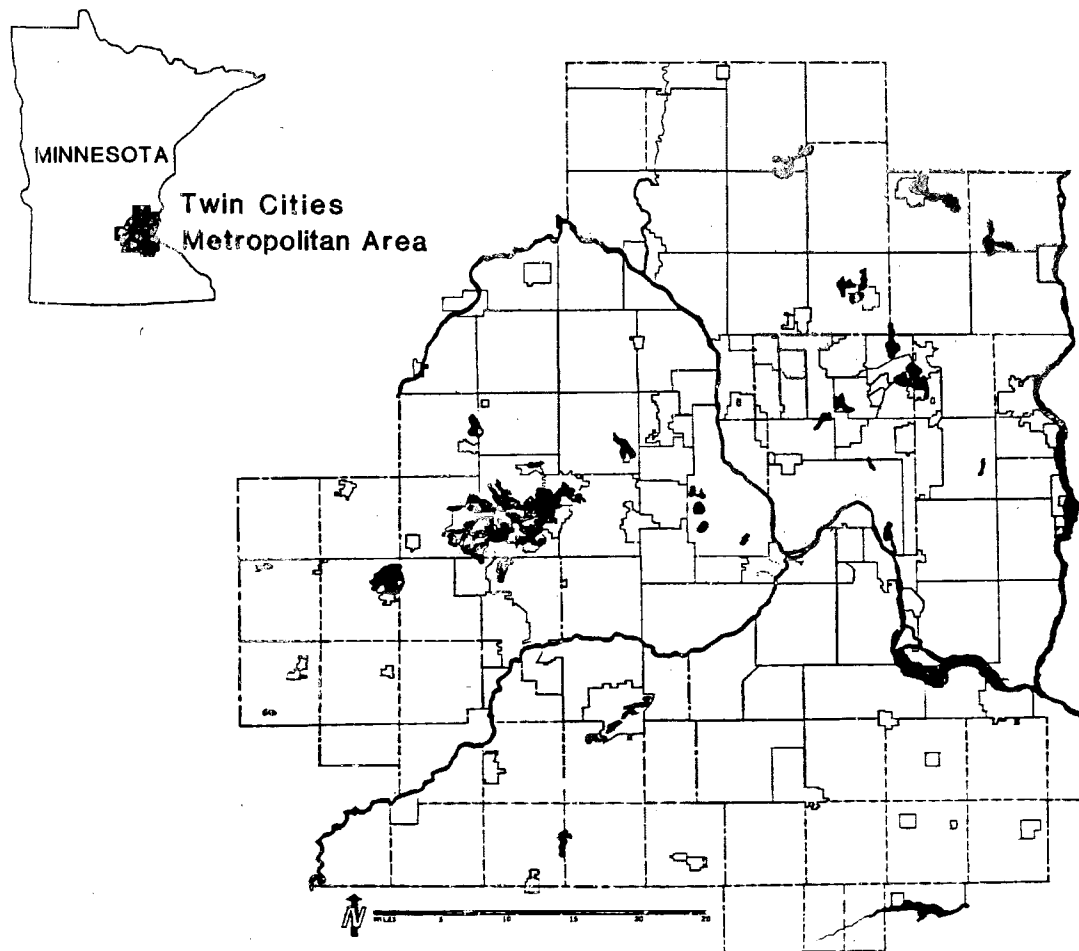


# 1986 ABATEMENT PROGRESS REPORT for the Twin Cities Metropolitan Area

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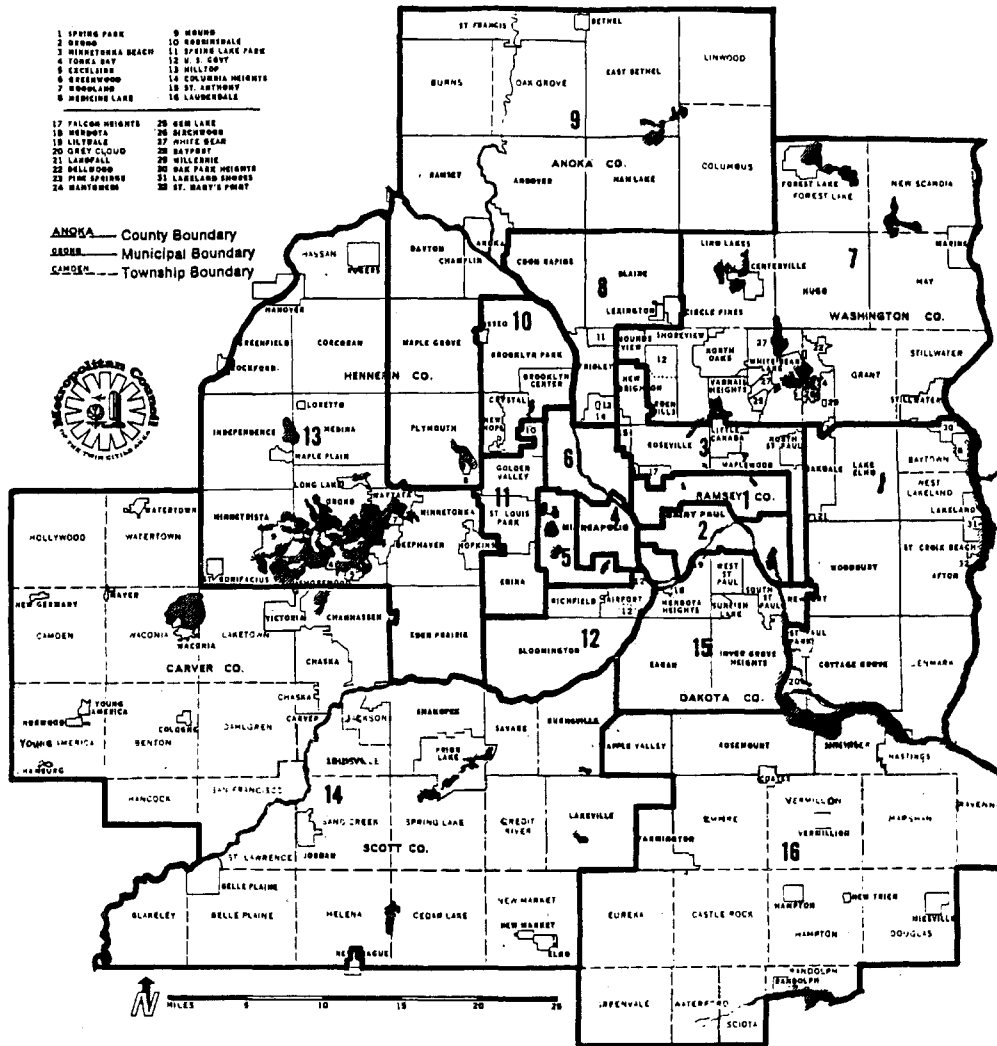


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## Report of the Metropolitan Council to the Minnesota Legislative Commission on Waste Management

December 1986





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## CONTENTS

SUMMARY.....	1
ABOUT THIS REPORT.....	2
LANDFILL DEVELOPMENT SCHEDULE.....	3
Background.....	3
Method of Analysis.....	3
Landfill Development Schedule.....	4
Reported Receiving Rates Method.....	4
Aerial Survey Method.....	4
Conclusions.....	5
CENTRALIZED PROCESSