste management system could operate more successfully through increased intercounty cooperation, 11 entities formed a Regional Solid Waste Management Task Force which began meeting in June. They are the seven metropolitan counties, the Metropolitan Council, the Minnesota Pollution Control Agency, the Office of Waste Management and the Legislative Commission on Waste Management.

The group's ambitious agenda includes addressing both short-term issues (newspapers and yard waste) and long-term issues (an assessment of current roles within the solid waste management system). A report on these issues, including the task force's recommendations to the Metropolitan Council, is to be completed by the end of November 1989.

The Metropolitan Council is in the process of revising its 1985 <u>Solid Waste</u> <u>Development Guide/Policy Plan</u>. This document will set the course for future solid waste management in the region, based on the increased understanding of the solid waste management system gained over the last five years and the increasing data base available.

The region has made significant progress toward environmentally sound management of solid waste and a reduced volume of materials disposed of in the region's landfills. In 1985 the region relied on landfills to dispose of 90 percent of the mixed municipal solid waste it generated. Today an estimated 40 percent of the region's waste is managed through recycling and centralized processing. By 1993, if the system is working as planned, that figure is expected to reach 85 percent, with 15 percent of the waste generated being landfilled unprocessed. Some 23 percent of the processed waste stream will be landfilled as ash, residuals and rejects from processing facilities.

STATUS - WASTE GENERATION IN THE METROPOLITAN AREA

In 1988 the Metropolitan Council commissioned a study of the Metropolitan Area's waste stream to establish a more current and reliable base of data on both the amount of waste generated in the region and the characteristics of the major components in the waste stream. The research, conducted by Cal Recovery Systems Inc., developed estimates on the average amount of waste generated per capita and per employee in the region and estimated each county's contribution to the total regional waste stream.

Based on the Cal Recovery waste generation rates and 1989 Metropolitan Council population and employment estimates, the estimate of the total regional waste stream in FY1989 is 2,662,000 tons and represents an increase of 2.3 percent over FY1988

estimates. This figure differs from the 2,062,000 tons (FY89 average) projected in the 1985 policy plan. Following are some reasons for the difference:

- The 1985 figure did not count existing recycling; it only dealt with waste being landfilled in 1985.
- o The 1985 figure included only mixed MSW, so wastes excluded by law from mixed MSW (tires, oil and lead-acid batteries) were not included.
- The annual rate of growth in the waste stream was expected to be about 1%. The actual rate of growth experienced was 2.3%.

An estimate of the tonnages represented by materials managed separately from mixed municipal solid waste is included in the 1989 Cal Recovery/Metropolitan Council figure in an attempt to identify the total solid waste stream generated. The council and counties are aware that a portion of the waste stream is managed outside the present data collection system for solid waste--i.e. it is generated, managed, but not specifically documented. For example, wood waste from a furniture manufacturer might be delivered to a nearby tree nursery where the waste is bundled and sold for use as tree stakes. If for some reason the separate management of that particular waste no longer occurred, the material would likely appear in the MSW stream.

Figure 1 shows the estimated FY1989 waste generation by county. Hennepin County generates over half of the Metropolitan Area's waste while Ramsey and Dakota Counties' combined waste accounts for another third of the total.



Figure 1 1989 ESTIMATED WASTE GENERATION

Source: Metropolitan Council staff

TRENDS IN WASTE GENERATION

The generation of waste is expected to increase at an average annual rate of 2.3 percent until 1990 and at a rate of 1.6 percent from 1990 to 2010. The leveling off after 1990 reflects the Metropolitan Council's population, household and employment forecasts. The waste generation forecasts are based upon the assumption that current regional rates per capita, of 2.6 pounds per day for residential and 7 pounds per day for commercial/industrial, will increase in the next 10 years to 2.8 and 7.5, respectively.

Successful efforts to reduce waste might change this prediction. Present government efforts are limited, however, to changing procurement practices and public education. These efforts alone will probably not result in the required 3 percent reduction in waste generation. The difficulty of measuring waste reduction further complicates efforts to document its effects, but current attempts at waste reduction are losing ground to increases in waste volume. (The SCORE legislation contains requirements for statewide waste reduction efforts.)

STATUS - COMPOSITION OF REGIONAL WASTE

In August 1988 Cal Recovery Systems analyzed the composition of waste at the Ramsey/Washington Central Processing Facility in Newport. Sixty trucks, hauling waste from residential, commercial and industrial sources, were sampled. Their contents were dumped in a section of the tipping floor, sorted into 22 categories and weighed.

Figures 2 and 3 summarize the major findings of that analysis. It should be stressed that these findings represent data collected at one facility in one two-week period. They are not necessarily representative of the entire regional waste stream, which can have significant seasonal variations in volume and composition.





The waste composition data suggest it would be impossible to achieve a 35 percent recycling goal with traditional residential recycling programs alone. The analysis was performed on waste coming from two counties where current <u>residential</u> recycling efforts are achieving an estimated average of 2.8 percent abatement, according to 1988 annual reports. At that level of recycling, the total of newspapers, glass, and aluminum and bi-metal beverage cans remaining in the residential waste stream arriving at the facility equals only 12.2 percent of the residential stream. Adding yard waste to the equation would increase the total to 24 percent (using an 11.8 percent estimate for yard waste).

Removing 100 percent of all remaining traditional residential recyclables and yard waste would thus achieve 26.8 percent abatement when combined with current recycling levels. But it is highly unlikely that 100 percent removal could be achieved in the near future. Adding less traditional materials, such as metal food containers, plastics and corrugated cardboard, to residential recycling programs will be necessary to increase this percentage.

Reaching a 35 percent recycling level will also require increasing commercial/ industrial/ institutional recycling to capture the high percentages of corrugated and other paper still found in the commercial/industrial waste stream. The documented commercial and industrial recycling occurring in Ramsey and Washington Counties managed an average of 5.5 percent of the waste stream. At that level of recycling, the commercial waste stream at the facility still contained 61 percent paper; 22.5 percent of the total commercial waste was corrugated. The industrial waste stream was measured as 53 percent paper, with 32.7 percent of the total industrial stream corrugated.

TRENDS IN WASTE COMPOSITION

While it is difficult to forecast the characteristics of the waste stream, recent trends in waste composition point to a continued increase in paper products, plastics and aluminum containers. By the year 2000, 90 percent of the waste stream is likely to consist of organic materials--compostable or burnable.

The future generation and composition of solid waste in this region, as elsewhere, could be substantially changed by a number of factors that can't be predicted: changes in consumer behavior, fluctuations in the economy, technological advances or legislative enactments. By mandate of the 1988 Minnesota Legislature, for example, yard waste may not be disposed of in municipal solid waste or in disposal facilities in the Metropolitan Area after January 1, 1990. Enforcing this legislation will significantly alter the composition of the area's mixed municipal waste stream, since yard waste now makes up over 10 percent of that stream. Similarly, packaging ordinances recently passed in Minneapolis, St. Paul and a number of other cities in the region could reduce the amount of plastic being generated and disposed of locally.

ANALYSIS

An analysis of the 1988 consultant data, as well as 1989 data provided by the counties, allows some general conclusions about the size and characteristics of the solid waste stream in the Twin Cities Metropolitan Area:

o Reported solid waste generation in the region has increased approximately 58 percent from 1973 to 1987. How much of this increase can be attributed to improved reporting and measurement methods is not known.

o Commercial and industrial waste generation has increased at a faster rate than residential.

o The total per capita waste generation rates are highest in areas of significant population and business growth.

o Paper and plastic wastes are estimated to be the fastest- growing components of the region's waste stream.

o Approximately 40 percent of the region's waste stream is potentially recyclable, not counting yard waste.

o The waste stream is expected to grow at an annual rate of 1.6 percent between 1990 and 2010, while population growth during the same period is only expected to average 0.7 percent per year.

RECYCLING

The Council's <u>Solid Waste Management Development Guide and Policy Plan</u>, adopted in 1985, set a goal for one method of recycling, source separation, which it defined as

separation of recyclable or compostable materials by the waste generator prior to collection.

The Council did not set a recycling goal per se. This has caused some confusion about terms and measurements, described in the following discussion.

Recycling is more than source separation. Source separation was the focus of Council goals because it produced clean, marketable materials, increased public awareness of solid waste issues, and built support for environmentally sound solid waste management. Recycling, however, can also occur at a transfer station, a materials recovery facility or a resource recovery facility. Reuter, Inc., is an example of a resource recovery facility that is separating and recycling solid waste. The company reported selling 5,783 tons of recyclables in 1988. But, since the waste was not source separated before collection, the waste recycled cannot be counted towards meeting the region's <u>source separation</u> goal.

The Council's focus in the policy plan is <u>mixed municipal solid waste</u>-- those wastes collected <u>in aggregate</u> from generators. When a material is collected and managed <u>separately</u>, it is not considered part of <u>mixed</u> municipal solid waste, although it <u>is</u> solid waste. Therefore, even if that material is recycled, it does not count toward the county or regional source separation objective.

When a business or industry re-uses internally what might otherwise become waste, such re-use constitutes waste reduction rather than source separated recycling. Further, the 1985 waste generation figures included only waste that was being landfilled. If the industry had always practiced such reuse, or began doing so before the policy plan was adopted in 1985, the material would not have been included in the total amount of waste requiring abatement. For this reason, its management would not be counted toward meeting the county or regional waste reduction goal.

Similar reasoning has been applied to materials source separated before 1985. These materials were not included in the waste generation figures upon which goals were based. Therefore, counties are allowed to count only new or expanded recycling, occurring since 1985, toward meeting their source separation objectives.

The policy plan estimated that mixed municipal solid waste to be managed in the Metropolitan Area would be approximately 2,072,000 tons in 1989. While the policy plan did not calculate waste generation on a fiscal-year basis, such a figure has been calculated for purposes of this report. It would be 2,062,000 tons in FY89. The 1989 Council staff estimate of mixed municipal solid waste actually managed in FY89 is 2,271,000 tons. This is 10 percent higher than the generation projections based on the 1985 policy plan. This increase in actual waste managed should be noted for the impact it has on assessing how well of goals were achieved.

The Cal Recovery/Council staff estimate of the total amount of waste generated in FY89 is 2,662,000 tons. The difference between that estimate and the 2,271,000 tons accounted for in the present management system data equals 14.7 percent of the total. This 14.7 percent represents a "best guess" as to how much waste is being managed by unrecorded recycling and separate management activity.

The source separation objectives in the policy plan can also be revised to reflect fiscal rather than calendar years. The FY89 source separation objective would be 11 percent of the wastes generated during the period. This objective--approximately 227,000 tons in FY89 according to 1985 projections, or 250,000 tons according to current waste generation estimates--was expected to be met by a combination of residential, commercial, industrial and institutional source separated recycling.

The Council does not identify source separation objectives for the various waste producing sectors. Each county was given the flexibility to determine what combination of residential, commercial, industrial and institutional recycling should be used to meet its overall source separation objective.

STATUS OF SOURCE SEPARATED RECYCLING PROGRAMS

The shift in this report from a calendar year to a fiscal year offers an opportunity to assess the progress of the counties toward the 1989 calendar-year goals in the 1985 policy plan. Both the counties and the Council are currently operating within the framework of that plan--a document that promoted the development of the present successful recyclables collection system, but that also contained some erroneous assumptions. One of these was underestimating the size of the waste stream.

As shown by county annual reports using primarily county solid waste master plan estimates of the total waste stream, the counties met or surpassed their source separation goals for calendar year 1988. Even when using the larger waste generation estimates produced by totaling the amount of waste actually accounted for in 1988, the region met its 1988 goal of 9 percent. Table 1 compares source separation success using both estimates of waste generation.

	Waste Stream Reported 1988	Source Separated	Percent Source	1098	Waste Stream Accounted	Source Separated	Percent Source
County	(Tons)	(Tons)	in 1988	<u> </u>	(Tons)	10 1988 (Tons)	in 1988
Anoka	184,946	24,938	13.5%	9.0%	194,200	24,938	12.8%
Carver	28,321	5,172	18.2%	8.0%	33,100	5,172	15.6%
Dakota	263,998	23,851	9.0%	9.0%	221,600	23,851	10.8%
Hennepin	991,128	115,962	11.7%	9.0%	1,192,600	115,962	9.7%
Ramsey	461,600	54,024	11.7%	11.0%	550,600	54,024	9.8%
Scott	43,806	18,459	* 42.1%	8.0%	45,700	18,459	* 40.4%
Washington	98,981	8,897	9.0%	8.0%	106,200	8,897	8.4%
Metro Area	2.072.840	251.303	12.1%	9.0%	2.344.000	251.303	10.7%

Table 1 CALENDAR YEAR 1988 SOURCE SEPARATION

*Includes approximately 15,000 tons of Comm./Indust. recycling and/or waste reduction that may not actually qualify as post 1985 source separated recycling of mixed MSW. To achieve the higher 1989 annual source separation levels set by the 1985 policy plan, the counties' fiscal year data should show an increase in percentage abated. Table 2 assumes a midyear, or fiscal '89, source separation goal of 11 percent, half way between the 1988 and 1989 goals. The table compares FY89 source separation results using 1985 policy plan projections of total waste generated, with the results using the total waste stream actually accounted for in FY89. Even with this higher base (10 percent higher than the '85 base), the region achieves its fiscal-year goal.

The increase in tonnages recycled was accomplished in spite of the newspaper marketing problems that occurred in the last half of the fiscal year. The fact that Ramsey, Washington and Hennepin Counties are slightly below their midyear goal (using the higher base) may indicate how sensitive collection programs are to the availability of markets, and how they were affected by the temporary disruption of some collection programs in spring 1989 because of the newspaper glut. (Also, Council staff used one half of calendar year 1988 commercial/industrial tonnages when figuring FY89 totals, which might be another factor influencing goal attainment.)

	Waste Stream Fiscal 1989 from 1985 Projections	Source Separated Fiscal 1989	Source Separated Fiscal 1080	Fiscal 1080	Waste Stream Accounted for in Fiscal 1989	Source Separated Fiscal 1989	Source Separated Fiscal 1989
County	(Tons)	(Tons)	(Percent)	Goal	(Tons)	(Tons)	(Percent)
Anoka	171,500	30,215	17.6%	10.5%	189,000	30,215	16.0%
Carver	29,500	5,520	18.7%	9.5%	32,500	5,520	17.0%
Dakota	196,500	31,868	16.2%	10.0%	216,500	31,868	14.7%
Hennepin	1,047,000	121,526	11.6%	11.02	1,153,700	121,526	10.5%
Ramsey	482,500	62,950	13.0%	13.0%	531,700	62,950	11.8%
Scott	40,000	18,459 *	46.1%	9.5%	44,100	18,459	* 41.9%
Washington	94,000	10,251	10.9%	10.0%	103,600	10,251	9.9%
Metro Area	2 061 000	280 780	17 6	11 07	2 271 100	280 780	17 / 4

Table 2 FISCAL YEAR 1989 SOURCE SEPARATION

*Includes approximately 15,000 tons of Comm./Indust. recycling and/or waste reduction that may not actually qualify as post 1985 source separated recycling of mixed MSW.

SOURCE: County Recycling Implementation Progress Reports, September 1989

The information that follows reports on the status of source separated recycling for residential, commercial, industrial and institutional programs county by county, and for the region as a whole.

RESIDENTIAL SOURCE SEPARATION WASTE ABATEMENT

The details of each county's residential programs are reported by city in Appendix A. Several counties began new curbside and drop-off programs or expanded existing programs in the latter half of FY89. These efforts resulted in significant increases in tonnages abated during the last half of the year. To highlight that fact, data is reported for July 1, 1988 - Dec. 31, 1988, and Jan. 1, 1989 - June 30, 1989. Figures 4 - 5 (pages 14 and 15) summarize the efforts of each county and the region as a whole. Residential source separation programs accounted for 40 percent of total source separated recycling. Fully 92 percent of the region's population was served by curbside source separation programs as of June 30, 1989. In addition, drop-off collection locations provide recycling opportunities to most rural areas of the region.

Data from residential source separation programs is the most reliable information presently available, although it is rarely audited--a fact which applies to almost all solid waste data collected and adds to doubts about the accuracy of measurement. Cities and counties usually require curbside recyclers and haulers to keep records on the types and quantities of materials collected as a condition of the license, permit or contract. (The weight by type of material is not known in all cases, and figures reported may be based on estimates.) Some cities and counties provide incentives that encourage the collector to bring the source separated material to a particular location or facility, where materials are weighed, sorted and processed for market.

Many multi-material drop-off centers are owned and operated by cities or counties, or operated under contract, with records required on the types and quantities of materials. In all these situations, tonnage data is based on actual weight measured at certified scales and it is readily available to the counties and the Council. Because pick-up by individual contractors at larger, multifamily buildings is usually not licensed or regulated by counties or communities, data on those source separation programs is sporadic and less reliable.

The counties continue to increase the number of households served by curbside collection programs, and to promote recycling as the preferred method for managing solid waste. Many efforts are being made to increase participation through a variety of features such as weekly collection, collection on the same day as garbage pickup, containers provided for storing recyclables, volume-based garbage collection fees, and drawings awarding cash to people who recycle. Table 3 indicates the number of curbside and drop-off programs available in each county as of June 30, 1989, compared with the number reported in last year's Abatement Progress Report.



Figure 4



Figure 5

	Table 3			
REGIONAL	SOURCE-SEPARATION	ABATEMENT	PROGRAMS,	1989

			Total			Total	Total
	Curbside	Drop-Off	County	Curbside	Drop-Off	County	County
County	Recycling	Recycling	Recycling	Yard Waste	Yard Waste	Yard Waste	Programs
Anoka	10	19	29	5	3	8	37
Carver	9	3	12	2	11	13	25
Dakota	33	30	63	11	5	16	79
Kennepin	43	18	61	38	6	44	105
Ramsey	16	3	19	3	6	9	28
Scott	19	5	24	2	1	3	27
Washington	15	14	29	6	5	11	40
TOTAL	145	92	237	67	37	104	341

SOURCE: County Recycling Implementation Progress Reports, Sept. 1989

			Total			Total	Total
	Curbside	Drop-Off	County	Curbside	Drop-Off	County	County
County	Recycling	Recycling	Recycling	Yard Waste	Yard Waste	Yard Waste	Programs
Anoka	4	7	11	2	2	4	8
Carver	4	3	7	7	4	11	22
Dakota	0	10	10	1	3	4	8
Hennepin	17	26	43	6	4	10	20
Ramsey	13	3	16	3	5	8	16
Scott	2	6	8	0	0	0	0
Washington	3	7	10	4	5	9	18
TOTAL	43	62	105	23	23	46	92

REGIONAL SOURCE-SEPARATION ABATEMENT PROGRAMS, 1987

SOURCES: County Annual Reports 1987; and 1988 Abatement Progress Report

The focus of recycling efforts in the region in FY89 continued to be on the collection of recyclable materials, with marketing generally handled by the collector. Dakota County, however, took the additional step of opening a recyclables collection center to receive collected materials and process or aggregate them for market. Hennepin County is planning to implement a materials recovery facility which would operate in a similar fashion to market Hennepin County recyclables. The increasing supply of recyclable materials and concerns about the ability to market these larger volumes has prompted discussions at the regional level of the role of materials recovery facilities in the solid waste management system.

In another regional effort, the Metropolitan Council, the seven counties and representatives from the Office of Waste Management solid waste education program have formed a Metro Recycling Education Task Force. This group has worked together to develop a public education campaign with a regional focus. One major accomplishment has been a Metro Recycling Hot Line operated by The Connection^R.

This service provides a single telephone number (922-9000) which anyone in the Metropolitan Area can call for information about recycling and the specific services offered in their own neighborhood. This effort is intended to support individual counties' public education campaigns to promote recycling, such as the Hennepin County recycling ads which ran in the <u>Star Tribune</u> in the spring of 1989.

Yard Waste

Putting yard waste in landfills or waste processing facilities (except for the purpose of composting) will be prohibited as of January 1, 1990, according to a new state law (Minn. Stat. 115A.931). The cities of Shakopee, Woodbury, and North St. Paul and Dakota County have moved ahead and already ban yard waste from their waste stream. This ban, if successfully implemented, will do more than any other single program to reduce the waste going to landfills and processing facilities, because yard waste alone represents more than 10 percent of the waste stream. It will also increase the need for compost sites. The developing management system for composting is a focus of regional concern as counties deal with such issues as additional costs and the role of the private sector.

Figure 6 illustrates how much yard waste was separated in FY89 and how much is anticipated in calendar year 1990 when the effects of the ban will be evident. Counties differ in their assessment of the impacts of this ban; some anticipate no problems with implementation while others are very concerned.



Figure 6 ANTICIPATED EFFECTS OF YARD WASTE BAN ON YARD WASTE COLLECTION

• Estimated range: 50,000-80,000

SOURCES: County Recycling Implementation Progress Reports, September 1989; staff research for the Regional Solid Waste Management Task Force

Both the Metropolitan Council and the Regional Solid Waste Management Task Force, established in June, view yard waste management as a critical short-term issue. They have expressed concern that excess supplies of yard waste could produce problems with compost siting and marketing if the ban takes effect without sufficient planning. Council staff have offered to assist the counties with their planning.

One potential problem is that the counties were planning to deal with the ban individually, while methods planned by one county were not always compatible with those planned by a neighboring county. For instance, when one county considered having private vendors establish composting sites and manage the yard waste, it found vendors reluctant to make the necessary investments because neighboring counties were planning to purchase the composting sites and subsidize the tipping fee at those sites. The private vendors could not compete with county-subsidized tipping fees and would have no way of guaranteeing a supply of yard waste when haulers could deliver waste less expensively to the neighboring county's subsidized site. Recognizing the difficulties in this variety of approaches, the task force adopted a recommendation that all county yard waste subsidies be phased out by 1993.

Highlights of County Residential Source Separation Programs

The following brief summaries were provided by staff from each county. They highlight achievements the staff felt were most noteworthy for the counties' individual programs.

Anoka County

Anoka County is committed to an integrated solid waste management system. In this system, the county strives to meet the mandated goals from the state legislature. A balanced system of waste reduction, recycling, composting, waste-to-energy and landfilling will provide responsible waste management for county residents and businesses. Anoka County has seen many changes in the last year. <u>All</u> county residents are able to recycle in their cities at the curb or at drop-off recycling centers.

A dramatic increase in the tonnage recycled by residents is evident. From 2,387 tons recycled during the July-December, 1988, period to 3,648 tons recycled January-June, 1989--a 65 percent increase.

Anoka County residents composted 3,421 tons of yard waste this spring at yard waste sites, where no bags are allowed. Only 2,575 tons of yard waste was collected in all of 1988.

By the end of 1989, 64 percent of Anoka County households will have curbside recycling. The resource recovery plant daily will be lighting 30,000 homes and recycling 65 tons of ferrous. Residents, businesses and schools not recycling now will certainly look for ways to reduce waste as disposal costs increase.

The county's budget for solid waste recycling, composting and waste reduction has gone from \$394,339 in calendar year 1988 to a projected \$1,529,635 for calendar year 1990.

Carver County

All Carver County cities now have both recycling and yard waste composting programs available to their residents. Nine of twelve cities have curbside collection of recyclables with the remainder served by drop off sites. Major changes in 1989 have included the implementation of a twice a month collection in Chanhassen and expanded hours at the Chaska Recycling Center. The Chaska Recycling Center also serves as a collection and marketing center for materials from the smaller programs.

Late in fiscal year 1989, the county purchased equipment and began shredding newspaper for use as animal bedding due to the much publicized problems with paper markets. The county will develop this market so that more alternatives and options are available for the paper collected from county programs.

Dakota County

In FY89 Dakota County completed its Recycling Implementation Strategy and laid the groundwork for a comprehensive county-wide abatement program which is a cooperative effort between the county, local municipalities and the private sector including the waste haulers. This program includes convenient residential recycling, aggressive public education, a Recyclables Collection Center and a county yard waste compost site.

In response to directives and financial incentives provided by the county, as of April 1, 1989, <u>all</u> communities offer curbside recycling service with containers to all single family through fourplex residences and some multi-family dwellings. For the majority of the programs, collection is weekly on the same day garbage is collected; garbage haulers are required to provide the service as a condition of licensure or through contract.

In rural areas, the recycling program is operated through an innovative joint powers agreement between the thirteen townships, the six rural cities, and the county.

Dakota County established a Recyclables Collection Center and contracted with a private vendor to operate the facility in FY89. The center, which processes and markets over 800 tons of recyclables per month, serves as an outlet for haulers collecting recyclables within the county; payments for materials are adjusted quarterly. The center has allowed the county to aggressively pursue and develop markets for the materials collected. One example of the effectiveness of this approach is the county's response to the newspaper crisis in April. None of the newly established recycling programs was disrupted, and all of the collected newsprint was sold. As part of this effort, the county initiated a new program to shred and bale newsprint for use as animal bedding.

In FY89 a centralized county yard waste compost site was also opened. The compost site is operated by a private vendor under contract with the county; leaves, grass, garden wastes and prunings up to four inches in diameter are accepted from residents and haulers. In the period from April through June 1989, approximately 30,000 cubic yards of material was accepted at the site. Volume accepted at the site is expected to increase greatly once the county's August 1 disposal ban takes effect.

Hennepin County

Voluntary curbside recycling activities began in the 45 Hennepin County municipalities in 1982. By 1986, five cities were voluntarily providing either pilot or comprehensive curbside recycling programs. As a result of the implementation of the county's Solid Waste Master Plan in 1985, recycling drop-off activities accelerated and cities began their own implementation plans for comprehensive curbside recycling. By 1987, another 17 cities were providing curbside programs, or 38 percent of the total cities in Hennepin County. By the end of 1988, another eight cities were providing curbside service, or 56 percent of the county's municipalities. From January through August, 1989, fifteen more cities implemented curbside programs bringing the total number of cities with curbside to 40, or 89 percent of the total cities. Of the estimated 415,000 households in Hennepin County, 305,000 single through 4-plex, or 73 percent, are receiving curbside service. The remaining five rural cities are providing drop-off recycling opportunities for their residents. (Fort Snelling and Chanhassen have been omitted from this summary.)

During the time period of this report, the majority of the 25 cities providing curbside service had longstanding contracts with SuperCycle. Due to the loss of this vendor, recycling contracts were replaced with available vendors or city crews with little loss of service. Collection rates with SuperCycle did not reflect processing and marketing costs, and rates nearly doubled or tripled for most cities.

Many of the cities are providing bi-monthly, bi-weekly or weekly curbside recyclable and yard waste collection separate from refuse collection. The county is funding 50-80 percent of the collection, administration and promotion costs and all container purchases. In addition, the county funded a pilot collection for plastics in St. Louis Park, and a curbside/retail household battery collection pilot in Golden Valley and New Hope.

Residential recycling tonnages reached 16,473 tons during the July-December, 1988 period. A 20 percent increase was achieved with the municipalities recycling 19,724 tons during the period January-June, 1989.

Reported tonnages for yard waste during the July-December, 1988 period reached 11,853 tons. Another 17,357 tons were reported for January-June, 1989, a 46 percent increase in yard waste composting over the July-December, 1988 period.

Hennepin County contracted with the firm of Padilla, Spear and Beardsley to design a \$250,000 advertising program to promote recycling. An intense campaign was launched in March, 1989, using television, radio, newspapers and busboards. The television spots

will be aired again in November, 1989, following the three week newspaper and radio ad campaign sponsored by the Metropolitan Council. Research was done by telephone survey immediately following the campaign in March and April to identify the most powerful ads and media form. A similar survey will be conducted following the November campaign.

A Recycling Task Force was formed in July, 1988, consisting of two elected officials from each commissioner's district, to discuss and make recommendations to the county board on recycling policies and funding issues. The county will implement a voluntary retail button battery collection program by the end of 1989. In addition, the Council on Solid Waste Solutions has agreed to assist Hennepin County in designing and funding three plastic collection programs that will analyze the collection methods, promotional materials and citizen responses to a plastic recycling program. These pilot projects will also determine the amount and type of materials that are recoverable.

In October, the county issued an RFP/RFQ for a 200 ton per day materials recovery facility. The vendor selected will use a county site or provide their own, and will be responsible for marketing and processing materials received by haulers at the facility. It is planned to be in operation by September, 1990.

Ramsey County

In FY89 Ramsey County completed the expansion of its curbside recycling program so that all cities had twice monthly curbside recycling service. Also, about 75 percent of apartment units in the county have recycling services.

After an aggressive public education program was launched in the fall of 1988, recycling tonnage increased by 20 percent. Just as the recycling program was greatly increasing the tonnage, the program was hit with the demise of the company providing most of the curbside collection and processing services in Ramsey County. In addition, the major newspaper market stopped taking newspaper. Fortunately, recycling services were not interrupted, but recycling collection costs have increased by about 20 percent.

The three lessons Ramsey County has learned in FY89 are:

- 1. The true costs of curbside recycling are not yet known.
- 2. The public will participate in convenient recycling programs.
- 3. More newspaper market capacity is needed.

Scott County

On January 1, 1989, Scott County established the first county-wide recycling program in Minnesota. This program made it possible for every resident and commercial/industrial business in the county to recycle. The recycling program was made possible through the cooperation of the refuse haulers that serve the county and those cities that contract for service.

To accomplish this, the county licensed the refuse haulers that provide collection service in the county. One of the license conditions was that they provide their customers with recycling services for specified materials. Haulers were also required to provide a financial incentive to customers to encourage recycling. Residential customers were thus provided an opportunity to recycle newspaper, glass food and beverage containers, and aluminum and bi-metal beverage containers. Commercial and industrial establishments were similarly offered the opportunity with an incentive to recycle office paper and corrugated. The ordinance allowed for some latitude in how haulers provided their service to accommodate route and equipment differences.

To offset start-up costs and provide (in addition to the mandate) a financial incentive to haulers, the county provides a Performance Enhancement Recycling Cost Share (PERCS) to the refuse haulers and recyclable collectors. The PERCS, or tonnage, rebate is currently \$16 per ton and includes the mandated items: newspaper, glass food and beverage containers, metal beverage containers, office paper and corrugated. In July the county added plastics and steel/tin food containers as eligible for PERCS, even though they are not currently mandated recyclables. The county also pays \$15 per appliance to licensed refuse haulers and recyclable collectors who pick up or arrange for pickup and recycling of appliances from residents.

The acceptance of this program by both the residents and the refuse haulers and recyclable collectors is demonstrated by the almost 275 percent increase in tonnage of recyclables collected, and the average 45 percent participation rate for county residents in the first six months of the program.

Washington County

During FY89 Washington County adopted its Recycling Implementation Strategy (RIS) which contains very aggressive strategies to ensure the development of permanent local recycling programs, including residential and commercial recycling and yard waste programs. The RIS outlined suggested residential recycling programs for the 32 cities and townships within the county. These included curbside recycling programs for 25 of the cities and townships, and drop-off recycling programs for 7.

By the end of FY89, 14 of the 25 cities and townships have a curbside recycling program. Also, 5 of the 7 cities and townships have a drop-off program and one of the 7 developed a curbside recycling service. By the end of calendar year 1989, it is expected that 27 cities and townships will have a curbside recycling program and 5 will have a drop-off recycling program.

During FY89 a substantial amount (4,024 tons) of yard waste was collected and composted. Five community or county yard waste drop-off sites were available for citizens' use. Also, as part of a demonstration grant from the Metropolitan Council to Compost Concepts and a county grant, the city of Woodbury instituted a ban on yard waste a year early. All yard waste that required curbside pickup was required to be placed in a special biodegradable cornstarch bag purchased by the resident at a local store. During the spring of 1989 more than 51,250 bags were sold and collected in Woodbury, with an average weight of 30 pounds per bag, for a total of 770 tons.

Markets for Recycled Materials

This year the Metropolitan Area and the rest of the nation learned the critically important lesson that setting up systems to collect recyclables is only the first step in building a sustainable recycling effort. The second, and more difficult, task is finding markets for recycled materials. The dramatic changes in regional and national markets for recycled newsprint, described below, are a clear case in point.

Newsprint Markets

A combination of factors contributed to a collapse in the market price of waste newsprint this April and a crisis for recycling efforts here and across the country. Precipitating the crisis was the increase in the supply of recycled newsprint resulting from mandated recycling programs coming on line in many major U. S. urban areas. Traditional domestic markets could not absorb this material. Regional outlets for recycled newsprint soon began to feel the impact of the national oversupply. Paper brokers, such as Pioneer Paper Stock, lost the accounts of distant customers who were able to find readily available supplies of newsprint closer to their operations.

To make matters worse, a large number of curbside programs in the Metropolitan Area began operation in a short period of time in March and April 1989. Newsprint accounted for as much as 70 percent of the tonnage collected in new curbside programs. With no committed markets for their newsprint, many of these programs brought material to the nearest available market--Waldorf Corp. The influx of newsprint caused Waldorf to temporarily stop accepting newsprint in April. At the same time Pioneer Paper Stock sharply cut back its newsprint intake because of depressed national markets. By the middle of May the price of recovered newsprint had dropped to zero in most domestic markets. Newsprint markets are expected to be negative for at least the next year.

Related to the newsprint market disruptions in this region was the failure of the largest recycling contractor in the area--SuperCycle. The narrow margins in many of the firm's collection contracts did not allow for the contingency of paying markets to take newsprint. The failure of SuperCycle, however, did not significantly disrupt the collection of recyclables in the region. In June the firm was purchased by Recomp Inc. which, along with other contractors, renegotiated collection contracts in cities formerly served by SuperCycle.

Figures 7 and 8 graphically illustrate the changes in both the amount of newsprint collected in county programs and the method of collection. This data was compiled from county-supplied information in May, 1989, part of the research done when the oversupply of newspapers occurred.





SOURCE: County Annual Reports, 1988

The counties and the Council pursued a range of strategies to manage the newsprint oversupply. This flexible approach included increased production of animal bedding, subsidies to collectors, Metropolitan Council capital assistance grants, regional public education efforts and long-range planning. It was successful in keeping most collection programs operating and in minimizing the amount of newsprint going to processing facilities and landfills in the region.

Markets for Other Major Recyclables

Market trends for other major recyclable materials in 1989 are shown below:

• Waste-paper: In general, prices for the higher grades of paper have been more stable than those for the lower grades. Waste-paper prices are influenced by the balance of supply and demand not only for various grades of paper but also for other pulp sources. For this reason it is difficult to predict future price movements.

<u>Old newspapers</u>: Rising supply levels have decreased the price of this lowvalue waste paper. Grade 8 (de-ink quality news), which contains only newspapers, brings a higher price than Grade 6 (regular news), which contains up to 5 percent grocery bags, inserts and other non-news papers. In spite of this difference in quality, prices for the two grades move together.

<u>Old corrugated containers</u>: The recent drop in old newspapers prices has had a minimal effect on corrugated prices which have remained stable. The overabundance of old newspapers hasn't decreased the demand for the more durable corrugated because newsprint isn't an acceptable substitute.

<u>High grades</u>: Computer print-out and other office papers have enjoyed relatively stable prices and the demand for these grades has been strong.

- Glass: Both national and local glass prices have held steady for the last 18 months.
- Aluminum: Aluminum prices rose sharply in early 1988 but the rise was shortlived. Prices began to drop at the end of the year and have fallen to their prepeak levels.

The Impact of Markets on Goal Attainment

The Regional Solid Waste Management Task Force developed some interim recommendations to the Council relating to newsprint recycling, including:

o That future regional recycling goals set by the Council reflect the realities of the marketability of materials.

The counties are concerned that, since marketing difficulties have been encountered in reaching the recycling rate of 12-13 percent, the 35 percent metro recycling goal contained in the SCORE legislation, coupled with a 25 percent goal for Greater Minnesota counties who would deliver collected materials to the same end markets, could result in a glut in some materials. If that happens, no county (nor the state as a whole) would achieve its goals.

- o That there should be no penalties for not reaching recycling goals if insufficient markets exist to make goal attainment possible.
- o That market development efforts be coordinated at the regional level.

During the newspaper oversupply, the success of one county or collector in obtaining a market also often meant the failure of other counties and collectors to obtain that same market. One alternative being discussed by the Council and the counties is the formation of a regional entity for marketing recyclables. It has been suggested that this system could provide an equitable and efficient means for allocating materials to markets. A major drawback to this approach, however, is that in most cases the counties do not own or have direct control of collected recyclables. This limits the counties' options to respond to the vagaries of the marketplace.

COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTE ABATEMENT

It appears, based on county reports, that the total amount of source separated recycling for all the nonresidential sectors was approximately 171,000 tons in FY89. This figure excludes tonnages from source separation programs that were known to exist before 1985. It represents 60 percent of the total source separation tonnage.

Information about commercial, industrial and institutional recycling programs in each county and for the region as a whole continues to be difficult to collect. Recyclers and haulers that collect source separated materials from the commercial/industrial sector operate, for the most part, in a highly competitive environment, jealously guarding the identities of both their clients and their markets. Since they are most often neither subsidized nor licensed by government, as curbside collection programs often are, government has to rely on good will to collect tonnage data from these firms and/or their markets.

Because local, county and regional government bodies cannot require tonnage data from the commercial and industrial recyclers or their markets, those firms frequently do not collect data themselves on a municipal or county basis. (The recently enacted SCORE legislation which authorizes counties to license collectors of recyclables may improve data collection in this sector.) Thus counties must rely on partial or descriptive data for their annual reports to the Council. The data comes from two main sources: periodic surveys of businesses in their jurisdictions, and calculation based on expected waste flows at designated facilities.

While county staff does its best to determine that commercial/industrial sources are reporting only increased levels of recycling achieved since 1985, it is not possible to state categorically that the data measures only such increases. For instance, when surveys are used, it is not possible to be sure that the person completing the survey can make that distinction.

Summary of County Commercial and Industrial Waste Abatement

All the counties provide information and technical assistance to businesses on request, but they do not keep track of the number of requests received and the types of information or technical assistance provided. In 1989, four of the counties--Anoka, Dakota, Scott and Washington--reported using surveys of businesses as their principal basis for measuring abatement progress in this sector. Dakota County required each of its large cities to undertake activities to promote and encourage commercial and industrial recycling, and provided \$10,000 in funds to each community for that purpose. Hennepin County held four recycling workshops for businesses, co-sponsored by the Greater Minneapolis, Bloomington, North Hennepin and Twin West Chambers of Commerce. The workshops were well attended, with over 200 businesses represented. The county requires all vendors to Hennepin County with contracts over \$250,000 to implement in-house recycling programs.

All the counties provided the Council with estimates of commercial/industrial recycling tonnages for the fiscal year (See Table 4). This is the first time that the counties have attempted to collect and report data with this level of detail, and represents a step toward gaining better commercial/industrial data.

	Table	4					
SUMMARY OF COMMERCIAL	& INDUSTR	IAL ABATE	ENT ACTIV	TIES, FY	39		¥
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County provided information	Y	Y	Y	Y	Y	Y	Y
	v	v	~		v	v	v
County provided technical assistance	v	v v	v v	v v	v	v	v v
County provided technical assistance	N	И	 N	י א	N	v	v
County solveyed businesses in From	н 11	N		n V	N	i N	N
County held seminars for businesses		л И	N N	ı v	N	N	N
Lounty neta seminars for businesses	N 0	n 0		1		0	n 0
No. seminars neto in Froy	0	0	0	4	0	0	0
NO. DUSINESSES attending	U	U	U	210	U	Ų	U
County Estimates of Commercial & Ind	lustrial R	ecycling	Tonnages_				
Commercial Recycling in FY89	18,000	3,000	18,300	68,000	39,000	18,000*	2,000
Industrial Recycling in FY89	included	included	included	NA	NA	included	2,000
SUBTOTAL	18,000	3,000	18,300	68,000	39,000	18,000*	4,000
TOTAL C & I RECYCLING REGION	178,300						
#testudes second metally 15,000 horse						ion that m	w not

*Includes approximately 15,000 tons of Comm./Indus. recycling and/or waste reduction that may not actually qualify as post 1985 source separated recycling of mixed MSW.

SOURCE: County Recycling Implementation Progress Reports, Sept. 1989.

Summary of County Institutional Waste Abatement

Institutional abatement progress in fiscal year 1989 was reported in somewhat more detail by the counties; but quantitative data on the number of federal, state, regional, county and city offices in each county that are recycling, and the type and amount of recycling taking place, was scarce.

Anoka County is planning to form a subcommittee to address the needs of the commercial/industrial/institutional community. It also plans to have a seminar and a reference book to help this sector recycle. The county identified one city, Columbia Heights, as having an in-house recycling program for office paper only; it recycled 0.2 tons during the first half of 1989. In addition, the county has its own in-house recycling program which recycled 59 tons of material in FY89, and it is proposing to expand the program to include 12 outlying departments in early FY90. The county reported that school district #13 and Anoka-Ramsey Community College recycled 514 tons of material in FY89.

Carver County has an office paper recycling program in its courthouse. It reported that four cities (Chanhassen, Chaska, Victoria and Young America) have office paper recycling programs also. The county reported that all five school districts in the county have small recycling programs and district #112 is scheduled to expand its program in FY90 to include ledger paper and cardboard. A branch of the College of St. Thomas is recycling office paper. No estimates of tonnages were provided.

Dakota County reported recycling 33 tons of office and computer paper in its own inhouse program in FY89 (all county buildings and libraries and three city halls), plus an unknown quantity of beverage cans, glass, newsprint and corrugated cardboard. All municipalities have in-house recycling programs, but tonnage estimates were not available. A survey of schools in 1989 determined that 30 of the 44 schools that responded reported recycling beverage cans, with 16 schools recycling additional items. The number of school districts involved in the survey and the amounts of material recycled were not reported.

Hennepin County has upgraded its own in-house recycling program, begun in 1975. It now recycles white/pastel office paper, mixed papers, cardboard, phone books, computer paper, newspaper, aluminum cans, laser printer cartridges and soft-cover manuals. Approximately 300 tons is recycled annually. County staff presented a recycling workshop for school districts, as well as making individual classroom presentations. One school district, Robbinsdale, was recognized at an awards luncheon for its district-wide recycling program. All cities must have an in-house recycling program to be eligible for a grant to finance their recycling program.

Ramsey County reports that it expanded its office paper recycling program in 1989 to include all county offices in the courthouse; that its maintenance staff is recycling aluminum cans; and that it may expand its recycling program to include newspapers. One school district, #622, has received a demonstration grant from the Metropolitan Council. During the last quarter of FY89, seven schools in the district recycled about 8.2 tons of paper, cans and glass. In addition, three communities (North St. Paul, Roseville and Maplewood) have recycling programs in city office buildings and collected two tons of recyclables during the last quarter of FY89.

Scott County will be expanding its county offices' office paper recycling program by December 1989. The county government offices will be recycling office paper, corrugated, glass, beverage cans and newspapers.

Washington County reports it expanded its corrugated cardboard recycling program into a comprehensive recycling program in all county offices in September 1989. The program includes office paper, glass bottles, aluminum cans, and newspapers. Two cities (Oakdale and Woodbury) are identified as having recycling programs in city offices, and they are estimated to have recycled about three tons during FY89.

Table 5 presents a summary of data on institutional recycling in each county for FY89 based on reports submitted to the council by each county in August and September 1989. (This is the first time the counties have attempted to report data with this level of detail; it will serve as a base for improved reporting in the future.)

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Institutional Recycling Programs							
Federal agencies	NA	NA	NA	NA	NA	NA	NA
State agencies	NA	N A	NA	NA	NA	NA	NA
County offices (in-house)	Exp*	Y	Y	Exp*	Exp*	Exp*	Exp*
City offices (in-house)	N A	4	33	42	3	1	2
School districts	1	5	* *	1	1	Some	1
Hospitals	NA	N A	NA	1	NA	None	NA
Colleges, universities & AVTI's	1	1	NA	1	N A	NA	N A
Other – special districts	NA	N A	NA	NA	NA	NA	NA
SUBTOTAL – # of Programs	3+	11	34	46+	5+	2+	4+
State agencies County offices (in-house) City offices (in-house) School districts Hospitals Colleges, universities & AVTI's Other - special districts SUBTOTAL - Tonnages	N A 59 N A 514+ N A N A N A 573+	N A 1 1 5 N A N A 5 N A 2 1	NA 12+ 33 NA NA NA NA 45+	NA 1,180 # 20 1,261 1,201 NA 2,461+	NA 40+ 2 8*** NA NA NA 50+	1 2 N A N A N A 3	6 3 20 NA NA 29
TOTAL INSTITUTIONAL RECYCLING R	EGION			3,149			
SUBTOTAL - COMBINED (Rounded)	19,000	3,000	18,000	70,000+	39,000+	18,000+ ##	4,000
TOTAL REGION - COMBINED				171,000	:		
*Expanded during FY89							
**30 schools recycling UBC's and 1	6 schools	other					

##Includes approximately 15,000 tons of Comm./Indust. recycling and/or waste reduction that may not actually qualify as post 1985 source separated recycling of mixed MSW.

SOURCE: County Recycling Implementation Progress Reports, Sept. 1989.

EVALUATION OF THE PERFORMANCE OF RECYCLING PROGRAMS

One major criterion for measuring the success of recycling programs has been whether or not source separation goals have been met. State law requires that this be done not only for each county within the region, but for each class of city within each county as well (see Appendix A). By this standard, recycling for the region and for each county within the region is a success. The FY89 goal to source separate 11 percent of the waste stream has been met. The counties have done a commendable job of implementing source separation programs as directed by the 1985 policy plan.

In a broader context, the desired result of successful source separation programs is landfill abatement. The region should be realizing a significant decrease in the amount of landfill space used during 1989. However, the increased tonnages captured through recycling programs are not producing the level of landfill abatement originally projected. This is due to the greater-than-estimated volume of the waste stream.

An expanding business is one example of why increased recycling may not mean increased abatement. If the business increased its recycling in FY89 but expanded its operations during the same period, it might well have more wastes needing to be landfilled than it did before FY89, even if recycling programs substantially increased the amount of material source separated. Table 6 helps illustrate this issue.

Table 6 EXAMPLE OF HOW INCREASED RECYCLING MAY NOT MEAN INCREASED ABATEMENT

	FY1988 Tons	<u>FY1989 Tons</u>
Product Produced	400,000	800,000
Process Waste	100,000	200,000
Source Sep. (4%)	4,000	8,000
Disposed (16%)	16,000	32,000

In this example, the amount of material source separated doubles. Yet, in spite of the fact that recycling tonnages are twice what they were the previous year, the amount of landfill space required for disposal has also doubled, rather than being reduced.

TRENDS IN RECYCLING

The recent enactment of SCORE legislation, with a 35 percent combined recycling and yard waste composting goal for the Metropolitan Area by 1993, indicates that goals for the percentage of the waste stream to be managed by recycling will continue to increase. The broad public support for recycling which is noted repeatedly by surveys will further reinforce this trend. Yet, with recycling services to 93 percent of the region's households contributing only 25 percent of the total present source separation rate, residential source separation programs alone will not be able to accumulate sufficient additional tonnage.

Counties will have to work more closely with the commercial, industrial and institutional sectors to increase their level of abatement, in particular capturing a much larger share of the various grades of paper these sectors produce. Gathering data from this sector and determining progress will continue to be challenging. Efforts on the part of the Council and the counties to work closely with area chambers of commerce may improve data collection.

The costs for recycling programs will also continue to rise. Estimated cost per ton to manage recyclable materials in Minneapolis rose from \$37.50 per ton at the beginning of FY89 to \$116 per ton by the end. These costs are expected to moderate when Hennepin County's new materials recovery facility is constructed. Efforts to reach higher abatement levels will require increased expenditures for public education, additional staff at various levels, increased equipment costs and so forth. Hennepin County is planning to construct a materials recovery facility to handle recyclables collected by county programs. This facility alone will cost an estimated \$2.5 million to \$3 million for land, building and equipment, plus \$1 million annually for operation and maintenance.

While the SCORE recycling legislation addresses the issue of increased costs by giving money to counties for recycling programs (almost \$12 million to the seven metropolitan counties over the biennium), additional costs to waste generators are likely. For example, when Council staff requested that counties estimate what it would cost annually to achieve 35 percent recycling, the two counties that responded with numbers indicated individual county costs ranging from \$3 million to \$6 million per year.

Markets to absorb the increasing supply of recyclables will continue to be a problem for some materials. Collection programs can be started relatively quickly, while increases in demand for collected materials occur more slowly. Increased supplies of materials both regionally and nationally will increase competition for existing recycling markets, likely lowering the prices paid per ton.

Last April's newspaper oversupply is an example. The uneven pace between growth of supply and growth of demand will continue to trouble recycling programs which must consider the possibility not only of zero income for materials they collect, but also of a net cost per ton to deliver collected materials to a market. If money to pay for program costs cannot be assured from marketing collected materials, other funding sources, such as generator fees, will be necessary to keep programs in operation.

ANALYSIS

o The focus of the 1985 policy plan recycling goals on source separation resulted in dramatic increases in the type and number of recycling services available in the region.

The emphasis on curbside and drop-off recycling services has produced programs that place the Metropolitan Area among the national leaders in residential recycling opportunities. Efforts to document the source separation activities of commercial, industrial and institutional recyclers

have been another direct result of this plan. However, source separation is only one method of achieving landfill abatement.

• Higher recycling goals will require that emphasis be given to all recycling methods (e.g. recycling at central processing facilities and materials recovery facilities) in measuring attainment.

The SCORE legislation set a 35 percent recycling goal with methods of achieving the goal left to the individual county. It is likely that the council's policy plan revision, currently under way, will shift its focus to a goal for recycling as opposed to the current goal focused on source separation. Such a shift would allow recycled tonnages from centralized recyclables processing facilities and transfer stations, and the recyclables separated at resource recovery facilities, to be included in measurements of abatement. It would also alleviate the confusion as to what counts when measuring recycling.

The recycling efforts within the commercial/ industrial/ institutional sector could also be more easily measured with a general recycling goal. The impact that these efforts can have on overall waste abatement was greatly underestimated in the 1985 policy plan. The plan's commercial/industrial discussion emphasized office paper which, the plan projected, could abate one percent of the waste stream (13,000 tons) by 1990. In fact, present commercial/industrial/institutional recycling contributes 60 percent of the total abatement achieved.

o While source separation is still the preferred method of producing clean, marketable recyclable materials, curbside programs alone will not approach attainment of 35 percent recycling.

Efforts to increase recovered volumes by adding lines for recovering recyclables to energy recovery facilities and building centralized materials recovery facilities are a logical next step to enhance existing programs. Such efforts are currently under way in several counties in the region.

If the 35 percent goal were defined as a <u>source separation</u> goal only, the counties would have to increase reported tonnages collected by 70 percent at the current waste generation rate.

o The availability of markets will continue to be a major constraining factor on the growth of recycling.

The emphasis on collection programs has sometimes resulted in the collection of materials for which no market has been identified. Successful recycling programs will require, before collection, a link between the type and volume of materials collected and the availability of markets for those materials. The Council and the state can assist marketing efforts by identifying potential markets, providing grants and loans to develop or

expand markets, researching the future of markets for various materials, and increasing government procurement of recycled products. All these efforts are presently under way, accelerated by the loss of newspaper markets in the spring of 1989. However, the decision as to amounts and types of materials to collect will remain with the counties and local programs.

• Another constraint on the ability of the region to achieve landfill abatement goals is the rising cost of recycling.

For example, recycling contract renegotiations which occurred as a result of the newspaper glut resulted in increases from \$40 or \$50 per ton to \$80 or \$90 per ton for curbside collection programs in the region.

Rising costs will add more emphasis on developing and documenting commercial/industrial/ institutional recycling. The relatively high-value materials this sector can produce, coupled with the avoided tipping fees realized through the volume-based pricing system, still generally produces a net profit for this sector.

CENTRALIZED PROCESSING

The 1985 policy plan included waste processing facilities as a major component of the waste management system. These facilities were to be operational by 1990 in order to meet the requirement that no unprocessed waste be landfilled after that date. The plan included mass burn, RDF, and MSW composting as compatible components of the waste processing portion of an integrated system. The schedule for implementing the region's waste management strategy, while it set specific goals for source separation, established a centralized processing goal range for several years through 1990. The ranges were set acknowledging the fact that it was difficult to predict when the facilities would come on line. The lower end of the range for a particular year was expected to be achieved. Translating the calendar year goals to a fiscal year goal for FY89 would set a goal of 25 to 57 percent of the waste stream managed by centralized processing.

The policy plan encouraged the cooperation of counties in developing facilities. It envisioned this cooperation to include arrangements among processing plants to assure the continued processing of wastes during times when a particular facility was shut down for maintenance or emergency reasons. MSW composting facilities were expected to provide further capacity during emergency situations. Transfer stations were described as important for ensuring that this cooperative use of facilities occurred.

The plan listed options for establishing a management system which could coordinate the operation of facilities within the region. These options included: joint powers agreements; establishing solid waste management districts; making contractual arrangements; and waste designation.

There has been cooperation between counties in developing centralized processing facilities, although not to the degree encouraged by the policy plan. The time required to have the regional system operational has been longer than planned. The following sections describe the region's centralized processing facilities.

STATUS OF FACILITIES

Three processing facilities were in operation during the period between July 1, 1988, and June 30, 1989: Ramsey/Washington Counties' Resource Recovery Project at Newport, which began commercial operation in 1987; and two private facilities: Richard's Asphalt in Savage and Reuter, Inc., in Eden Prairie. Two additional facilities are scheduled to begin operation after July 1, 1989: the Hennepin Energy Resource Corporation facility in Minneapolis and the Anoka/Hennepin Elk River Resource Recovery Facility.

EVALUATION OF THE PERFORMANCE OF CENTRALIZED PROCESSING FACILITIES

The permitted capacity of the three operating facilities is 1472 tons per day. The actual amount processed at the facilities averaged 840 tons per day between July 1988 and June 1989. The potential through put for the facilities is approximately 1250 tons

per day. It is anticipated that with further experience the facilities will achieve that potential capacity. Reuter is actively exploring markets for its RDF to allow for increased processing of waste, and the Ramsey/Washington project board has recently approved a contract to encourage NSP to process more of the waste received at the Newport facility. Also, the equipment was modified in September '89 to increase processing capabilities. Table 7 shows the waste processed by county in FY89.

CURRENT UTILIZATION OF CENTRAL PROCESSING FACILITIES (JULY 1988 - JUNE 1989)							
	FACILITY	FULLY OPERATIONAL	THROUGHPUT TONNAGE				
Anoka	NSP-Elk River	August 1989	N/A				
Carver	None	N/A	N/A				
Dakota	None	N/A	N/A				
Hennepin	Henn. Co. Resource Corp.	January 1990	N/A				
	NSP-Elk River	August 1989	N/A				
	Reuter	1987	26,882				
	Richards (a)	1985	16,086				
Ramsey	Ramsey/Washington RRF (b)	July 1987	204,443				
Scott	Richards (a)	1985	5,362				
Washington	Ramsey/Washington RRF (b)	July 1987	51,111				
TOTAL			303,884				

Table 7

a. Assumes 75%/25% intake split between Henn. & Scott Countiesb. Assumes 80%/20% intake split between Ramsey & Wash. Counties

SOURCE: County Recyling Implementation Progress Reports, Sept. 1989

The amount of centralized processing was equal to 13 percent of the total waste managed in the regional system in FY89. The processing objectives and levels achieved, by county, are shown in Table 8. The goal for the region for FY89 was between 25 and 57 percent. The lower-than-anticipated progress comes as a result of delays in the startup of two processing facilities.

Table 8 COMPARISON OF 1988/1989 CENTRAL PROCESSING GOALS & RESULTS

	GENERATION	1988/1989	PROCESS	ING GOAL	1988/1989 ACTU	AL PROCESSING
COUNTY	TONS	TONS		X OF TOTAL	TONS	% OF TOTAL
Anoka	189,000	7,560 -	107,730	4 - 57%	0	0%
Carver	32,500	0 -	9,425	0 - 29%	0	0%
Dakota	216,500	8,660 -	123,405	4 - 57%	0	0%
Hennepin	1,153,700	23,074 -	657,609	2 - 57%	42,968	4%
Ramsey	531,700	26,585 -	382,824	5 - 72%	204,443	38%
Scott	44,100	7,938 -	12,348	18 - 28%	5,362	12%
Washington	103,600	25,900 -	74,592	25 - 72%	51,111	49%
METRO AREA	2,271,100	567,775 - 1,	294,527	25 - 57%	303,884	13%

SOURCE: County Recycling Implementation Progress Reports, Sept. 1989

TRENDS IN SOLID WASTE PROCESSING

Two facilities will begin operation in FY1990. The facility in Elk River sponsored by Anoka and Hennepin Counties began operation in August 1989. The Hennepin County facility in Minneapolis began acceptance testing operations in October 1989 and is expected to start commercial operations in January 1990. These two facilities will provide an additional 2,300 tons of permitted daily processing capacity for regional waste.

During the next fiscal year the level of centralized processing anticipated in the region will be approximately 3,300 tons of waste per day. This is equal to 54 percent of the waste stream that must be managed.

Two additional facilities are planned for the region for Dakota County's and Scott/Carver Counties' wastes. These two facilities are expected to begin operation in 1992-1993, given the current status of the environmental review process and the counties' plans. These facilities are expected to add approximately 780 tons per day of processing capacity in the region. The total processing capacity anticipated in 1993 will be approximately 58 percent of the waste that must be managed, or approximately 50 percent of the total waste stream generated, a portion of which is managed separately, apart from the county waste management system.

Approximately 6 percent (by weight) of the wastes received at resource recovery facilities is currently recycled. In FY89, the amount of waste converted to RDF or burned equaled 48 percent of that received. Further, 185,000 tons of waste, or 46 percent, were landfilled after being received at processing facilities. Table 9 shows the amount of waste received, recycled, converted to energy and landfilled for the operating facilities in the Metropolitan Area in FY89.

FISCAL YEAR Facility	Total Received	Total Processed	Total Landfilled	Total Recycled	Energy Recovered
	ł			40.085	17/ 504
NSP	349,543	255,554	164,802 *	10,005	174,390
Reuter	26,882	26,882	12,043	13,400	1,439
Richards	21,448	21,448	7,857	0	13,591
TOTAL	397,873	303,884	184,762	23,485	189,626
PERCENT OF TOTAL	-	76%	46%	6%	48%

Table 9 MANAGEMENT OF WASTE RECEIVED AT PROCESSING FACILITIES

*Includes by-pass

SOURCE: County Recyling Implementation Progress Reports, Sept. 1989

ANALYSIS

Dependence on landfills for process rejects and residuals is much higher (46 versus 23 percent) than anticipated in the Council's 1989 policy plan. Further, the plan's expectation that the region should process 80 percent of the waste stream that was landfilled in 1985 appears unachievable. The cost of construction and operation of facilities large enough to process 80 percent of the waste that must be managed may be economically inadvisable. While legislation states that economics cannot be a factor to avoid building waste processing facilities, the rising costs of solid waste management are causing counties to make difficult choices about how to distribute solid waste management funds. Processing 80 percent of the waste that requires management also appears unlikely for environmental and public policy reasons. Public opposition to siting new centralized processing facilities and the lengthy process required to ensure that a suitable site is selected and properly developed pressures counties to build facilities to manage as small a percentage of the waste stream as possible, while counting on recycling, composting and waste reduction programs to manage a greater-than-originally-planned share.

The planned processing capacity in the region will still be insufficient to process all of the waste that the region will need to manage, even after the implementation of recycling and composting programs. The current expectation is that recycling and alternate management of all mixed municipal solid wastes generated will equal 35 percent of the waste stream in 1993. In the same period approximately half the wastes will be processed, given current plans, with about 20 percent of the total waste stream landfilled as unprocessible or ash, residuals and rejects from processing facilities. This will leave 15 percent of the total amount of waste generated to be landfilled unprocessed.

Fully 35 percent of the waste stream will be landfilled even after all of the recycling, composting and processing programs are in place--an estimate that assumes that all the proposed projects will be fully successful. The history in the region has been that programs are delayed and progress has occasionally been hindered by external forces, including the markets for recyclable materials, compost and energy products.

A significant impact on the landfilling of waste will require that additional steps be taken.

The quantity of nonprocessable waste and rejects from processing must be reduced;

Ash and residuals will require management as "products" that may be reused;

Secure markets will be needed for recyclable materials, energy products, and especially ash and residuals from processing facilities.

Implementation of these steps will require rethinking the definition of the waste stream that must be managed.

For some time the term "mixed municipal solid waste" has been used to describe the materials that require management. The use of a single term has led to an oversimplification of the actual problem. The waste going to processing facilities is very diverse, yet the facilities are expected to process all waste received through the same system. Each type of waste processing facility has problems with certain portions of the waste stream. For example, RDF facilities have difficulty processing bulky items, such as large pieces of wood, or stringy items, such as tape waste. Mass burn facilities release the heavy metals they incinerate as part of their air emissions which must be filtered and managed. Cooperation among processing facilities to selectively send RDF "problem wastes" to a mass burn facility and vice versa could improve the region's waste processing capabilities.

Another possibility for regional cooperation would be the development of facilities to complement existing and planned waste management facilities, such as transfer stations or RDF residual composting facilities. Such cooperation would require a change in present waste designation boundaries.

The Council's Environmental Resources Committee has indicated in policy discussions that there is a regional need to evaluate the various components of waste and manage them in the most appropriate way. This will require the use of various techniques to manage waste. However, no single facility in the region has been designed to accommodate the multiplicity of management methods. The waste management system in the region must be reevaluated to assess how regional coordination and cooperation can succeed in achieving the real intent of the waste processing objectives: reducing the toxicity and volume of wastes being landfilled.

LANDFILLS

CURRENT STATUS OF LANDFILLS

In November 1988, the remaining capacity at regional landfills was 7,437 acre-feet, as shown in aerial photographs and by Council staff analysis. (An acre-foot is the space occupied by waste that would cover an acre to a depth of one foot.) During the FY89 fiscal year, one landfill closed (Freeway). Another is contemplating closing because of the cost of constructing an expansion area (Louisville). If this closing occurs, only Burnsville, Pine Bend, Woodlake and Anoka landfills will remain open. Woodlake and Burnsville landfills are expected to reach their capacities for mixed municipal waste by the end of 1990. The region will then have only two operating landfills, neither able to dispose of ash from processing facilities.

During FY89 the region disposed of 1,775,000 tons of waste in landfills. Of that total, 143,000 tons was either ash or residuals from resource recovery facilities. The wastes disposed of consumed 2,309 acre-feet of landfill space, 200 acre-feet of which was landfilled outside the Metropolitan Area. This rate of consumption of landfill space is 170 acre-feet less than the FY88 rate. During FY90 the landfill consumption rate is expected to be reduced by another 340 acre-feet.

EVALUATION OF LANDFILL ABATEMENT

The Council's 1985 policy plan estimated that the region would consume 1,803 acre-feet of landfill space in FY89. Thus the region used 28 percent more landfill space than the Council projected for the year. Since the policy plan was adopted, the region has consistently used significantly more landfill space than the Council projected, and will continue to do so. Figure 9 shows the landfilling rate projected in the policy plan versus the actual consumption of landfill space and current projections.

Figure 9 LANDFILL CONSUMPTION RATES



TRENDS IN LANDFILL ABATEMENT

Landfill space will be used up much more slowly after FY90 with the inauguration of processing at the Hennepin County mass-burn facility and the Anoka County RDF facility. By FY91 the rate will drop to 1,300 acre-feet per year of landfill capacity used. This is still significantly higher than the policy plan expectation of 720 acre-feet per year. However, it will be a 44 percent drop in landfill consumption in two years. The landfill space available in the region will continue to dwindle. Given current projections concerning landfill abatement efforts, the region will exhaust its landfill capacity by the end of 1993 even with the much lower forecasted rates of consumption. The region will need additional landfill capacity for the solid waste system to avoid a crisis in 1993. The landfill use rate information may be seen in Figure 10.



Figure 10 LANDFILL SPACE REMAINING (at start of fiscal year)

Source: Metropolitan Council staff

Not all wastes may be disposed of in sanitary landfills. Ash is a notable example. Environmentally sound ash disposal is becoming increasingly difficult in the Metropolitan Area. During the end of FY89 Hennepin County's mass-burn facility could not begin operation because of difficulty in disposing of the ash. Ash disposal is currently conducted in special cells (separate sections of the landfill) and, because of potential liability issues, the cells accept ash from only one processing facility per cell. Frequently, ash from only one facility is disposed of in a landfill. This has created some difficulty in locating disposal capacity to support the processing of waste.

Currently permitted landfills that will be open after 1991 will not be allowed to dispose of ash from processing facilities, so ash will have to be disposed of at facilities that do not currently exist in the region. If landfill abatement is to be successful, the lack of ash disposal facilities must not be allowed to hinder waste processing plants. Either the region must develop a landfill (or landfills due to liability concerns) for ash, or, ash disposal sites must be found outside of the region.

Liability for the development of the candidate landfill sites has long been a concern of the counties participating in the process. The Minnesota Pollution Control Agency's anticipated ash rules, albeit reasonable and necessary for protection of the environment, will exacerbate the concerns over liability. The region will need to secure long-term ash disposal even if new methods of treating and reusing ash are developed.

PROGRESS IN LANDFILL SITING

Three Metropolitan Area counties were required by the Waste Management Act to conduct environmental reviews, and select and develop one new landfill each.

The Council's landfill development schedule calls for development of the following landfills:

Anoka County - 3,000 acre-foot landfill by 1987 Hennepin County - 3,232 acre-foot landfill by 1991. Washington County - 2,494 acre-foot landfill by 1993

The Environmental Impact Statement preparation notices were published as follows: Anoka - December 1,1986 Hennepin - March 23, 1987 Washington - October 17, 1988

The detailed and complex analysis of the candidate landfill sites has lengthened the environmental review process. The counties have taken several years to near completion of their respective EISs. The Hennepin County Candidate Landfill Siting EIS is now in draft form. The current anticipated completion dates for all the candidate landfill siting EISs, based on discussions with counties, are shown below:

- Anoka Draft EIS winter 1990 Final EIS - late spring 1990 Site selection - summer 1990 Permitting - mid 1992 Construction - early 1993
- Hennepin Draft EIS September 1989
 Final EIS December 1990
 Site selection March 1990 (statutes require selection 90 days after final EIS found adequate)
 Permitting late 1992
 Construction late 1993
- Washington Draft EIS late fall 1990 Final EIS - spring 1991 Site selection - summer 1991 Permitting - late 1993 Construction - late 1994

Factors contributing to the lengthy EIS process include changes in MPCA rules regarding design and operation of landfills. The new rules require considerably more engineering to ensure the environmental integrity of a facility. As a result, the counties have had to investigate and evaluate each candidate landfill site more thoroughly than previous landfill EISs. The EIS process has encouraged extensive participation of the communities in which sites are located. The individual municipalities have made valuable contributions to the environmental review process, and their continued contributions have been assured by reimbursements given to communities with candidate landfill sites.

The cost of EIS preparation is paid to counties by the Metropolitan Council from the sale of solid waste bonds. The cost of the EIS process has been relatively expensive. The estimated cost for EIS preparation is as follows:

Hennepin - \$ 2,128,649 Anoka - \$ 1,832,909 Washington - \$ 911,717

The 1989 Waste Management Act amendments also required that the Council examine potential activities and uses for the buffer areas around the candidate sites to ensure that conflicts between landfill operations and surrounding land uses are minimized. The Council is undertaking this work as part of the <u>Solid Waste Management Policy Plan</u> revisions.

ANALYSIS

Several factors will influence the need for landfill space in the near future. As can be seen in the centralized processing section of this report, the timetable for processing of solid waste at centralized processing facilities has continued to be delayed from previous estimates. As a result, the level of processing in the region is well below the anticipated rate of 632,000 tons in 1989. This has produced a less than anticipated reduction in the amount of landfill space required. Recycling programs, on the other hand, have been established at about the rate anticipated. The counties have met the recycling goals set for them by the Council. Unfortunately, the region's rate of generating solid waste continues to increase substantially. The net result has been a higher demand for landfill space than previously anticipated.

More must be done to reduce the amount of waste landfilled in the region. More recycling, both by source and mechanical separation, and reuse of ash and residuals will be required to achieve the landfill abatement projections in the Council's policy plan. Greater regional cooperation will be required in recycling and processing to achieve regional landfill abatement objectives.

An additional factor that may affect available landfill space is the amount of waste currently being disposed of outside the region. Figure 9 shows the Council's 1985 policy plan's anticipated landfilling rate, the actual metropolitan landfilling rate, and the estimated amount being landfilled outside the region. The current centralized waste processing system depends on the incineration of RDF outside the region and the

landfilling of ash outside the region. Implementation of designation ordinances in the region, as well as a recent shift by greater Minnesota counties toward prohibiting or limiting disposal of metro waste, may well increase the amount of waste that will need to be disposed of in the seven-county area. According to conversations with some greater Minnesota landfill operators, as metro fees increase, inquiries from metro haulers looking for lower disposal rates also increase.

Those greater Minnesota landfills that are currently accepting Metropolitan Area wastes may have to curtail that practice. The counties in which they are located are enacting licensing requirements that may halt the disposal of metro wastes in their counties. This will add to the regional pressure for new landfills.

Barely enough time exists to select, acquire, develop and begin operation of a new landfill through the candidate landfill siting process before existing landfill space in the region is exhausted, if the remainder of the landfill siting process experiences no significant delays. Landfill capacity for ash from processing facilities must also be ensured. To provide essential waste disposal capacity in the region, it is imperative that the candidate landfill siting process be completed.

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				APPENDI									
					-	July t	hru Dece	ember 1	988	Janua	ry thru .	June 19	89
1989 FISCAL						Tons	Tons	Lbs.	Lbs.	Tons	Tons	Lbs.	Lbs.
		House-			City	Resd.	Yard	Pers.	Pers.	Resd.	Yard	Pers.	Pers.
ANOKA	Population	<u>holds</u>	Type of Service	Pick-Up	<u>Bin</u>	Recy.	Waste	Recy.	Yard	Recy.	Waste	Recy.	. Yard
<u>Under 5,000 Popu</u>	lation												
Bethel	292	107	drop-off recycling 3/89			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			(not yet marketed, no we	ight avai	lable)								
Burns Twp.	2,302	665	drop-off recycling 3/89			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			(not yet marketd, no wei	ght avail	able)								
Centerville	1,229	381	curbside recycling 6/88,	Weekly	No	18.2	0.0	29.6	0.0	14.8	0.0	24.1	0.0
			curbside yard waste 10/8	8,Weekly									
Circle Pines	4,846	1,482	drop-off recycling 1984,	••		127.7	0.0	52.7	0.0	55.3	0.0	22.8	0.0
			drop-off yard waste 4/88										
Columbus Twp.	3,686	1,067	drop-off recycling 1988			14.8	0.0	8.0	0.0	6.0	0.0	3.3	0.0
Hilltop	781	417	drop-off recycling			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			with Columbia Hts.										
Lexington	2,215	770	curbside recycling 10/88	, Monthly	No	7.2	0.0	6.5	0.0	14.5	0.0	13.1	0.0
			drop-off recycling 1984,										
			curbside yard waste										
Linwood Twp.	3,377	1,027	drop-off recycling 6/88,			15.4	0.0	9.1	0.0	42.4	1.0	25.1	0.6
			drop-off yard waste										
Oak Grove	4,971	1,412	drop-off recycling 4/88			0.2	0.0	0.1	0.0	22.5	0.0	9.1	0.0
			part time, 4/89 full tim	e									
St. Francis	1,938	673	drop-off recycling 7/88			5.1	0.0	5.3	0.0	3.0	0.0	3.1	0.0
Over 5,000 Popula	ation												
Andover	13,086	3,810	drop-off recycling 6/88			95.6	0.0	14.6	0.0	111.7	0.0	17.1	0.0
Anoka	16,408	6,087	curbside recycling 3/88,	2/month		467.8	118.8	57.0	14.5	569.9	299.8	69.5	36.5
			drop-off recycling 3/88,										
			curbside yard waste 10/8	8									
Blaine	36,258	11,602	curbside recyling 2/89,	Weekly	Yes	200.7	0.0	11.1	0.0	1,002.0	1,513.0	55.3	83.5
	-	-	drop-off recycling,										
			curbside yard waste 3/89										
Columbia Heights	19,170	7.883	curbside pilot 7/88 and	Weekly	Yes	280.3	0.0	29.2	0.0	606.7	0.0	63.3	0.0
-			curbside recycling 4/89.	•									
			drop-off recycling 1985										
Coon Ranids	45 774	15.456	curbside recycling	2/month	Yes	307.0	0 0	13 4	0 0	334 0	0 0	14 6	0 0
	427111	127120	nilot 5/88	Monthly		50110	0.0	13.4	0.0	554.7	0.0	14.0	•.•
			drop-off recycling 2/89	nontinty									
East Bethel	8.159	2,430	drop-off recvaling 9/85			58.9	0.0	14.4	0.0	62.4	0.0	15.3	0.0
	-7.57	-,	drop-off yard waste	1/vear						~~. 7			

							<u> July tl</u>	hru Deco	ember 1	988	January	<u>/ thru J</u>	une 19	89
	1989 FISCAL						Tons	Tons	Lbs.	Lbs.	Tons	Tons	Lbs.	Lbs.
			House-			Cit	y Resd.	Yard	Pers.	Pers.	Resd.	Yard	Pers.	Pers.
	ANOKA	Population	holds	Type of Service	Pick-Up	Bin	Recy.	Waste	Recy.	Yard	Recy.	Waste	Recy.	Yard
	Fridley	29,336	10,804	curbside recycling 6/85, drop-off recycling 1979	2/month Monthly	No	438.5	46.3	29.9	3.2	382.3	0.0	26.1	0.0
	Ham Lake	9,439	2,677	drop-off recycling			48.6	0.0	10.3	0.0	43.4	0.0	9.2	0.0
	Lino Lakes	7,600	2,276	curbside recycling 6/89, drop-off newspaper			68.0	0.0	17.9	0.0	55.3	0.0	14.6	0.0
	Ramsey	12,181	3,422	curbside recycling pilot 10/88, drop-off recycling 6/87	2/month Monthly	Yes	145.3	22.0	23.9	3.6	244.7	18.5	40.2	3.0
	Spring Lake Park	6,881	2,343	curbside recycling 5/86, curbside yard waste	Mońthly	No	66.5	0.0	19.3	0.0	75.2	52.5	21.9	15.3
	Bunker Hills	-		·			1	,707.3			1	,537.8		
							July thru	Dec. 19	88		Jan. thru	June 19	89	
	TOTAL POPULATION	229,929					TOTAL TONS	5	-		TOTAL TONS			
	TOTAL HOUSEHOLDS	76,791		TOTAL RESIDENTIAL RECYC.			2,365.8	20.6	lbs./p	erson	3,647.2	31.7	lbs./p	erson
				TOTAL YARD WASTE			1,894.4	16.5	lbs./p	erson	3,422.5	29.8	lbs./p	erson
4														
7				FISCAL COMMER/INDUS			18,885.0							
				FISCAL RESIDENTIAL RECYC.			6,013.0							
				FISCAL YARD WASTE			5,316.9							
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					-	July	1988 thr	u Dec.	1988	Januar	<u>y thru .</u>	June 19	289
1989 FISCAL						Tons	Tons	Lbs.	Lbs.	Tons	Tons	Lbs.	Lbs.
		House-			City	Resd.	Yard	Pers.	Pers.	Resd.	Yard	Pers.	Pers.
CARVER	Population	<u>holds</u>	Type of Service	Pick-Up	Bin	Recy.	Waste	Recy.	Yard	Recy.	Waste	Recy.	Yard
<u>Under 5,000 Popul</u>	ation												
Benton Twp.	957	294	·		••	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Camden Twp.	945	285				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Carver	728	269				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaska Twp.	211	65		••		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cologne	613	234	drop-off recycling 8/88,		••	4.6	1.5	15.0	4.9	9.7	8.5	31.6	27.7
			drop-off yard waste 10/88										
Dahlgren Twp.	1,330	385				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hancock Twp.	426	127				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hollywood Twp.	1,166	342				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Laketown Twp.	2,432	561				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mayer	396	149	curbside recycling 7/88,	Monthly	No	7.7	3.0	38.9	15.2	6.0	12.0	30.3	60.6
			drop-off yard waste 10/88	i									
New Germany	377	142	curbside recycling 7/88,	Monthly	No	3.6	6.0	19.1	31.8	10.2	14.0	54.1	74.3
			drop-off yard waste 10/88										
							• •			0.0	0.0		0.0
San Francisco Iwp	. 737	234		•• Nomehlu	••	0.0	0.0	71 7	0.0	0.0	0.0	· 0.0	0.0
Victoria	2,190	092	curbside recycling 6/88,	Monthly	NO	34.3	N/A	31.3	N/A	0.0	N/A	0.0	R/A
			drop-off yard Waste 10/82					•					
	7 75/	1 / 07	(with channassen)	Manthly	No	7/ /	5/ 2		72 7	1/5 5	75 R	86.8	45 2
Waconia	3,374	1,405	curbside recycling 1980,	2 (voor	NO	74.4	J4.2	44.4	32.3	143.3	75.0	00.0	43.2
			deep-off yard waste 10/83	, <i>2</i> /year	NO								
Necesia Tum	1 / 97	1.27	drop-off yard waste 10/85			0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Waconia iwp.	1,407	423	curbside recycling 1/88	 2/month	No	38.4	42.2	35 1	38.6	10.0	57.8	17.8	52.8
watertown	2,100	010	drop-off yard waste 10/85	271101111	NU	50.4	46.6	37.1	50.0	19.5	51.0	17.0	22.0
Watertown Twp.	1,501	455				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Young America Twp	. 1,027	296				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Over 5 000 Popula	tion												
Chanhassen	9 220	3 300	curbside recycling 4/89	Bi-week	No	11.9	256.1	2.6	55.5	91.4	238.9	19.8	51.8
anarma 33611	,,	-, -, -, ,	drop-off recycling 6/88										
			curbside vard waste 10/82	2/vear	No								
			drop-off vard waste 10/82	, _, year									

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					July 1	<u>988 thr</u>	u Dec.	1988	January	<u>/ thru .</u>	lune 19	89
					Tons	Tons	Lbs.	Lbs.	Tons	Tons	Lbs.	Lbs.
	House-			Cit	y Resd.	Yard	Pers.	Pers.	Resd.	Yard	Pers.	Pers.
Population	holds	Type of Service	Pick-Up	Bin	Recy.	Waste	Recy.	Yard	Recy.	Waste	Recy.	Yard
10,478	3,930	drop-off recycling 1980, drop-off yard waste 10/82			346.8	48.2	66.2	9.2	307.0	51.8	58.6	9.9
1,359	492	curbside recycling 5/87,	Monthly	No	40.6	36.2	25.3	22.6	139.4	63.8	87.0	39.8
1,358	452	drop-off yard waste 10/86										
489	183											
		drop-off recycling			111.1				111.1			
					July 1988	thru De	c. 198	8	Jan. thru	June 19	89	
44,978					TOTAL TONS				TOTAL TONS			
15,670		TOTAL RESIDENTIAL RECYC.			673.4	29.9	lbs./p	erson	839.8	37.3	lbs./p	erson
		TOTAL YARD WASTE			447.4	19.9	lbs./p	erson	522.6	23.2	lbs./p	erson
		FISCAL COMMER/INDUS			3,037.2							
		FISCAL RESIDENTIAL RECYC.			1,513.2							
		FISCAL YARD WASTE			970.0							
	<u>Population</u> 10,478 1,359 1,358 489 44,978 15,670	House- Population holds 10,478 3,930 1,359 492 1,358 452 489 183 44,978 15,670	House- Population holds Type of Service 10,478 3,930 drop-off recycling 1980, drop-off yard waste 10/82 1,359 492 curbside recycling 5/87, 1,358 452 drop-off yard waste 10/86 489 183 drop-off recycling 44,978 15,670 TOTAL RESIDENTIAL RECYC. TOTAL YARD WASTE FISCAL COMMER/INDUS FISCAL RESIDENTIAL RECYC. FISCAL YARD WASTE	House- Population holdsType of ServicePick-Up10,4783,930drop-off recycling 1980, drop-off yard waste 10/82 drop-off yard waste 10/821,359492curbside recycling 5/87, Monthly 1,358452 drop-off yard waste 10/86489183drop-off recycling44,97815,670TOTAL RESIDENTIAL RECYC. TOTAL YARD WASTEFISCAL COMMER/INDUS FISCAL RESIDENTIAL RECYC. FISCAL YARD WASTE	House-CitPopulation holdsType of ServicePick-Up Bin10,4783,930drop-off recycling 1980,drop-off yard waste 10/82drop-off yard waste 10/821,359492curbside recycling 5/87, Monthly No1,358452drop-off yard waste 10/86489183drop-off recycling44,97815,670TOTAL RESIDENTIAL RECYC. TOTAL YARD WASTEFISCAL COMMER/INDUS FISCAL RESIDENTIAL RECYC. FISCAL YARD WASTE	July 1House-City Resd.Population holdsType of ServicePick-Up BinRecy.10,4783,930drop-off recycling 1980,346.8drop-off yard waste 10/821,359492curbside recycling 5/87, Monthly No40.61,358452drop-off yard waste 10/86489183drop-off recycling111.1July 1988July 198844,978IOTAL RESIDENTIAL RECYC.673.415,670TOTAL RESIDENTIAL RECYC.673.4FISCAL COMMER/INDUS3,037.2FISCAL RESIDENTIAL RECYC.1,513.2FISCAL YARD WASTE970.0	July 1988 thr TonsHouse-City Resd.YardPopulation holdsType of ServicePick-Up BinRecy.Waste10,4783,930drop-off recycling 1980,346.848.210,4783,930drop-off recycling 1980,346.848.210,4783,930drop-off recycling 1980,346.848.210,4783,930drop-off recycling 5/87, Monthly No40.636.21,358452drop-off yard waste 10/86489183drop-off recycling111.1July 1988 thru De107AL 7005673.429.944,97815,670TOTAL RESIDENTIAL RECYC.673.429.9FISCAL COMMER/INDUS3,037.2FISCAL RESIDENTIAL RECYC.1,513.2FISCAL YARD WASTE970.0970.01000	July 1988 thru Dec. TonsTonsTonsLbs.Population holdsType of ServicePick-Up BinRecy.WasteRecy.10,4783,930drop-off recycling 1980,346.848.266.210,4783,930drop-off recycling 1980,346.848.266.21,359492curbside recycling 5/87, Monthly No40.636.225.31,358452drop-off yard waste 10/86489183drop-off recycling111.1July 1988 thru Dec.198198107AL TONS44,978107AL RESIDENTIAL RECYC.673.429.9lbs./p15,670TOTAL RESIDENTIAL RECYC.673.429.9lbs./pFISCAL COMMER/INDUS3,037.2FISCAL RESIDENTIAL RECYC.1,513.2FISCAL YARD WASTE970.0970.010	July 1988 thru Dec. 1988House-City Resd.Yard Pers. Pers.Population holdsType of ServicePick-Up BinRecy.Waste Recy. Yard10,4783,930drop-off recycling 1980,346.848.266.29.2drop-off yard waste 10/821,359492curbside recycling 5/87, Monthly No40.636.225.322.61,358452drop-off yard waste 10/86489183drop-off recycling111.144,978July 1988 thru Dec.1988IorAL TONS673.429.9lbs./person15,670TOTAL RESIDENTIAL RECYC. TOTAL YARD WASTE673.429.9lbs./personFISCAL COMMER/INDUS3,037.2FISCAL RESIDENTIAL RECYC. FISCAL YARD WASTE3,037.2FISCAL YARD WASTE970.0970.0100.0	July 1988thru Dec. 1988JanuaryTonsTonsLbs.Lbs.TonsHouse-City Resd.YardPers. Pers.Resd.Population holdsType of ServicePick-Up BinRecy.WasteRecy.10,4783,930drop-off recycling 1980,346.848.266.29.2307.010,4783,930drop-off recycling 1980,346.848.266.29.2307.010,4783,930drop-off recycling 5/87, Monthly No40.636.225.322.6139.41,358452drop-off yard waste 10/86489183111.1111.1449183drop-off recycling111.1111.144,978TOTAL RESIDENTIAL RECYC.673.429.9Lbs./person839.815,670TOTAL RESIDENTIAL RECYC.673.429.9Lbs./person522.6FISCAL COMMER/INDUS3,037.2FISCAL RESIDENTIAL RECYC.1,513.2513.2FISCAL YARD WASTE970.0970.0101.1111.1	July 1988 thru Dec. 1988January thru .Tons	July 1988 thru Dec. 1988January thru June 19House-City Resd.YandPers. Pers.Resd.YandPers.Population holdsType of ServicePick-Up BinRecy.WasteRecy. <td< td=""></td<>

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					-	July t	<u>hru Dece</u>	ember 1	988	Januar	<u>y thru</u> .	June 19	/89
1989 FISCAL						Tons	Tons	Lbs.	Lbs.	Tons	Tons	Lbs.	Lbs.
		House-			City	Resd.	Yard	Pers.	Pers.	Resd.	Yard	Pers.	Pers.
DAKOTA	Population	<u>holds</u>	Type of Service	Pick-Up	Bin	Recy.	Waste	Recy.	Yard	Recy.	Waste	Recy.	Yard
Under 5,000 Popu	lation												
Lilydale	575	319	curbside recycling 4/89	Weekly	Yes	N/A	N/A	N/A	N/A	11.8	0.0	41.1	0.0
Mendota	219	85	curbside recycling 4/89,	Weekly	Yes	N/A	N/A	N/A	N/A	0.0	0.0	0.0	0.0
			drop-off yard waste 11/88										
Sunfish Lake	379	127	curbside recycling 4/89,	Weekly	Yes	N/A	N/A	N/A	N/A	7.5	0.0	39.6	0.0
			curbside yard varies,	Varies									
			drop-off yard waste 11/88										
Rural SW Comm.:			curbside recycling 4/89,	Weekly	Yes	32.7	0.0	4.3	0.0	101.0	0.9	13.4	0.1
Castle Rock Twp.	1,503	468	drop-off recyc. pre 7/88,	or									
Coates	192	65	drop-off yard waste 11/88	Bi-week									
Douglas Twp.	623	179	-										
Empire Twp.	1,370	416											
Eureka Twp.	1,375	420											
Greenvale Twp.	675	202											
Hampton	322	111											
Hampton Twp.	964	263											
Marshan Twp.	1,595	425											
Miesville	179	· 52											
New Trier	115	33											
Nininger Twp.	851	230						•					
Randolph	356	117											
Randolph Twp.	425	133											
Ravenna Twp.	1,936	524											
Sciota Twp.	276	82											
Vermillion	559	169											
Vermillion Twp.	1,229	334											
Waterford Twp.	502	181											
Over 5,000 Popula	ation												
Apple Valley	31,674	10,320	curbside recycling 4/89,	Weekly	Yes	141.4	47.1	8.9	3.0	542.5	701.8	34.3	44.3

drop-off recyc. pre 7/88, curbside yard waste varies,

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					-	July t	<u>hru Dece</u>	ember 1	988	Januar	y thru .	June 19	89
1989 FISCAL						Tons	Tons	Lbs.	Lbs.	Tons	Tons	Lbs.	Lbs.
		House-			City	Resd.	Yard	Pers.	Pers.	Resd.	Yard	Pers.	Pers.
DAKOTA	Population	holds	Type of Service	Pick-Up	Bin	Recy.	Waste	Recy.	Yard	Recy.	Waste	Recy.	Yard
Burnsville	46,687	17,662	curbside recycling 4/89, drop-off recyc. pre 7/88, curbside yard waste varie drop-off yard waste 4/88, compost site	Weekly s,	Yes	529.6	588.1	22.7	25.2	1,079.8	766.6	46.3	32.8
Eagan	42,556	15,594	curbside recycling 3/89, drop-off recyc. pre 7/88, curb.yard waste varies, drop-off yard waste 4/86, compost site	Weekly Varies	Yes	439.9	489.6	20.7	23.0	1,137.8	566.8	53.5	26.6
Farmington	5,350 °	1,882	curbside recycling 3/89, drop-off recyc. pre 7/88, curbside yard waste 4/89, drop-off yard waste 11/88	Weekly Varies	Yes	84.0	1.9	31.4	0.7	86.4	266.9	32.3	99. 8
Hastings	14,493	5,142	curbside recycling 4/89, drop-off recyc. pre 7/88, drop-off yard waste 1986, compost site	Weekly	Yes	189.7	72.3	26.2	10.0	213.9	60.0	29.5	8.3
Inver Grove Hts.	21,477	7,575	curbside recycling 4/89, drop-off recyc. pre 7/88, curbside yard varies, drop-off yard 11/88, compost site Pine Bend	Bi-week Varies	Yes	, 89.4	7.7	8.3	0.7	203.9	190.2	19.0	17.7
Lakeville	20,500	6,827	curbside recycling 4/89, drop-off recyc. pre 7/88, curbside yard varies, drop-off yard waste 11/88 County compost site	Weekly Varies ,	Yes	177.0	64.3	17.3	6.3	535.4	636.4	52.2	62.1
Mendota Heights	8,680	3,056	curbside recycling 3/89, drop-off recyc. pre 7/88, curbside yard varies, drop-off yard waste 11/88	Weekly	Yes	10.9	0.2	2.5	0.0	115.5	142.3	26.6	32.8
Rosemount	7,420	2,358	curbside recycling 2/89, drop-off recyc. pre 7/88, curbside yard waste 3/89, drop-off yard waste 11/88	Weekly Varies	Yes	135.0	18.7	36.4	5.0	202.6	569.2	54.6 1	53.4

						July_tl	h <mark>ru</mark> Dece	mber 1	988	Januar	y thru .	une 19	89
1989 FISCAL						Tons	Tons	Lbs.	Lbs.	Tons	Tons	Lbs.	Lbs.
		House-			City	Resd.	Yard	Pers.	Pers.	Resd.	Yard	Pers.	Pers.
DAKOTA	Population	<u>holds</u>	Type of Service	Pick-Up	Bin	Recy.	Waste	Recy.	Yard	Recy.	Waste	Recy.	Yard
South St. Paul	20,361	8,042	curbside recycling 4/89, drop-off recyc. pre 7/88,	Bi-week	Yes	133.4	78.6	13.1	7.7	180.8	243.9	17.8	24.0
			curbside yard varies, drop-off yard waste pre/8 compost site	Varies 8,									
West St. Paul	18,591	8,374	curbside recycling 4/89, drop-off recyc. pre 7/88,	2/month	Yes	478.8	2.1	51.5	0.2	439.6	139.2	47.3	15.0
			curbside yard varies, drop-off yard waste 11/88	Varies									
Miscellaneous (no	t broken ou	t by comm	unity)		••	239.4	200.0	0.0	0.0	152.1	25.0	0.0	0.0
	-					July thru	Dec. 19	88		Jan. thru	June 19	89	
TOTAL POPULATION	254,009					TOTAL TONS	S			TOTAL TONS	5		
TOTAL HOUSEHOLDS	91,767		TOTAL RESIDENTIAL RECYC.			2,681.2	21.1	lbs./p	erson	5,010.4	39.5	lbs./p	erson
			TOTAL YARD WASTE			1,570.6	12.4	lbs./p	erson	4,308.9	33.9	lbs./p	erson
			FISCAL COMMER/INDUS			18,297.0	-						
			FISCAL RESIDENTIAL RECYC.			7,691.6							
	0		FISCAL YARD WASTE			5,879.5							

					<u> July t</u>	hru Deco	ember '	988	Januar	y thru .	June 19	989
1989 FISCAL					Tons	Tons	Lbs.	Lbs.	Tons	Tons	Lbs.	Lbs.
		House-		City	Resd.	Yard	Pers	Pers.	Resd.	Yard	Pers.	Pers.
HENNEPIN	Population	holds	Type of Service	Pick-Up Bin	Recy.	Waste	Recy	. Yard	Recy.	Waste	Recy.	Yard
Under 5,000 Popu	ulation											
Corcoran	4,952	1,482	curbside recycling 8/88	, Bi-monthYes	118.0	0.0	47.7	0.0	139.0	2.5	56.1	1.0
			curbside yard Spring/89									
Dayton	4,295	1,277	curbside recycling 1988	Monthly No	14.5	0.0	6.8	0.0	0.0	0.0	0.0	0.0
Deephaven	3,741	1,332	curbside recycling 9/87	, Monthly Yes	120.9	29.0	64.6	15.5	138.0	0.0	73.8	0.0
			curbside yard Spring/88									
Excelsior	2,574	1,258	curbside recycling 8/84,	, Weekly Yes	91.5	14.0	71.1	10.9	65.0	0.0	50.5	0.0
			curbside yard Spring/88									
Fort Snelling	216	17	、		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Greenwood	656	255	curbside recycling 10/87	7, Monthly Yes	7.2	0.0	22.0	0.0	13.0	0.0	39.6	0.0
			curbside yard Fall/89									
Hanover	266	74	••		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hassan Twp.	1,981	562	curbside recycling 5/89	2/month Yes	N/A	N/A	N/A	N/A	20.6	0.0	20.8	0.0
Minnetrista	3,662	1,206	curbside recycling 5/87,	, Monthly Yes	49.6	8.3	27.1	4.5	33.0	8.3	18.0	4.5
			drop-off yard Spring/88									
Osseo	2,707	1,002	curbside recycling 1/89	Weekly Yes	N/A	N/A	N/A	N/A	22.9	0.0	16.9	0.0
Rockford	469	175	curbside recycling 8/88,	, B1-week Yes	11.6	0.0	49.5	0.0	05.0	0.0	211.2	0.0
0	747	2/7	curbside yard spring/89		0.0	0.0		0.0	0.0	0.0	0.0	0 0
Rogers	/10	247		2/month Yes	2/ 1	0.0	0.0	0.0	24.0	7.0	44.2	7.2
St. Bonitacius	1,080	390	curbside recycling 9/87,	, 2/month res	24.1	0.0		0.0	24.0	3.7	44.2	1.2
			deep-off word Spring/88	,			•					
Soning Book	1 59/	75.8	curbside recycling (/87	2/month Yes	10 /	6 0	13 1	51	23 0	۷ ۵	20 N	51
sping raik	1,504	150	curbside vard Spring/88		10.4	4.0	13.1	2.1	23.0	4.0	27.0	
Tonka Rav	1 479	598	curbside recycling 6/87.	Weekly Yes	36.9	28.3	49.9	38.3	51.0	28.3	69.0	38.2
Tonka bay	1,412	570	curbside vard waste 10/8	38.								
			drop-off vard Spring/89									
Vavzata	3.711	1,699	curbside recycling 9/88.	. Weekly Yes	525.9	50.5	283.4	27.2	162.0	50.5	87.3	27.2
,	-,		curbside vard Fall/89.									
			drop-off yard Spring/88									
Woodland	496	181	curbside recycling 10/87	, 2/month Yes	10.5	0.0	42.3	0.0	10.5	0.0	42.3	0.0
			curbside yard Spring/89	-								

						July	<u>thru Dec</u>	ember 1	988	Janua	ry thru .	lune 19	89
1989 FISCAL						Tons	Tons	Lbs.	Lbs.	Tons	Tons	Lbs.	Lbs.
		House-			City	Resd.	Yard	Pers	Pers.	Resd.	Yard	Pers.	Pers.
HENNEPIN	Population	<u>holds</u>	Type of Service	Pick-Up	Bin	Recy.	Waste	Recy	Yard	Recy.	Waste	Recy.	Yard
<u>Over 5,000 Popula</u>	ation												
Bloomington	85,299	33,898	curbside recycling 4/89,	Weekly	Yes	860.2	0.0	20.2	0.0	1,311.0	558.9	30.7	13.1
			curbside yard waste 4/89,										
			drop-off recycling										
Brooklyn Park	53,842	20,214	curbside recycling 6/89,	Weekly	Yes	429.8	0.0	16.0	0.0	630.0	468.0	23.4	17.4
			curbside yard Spring/89,										
			drop-off recycling										
Champlin	14,500	4,684	curbside recycling 8/88,	Weekly	Yes	129.8	112.9	17.9	15.6	363.0	112.9	50.1	15.6
			curbside yard Spring/88,										
			drop-off recycling										
Eden Prairie	34,906	12,779	curbside recyc. by 8/89,	Weekly	Yes	162.6	0.0	9.3	0.0	186.0	0.0	10.7	0.0
			drop-off recycling,										
			curbside yard waste 10/89										.
Edina	46,095	20,363	curbside recyc. pilot/87	Weekly	Yes	1,036.0	0.0	45.0	0.0	838.0	1,246.0	36.4	54.1
			citywide 7/89,										
			curbside yard Spring/89				453.3					<i></i>	
Golden Valley	21,318	8,289	curbside recycling 8/88,	Weekly	Yes	1,036.4	157.5	97.2	14.8	642.0	157.3	60.2	14.8
N 1-2	4/ 950	7 (70	curbside yard Spring/88		¥	707 7	117 F	104 0	15 0	201 0	117 5	77 1	15 0
HOPKINS	14,850	1,419	curbside recycling 1/89,	weekty	res	101.3	117.5	100.0	12.0	201.0	117.5	27.1	12.0
			deepooff peovoling										
Manla Crove	35 882	11 3/0	curbside recycling 5/89	Upokly	Yes	N/A	N / A	N / A	N / A	518 0	0 0	28 9	0 0
hapte diove	55,002	11,340	curbside vard Fall/89	weekty	103	N/ N	N/ A	N/A	177	21010	•.•	2017	•••
Minneanolis	355 800	163 616	curbside recycling 11/83.	2/month	No	5 124.4	3.661.0	28.8	20.6	6.462.0	3.661.0	36.3	20.6
mineupotro	,	,	curbside vard waste	_,			•,			-,			
Minnetonka	43.742	17,162	curbside recycling 5/89.	Weeklv	Yes	739.9	124.5	33.8	5.7	753.0	124.5	34.4	5.7
			curbside vard Fall/88.										
			drop-off recycling										
Mound	9,951	3.747	curbside recycling 10/85,	2/month	Yes	171.4	45.0	34.4	9.0	395.0	0.0	79.4	0.0
	••••		drop-off yard Spring/88,	•									
			curbside yard Fall/89										
Richfield	36,760	15,743	curbside recyc. pilot 9/8	4Weekly	Yes	822.2	289.8	44.7	15.8	1,136.0	289.8	61.8	15.8
	·	•	and city wide 10/88,										
			curbside yard Spring/88										
Robbinsdale	14,588	6,246	curbside recycling 6/88,	Weekly	Yes	767.4	160.5	105.2	22.0	691.0	160.5	94.7	22.0
			curbside yard Summer/88										

						July_t	<u>hru Dece</u>	ember 1	988	Januar	y thru .	June 19	89
1989 FISCAL						Tons	Tons	Lbs.	Lbs.	Tons	Tons	Lbs.	Lbs.
		House-			City	/ Resd.	Yard	Pers.	Pers.	Resd.	Yard	Pers.	Pers.
HENNEPIN	Population	holds	Type of Service	Pick-Up	Bin	Recy.	Waste	Recy.	Yard	Recy.	Waste	Recy.	Yard
St. Anthony	5,448	2,159	curbside recycling 6/89, curbside yard Spring/89, drop-off yard Summer/88, drop-off recycling	Weekly	No	90.8	0.0	33.3	0.0	68.0	31.5	25.0	11.6
St. Louis Park	43,700	20,243	curbside recycling pilot, curbside yard Summer/86	Weekly	Yes	1,527.1	730.3	69.9	33.4	1,518.0	730.3	69.5	3 3.4
Shorewood	5,094	1,807	curbside recycling 7/87	Bi-week	No	120.8	0.0	47.4	0.0	144.0	0.0	56.5	0.0
Henn. Recyc. Group Brooklyn Center Crystal New Hope	p: 29,420 24,900 22,944	11,270 9,389 8,345	curbside recycling 6/89, curbside yard Spring/89, drop-off recycling	Weekly	Yes	452.4	0.0	11.7	0.0	931.0	758.2	24.1	19.6
W. Henn. Recycling	9:		curbside recycling 8/88	Bi-mont	hYes	225.7	23.4	23.3	2.4	514.0	23.4	53.1	2.4
Greenfield	1,545	480	and 1/89,										
Independence	2,770	896	curbside yard Fall/88,										
Long Lake	1,988	765	drop-off recycling										
Loretto	345	142											
Maple Plain	1,803	654											
Medina	3,035	972											
Minnetonka Beach	า 596	220						•					
Orono	7,284	2,629						•					
Plymouth/ Medicine Lake	47,800 398	17,325 168	curbside recycling 4/87, curbside yard Spring/88	Weekly	Yes	1,710.1	233.0	71.0	9.7	1,572.0	233.0	65.2	9.7
TOTAL POPULATION	1,001,194					July thru TOTAL TONS	Dec. 19	88		Jan. thru <u>TOTAL TONS</u>	June 19	89	
TOTAL HOUSEHOLDS	415,537		TOTAL RESIDENTIAL RECYC.			17,215.4	34.4	lbs./p	erson	19,640.0	39.2	lbs./pe	erson
			TOTAL YARD WASTE			5,789.3	11.6	lbs./p	erson	8,770.1	17.5	lbs./pe	rson
			FISCAL COMMER/INDUS FISCAL RESIDENTIAL RECYC.			70,111.3 36,855.4							
			FISCAL YARD WASTE			14,559.4							

						July thru December 1988 J					ary thru June 1989			
1989 FISCAL						Tons	Tons	Lbs.	Lbs.	Tons	Tons	Lbs	Lbs.	
		House-			City	y Resd.	Yard	Pers.	Pers	. Resd.	Yard	Pers	. Pers	
RAMSEY	Population	<u>holds</u>	Type of Service	Pick-Up	Bin	Recy.	Waste	Recy.	Yaro	Recy.	Waste	Recy	. Yaro	
Under 5,000 Popul	lation	-												
Gem Lake	410	137	curbside recycling 9/88	2/month	No	2.0	0.0	9.8	0.0	4.0	0.0	19.5	0.0	
Lauderdale	2,307	1,169	curbside recycling 7/87	2/month		31.0	0.0	26.9	0.0	23.6	0.0	20.5	0.0	
North Oaks	3,205	1,029	curbside recycling 4/87	Monthly		94.5	0.0	59.0	0.0	100.0	0.0	62.4	0.0	
St. Anthony	2,797	1,431	drop-off recycling	• •		148.5	0.0	106.2	0.0	150.0	0.0	107.3	0.0	
Over 5,000 Popula	ation	_												
Arden Hills	9,737	2,895	curbside recycling 3/88,	2/month	Yes	161.0	325.0	33.1	66.8	203.5	490.0	41.8	100.6	
			drop-off yard waste 10/83	3										
Falcon Heights	5,386	2,067	curbside recycling 4/87	2/month	\$8	139.0	0.0	51.6	0.0	50.5	0.0	18.8	0.0	
Little Canada	8,623	3,806	curbside recycling 7/87	2/month	Yes	106.0	0.0	24.6	0.0	141.6	0.0	32.8	0.0	
Maplewood	29,305	10,995	curbside recycling 11/88,	, 2/month	Yes	92.5	370.0	6.3	25.3	211.6	559.0	14.4	38.2	
			drop-off yard waste 10/84	4.										
			drop-off recycling											
Mounds View	13,025	4,771	curbside recycling 6/88,	2/month	Yes	48.0	185.0	7.4	28.4	122.2	281.0	18.8	43.1	
			drop-off yard waste 10/84	'										
New Brighton	23,343	8,347	curbside recycling 7/87	Monthly	No	263.0	0.0	22.5	0.0	186.0	0.0	15.9	0.0	
North St. Paul	12,350	4,381	curbside recycling 7/87	2/month		165.0	0.0	26.7	0.0	292.9	0.0	47.4	0.0	
Roseville	34,785	13,372	curbside recycling 7/87,	2/month	No	480.0	1,500.0	27.6	86.2	314.2	1,800.0	18.1	103.5	
			curbside yard waste											
St. Paul	265,100	110,971	curbside recycling 1981,	2/month		5,832.5	592.5	44.0	4.5	3,341.0	1,175.0	25.2	8.9	
			drop-off yard waste 10/83	5,										
			drop-off recycling											
Shoreview	23,898	8,864	curbside recycling 5/88,	2/month	Yes	251.5	105.0	21.0	8.8	343.6	0.0	28.8	0.0	
			drop-off yard waste											
Vadnais Heights	9,720	3,545	curbside recycling 10/88	2/month	No	42.0	0.0	8.6	0.0	136.3	0.0	28.0	0.0	
White Bear Lake	23,605	8,349	curbside recycling 4/88,	2/month		197.0	836.5	16.7	70.9	407.7	281.0	34.5	23.8	
			curbside yard waste 7/88											
White Bear Twp.	8,600	2,883	curbside recycling 9/85,	2/month		174.0	414.0	40.5	96.3	200.0	580.0	46.5	134.9	
			curbside yard waste 4/88,	Monthly										
			drop-off yard waste											
						July thru	J Dec. 19	88		Jan. thr	u June 19	89		
TOTAL POPULATION	476,196					TOTAL TOP	15	-		<u>total to</u>	NS	-		
TOTAL HOUSEHOLDS	189,012		TOTAL RESIDENTIAL RECYC.			8,227.5	34.6	lbs./p	erson	6,228.7	26.2	lbs./p	erson	
			TOTAL YARD WASTE			4,328.0	18.2	lbs./p	erson	5,166.0	21.7	lbs./p	erson	
			FISCAL COMMER/INDUS			39,000.0								
			FISCAL RESIDENTIAL RECYC.			14,456.2								
			FISCAL YARD WASTE			9,494.0								

						July_th	ru Dece	mber 1	988	January thru June 1989			
1989 FISCAL						Tons	Tons	Lbs.	Lbs.	Tons	Tons	Lbs.	Lbs.
		House-			City	Resd.	Yard	Pers.	Pers	Resd.	Yard	Pers.	Pers
SCOTT	Population	holds	<u>Type of Service</u>	Pick-U	<u>o Bin</u>	Recy.	Waste*	Recy.	Yard	Recy.	Waste	Recy.	Yard
	. •												
Under 5,000 Popul	ation					2.5		• /					
Belle Plaine	3,159	1,082	curbside recycling 1/89,		••	2.5	N/A	1.0	N/A	N/A	N/A	N/A	N/A
	700	242	drop-off recycling			N / A				N /A			
Belle Plaine Iwp.	790	212	curbside recycling 1/89			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Blakeley Twp.	508	152	curbside recycling 1/89			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cedar Lake Twp.	1,709	490	curbside recycling 1/89		••	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Credit River Twp.	2,897	819	curbside recycling 1/89			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Elko	296	86	curbside recycling 1/89			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Helena Twp.	1,263	357	curbside recycling 1/89			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jackson Twp.	1,490	483	curbside recycling 1/89			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jordan	2,830	953	curbside recycling 1/89,			5.4	N/A	3.8	N/A	N/A	N/A	N/A	N/A
			drop-off recycling										
Louisville Twp.	890	263	curbside recycling 1/89			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New Market	308	109	curbside recycling 1/89			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New Market Twp.	1,993	577	curbside recycling 1/89			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New Prague	2,364	1,002	curbside recycling 1/89,			35.0	N/A	29.6	N/A	43.9	0.0	37.2	0.0
			drop-off recycling										
St. Lawrence Twp.	416	121	curbside recycling 1/89			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sand Creek Twp.	1,585	407	curbside recycling 1/89			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spring Lake Twp.	2,905	849	curbside recycling 1/89			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Over 5,000 Popula	tion							·					
Prior Lake	10,640	3,690	curbside recycling 1/89,			51.1	N/A	9.6	N/A	53.6	N/A	10.1	N/A
			drop-off recycling										
Savage	8,251	2,958	curbside recycling 1/89,			38.6	N/A	9.4	N/A	40.6	N/A	9.8	N/A
-	-	-	drop-off recycling										
Shakopee	11,733	3,993	curbside recycling 1/89,	Weekly	Yes	120.7	N/A	20.6	N/A	328.6	48.9	56.0	8.3
•	-	-	curbside yard waste 4/89)									
Scott County othe	r		curbside recycling 1/89,			129.7				959.3	138.0		
			curbside yard waste 4/89)									
			•			July thru	Dec. 19	88		Jan. thru	June 19	89	
TOTAL POPULATION	56,027					TOTAL TONS				TOTAL TONS	\$	_	
TOTAL HOUSEHOLDS	18.603		TOTAL RESIDENTIAL RECYC.		-	383.0	13.7	lbs./p	erson	1,426.0	50.9	lbs./p	erson
			TOTAL YARD WASTE*			0.0	0.0	lbs./p	erson	186.9	6.7	lbs./pe	erson
			FISCAL COMMERIZINDUS			18 317 0 **	*						
			FISCAL RESIDENTIAL RECYC			1.809.0							
*Included in resi	dential		FISCAL YARD WASTE	-		186.9							
**Includes approx	- 15,000 to	ns Comm /	Indus. recycling and/or w	aste redu	ction								
mercades approx	,		the second s			D							

that may not actually qualify as post 1985 source separated recycling of mixed MSW.

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					-	July thru December 1988				January thru June 1989				
1989 FISCAL						Tons	Tons	Lbs.	Lbs.	Tons	Tons	Lbs.	Lbs.	
		House-			City	Resd.	Yard	Pers	. Pers.	Resd.	Yard	Pers.	Pers.	
WASHINGTON	Population	<u>holds</u>	Type of Service	Pick-Up	Bin	Recy.	Waste	Recy	. Yard	Recy.	Waste	Recy.	Yard	
Under 5,000 Popula	ation	070			м.	44.5	- , ,	40.7	AF 7	., ,		74 0	• •	
Atton	2,015	870	curbside recycling 9/88,	Monthly	NO	10.5	54.4	12.3	25.7	40.0	0.0	34.9	0.0	
. .	7 404		curbside yard waste 1987	4/month		40.0								
Bayport	3,106	/38	drop-off recycling 1987			18.0	0.0	11.0	0.0	17.4	0.0	11.2	0.0	
Baytown Twp.	913	278	curbside recycling 10/88	Monthly	NO	1.8	0.0	3.9	0.0	11.2	0.0	24.0	0.0	
Birchwood	1,049	354	curbside recycling 2/89	2/month	No	N/A	N/A	N/A	N/A	18.9	0.0	36.0	0.0	
Dellwood	815	278	curbside recycling 1/89	2/month	Yes	N/A	N/A	N/A	N/A	22.4	0.0	54.9	0.0	
Denmark Twp.	1,288	381	curbside newspaper,	4/month	No	N/A	N/A	N/A	N/A	1.8	0.0	2.8	0.0	
			drop-off recycling 1988											
Grant Twp.	3,680	1,113				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Grey Cloud Twp.	339	118			• -	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Hugo	4,250	1,308	drop-off recycling 1987,		••	63.7	20.0	30.0	9.4	73.5	40.0	34.6	18.8	
			drop-off yard waste 10/8	8										
Lake St. Crx. Bch	. 2,109	409	curbside recycling 7/88,	2/month	No	32.7	34.4	31.0	32.6	26.8	65.8	25.5	62.4	
			curbside yard waste 1987	4/month										
Lakeland	1,179	650	curbside recycling 5/88,	2/month	No	49.1	34.4	83.3	58.4	48.5	65.8	82.2	111.6	
			curbside yard waste 1987	4/month										
Lakeland Shores	188	86	curbside yard waste 1987	4/month		N/A	34.4	N/A	366.0	0.0	43.9	0.0	466.5	
Landfall	635	326				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Mahtomedi	4,650	1,673	curbside recycling 2/89	2/month	No	N/A	N/A	N/A	N/A	66.6	0.0	28.6	0.0	
Marine St. Croix	552	217	drop-off recycling 1985			27.4	0.0	993	0.0	36.2	0.0	131.0	0.0	
May Twp.	2,430	770	drop-off recycling 1985			18.3	0.0	15.1	0.0	24.1	0.0	19.8	0.0	
Newport	3,567	1,348	drop-off recycling 1987			16.4	0.0	9.2	0.0	18.9	0.0	10.6	0.0	
New Scandia Twp.	3,186	1,006	drop-off recycling 1985		••	45.7	0.0	28.7	0.0	60.7	0.0	38.1	0.0	
Oak Park Heights	3,751	1,313	drop-off recycling 1987	•-		28.4	0.0	15.1	0.0	30.0	0.0	16.0	0.0	
Pine Springs	470	137				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
St. Mary's Point	351	123	curbside recycling 10/88	, Monthly	No	1.5	34.4	8.5	196.0	8.7	43.8	49.5	249.6	
			curbside yard waste 1987	4/month										
St. Paul Park	4,915	1,632	drop-off recycling 1987			18.7	0.0	7.6	0.0	21.4	0.0	8.7	0.0	
Stillwater Twp.	2,015	625	curbside recycling 3/89	4/month	No	N/A	N/A	N/A	N/A	19.0	0.0	18.8	0.0	
West Lakeland Twp	. 1,593	498	curbside recycling 10/88	Monthly	No	2.8	0.0	3.5	0.0	7.6	0.0	9.5	0.0	
Willernie	672	257	curbside recycling 2/89	2/month	No	N/A	N/A	N/A	N/A	13.9	0.0	41.4	0.0	

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						July thru December 1988January t					ry thru	thru June 1989		
1989 FISCAL						Tons	Tons	Lbs.	Lbs.	Tons	Tons	Lbs.	Lbs.	
		House-			City	y Resd.	Yard	Pers	. Pers.	Resd.	Yard	Pers	. Pers.	
WASHINGTON	Population	<u>holds</u>	Type of Service	Pick-Up	Bin	Recy.	Waste	Recy	. Yard	Recy.	Waste	Recy	. Yard	
Over 5,000 Popula	ition													
Cottage Grove	21,800	6,264	drop-off recycling 1987,			74.6	57.0	6.8	5.2	85.5	1,138.0	7.8	104.4	
	-	-	drop-off yard waste 1985								•			
Forest Lake	5,430	2,213	curbside recycling 6/89,			112.5	282.0	41.4	103.9	53.3	383.0	19.6	141.1	
			drop-off recycling 1982,											
			drop-off yard waste 1984											
Forest Lake Twp.	6,160	1,957	curbside recycling 6/89,			112.5	0.0	36.5	0.0	53.3	0.0	17.3	0.0	
			drop-off recycling 1982											
Lake Elmo	6,189	2,037	curbside recycling 3/88,	Monthly	No	76.6	158.0	24.8	51.1	89.2	342.0	28.8	110.5	
			drop-off yard waste 1985							•				
Oakdale	16,026	5,807	drop-off recycling 1987			175.9	0.0	22.0	0.0	179.1	0.0	22.4	0.0	
Stillwater	13,485	4,711	drop-off recycling 1987			104.7	0.0	15.5	0.0	110.4	0.0	16.4	0.0	
Woodbury	18,500	6,290	drop-off yard waste 1984, curbside yard waste 4/89			0.0	177.0	0.0	19.1	0.0	1,036.0	0.0	112.0	
						July thru	Dec. 19	88		Jan. thru	ı June 19	89		
TOTAL POPULATION	137,968					TOTAL TONS	;			TOTAL TOP	<u>IS</u>	-		
TOTAL HOUSEHOLDS	45,787		TOTAL RESIDENTIAL RECYC.			997.8	14.5	lbs./p	person	1,144.6	16.6	lbs./r	erson	
			TOTAL YARD WASTE			866.0	12.6	lbs./p	person	3,158.3	45.8	lbs./p	erson	
			FISCAL COMMER/INDUS			4,084.5								
			FISCAL RESIDENTIAL RECYC.			2,142.4		•.						
			FISCAL YARD WASTE			4,024.3								
********	*****	*******	*****	*******	****	*******	******	*****	*****	******	*******	*****	*****	
TOTALS FOR METRO	AREA													
						July thru	Dec. 19	88		Jan. thru	June 19	89		
TOTAL POPULATION	TOTAL POPULATION 2,200,301					TOTAL TONS				TOTAL TONS				
TOTAL HOUSEHOLDS	853,167		TOTAL RESIDENTIAL RECYC.			32,544	29.6	lbs./p	erson	37,937	34.5	lbs./p	erson	
			TOTAL YARD WASTE			14,896	13.5	lbs./p	erson	25,535	23.2	lbs./p	erson	
			FISCAL COMMER/INDUS			171,732								
			FISCAL RESIDENTIAL RECYC.			70,480.8								
			FISCAL YARD WASTE			40,431.0								

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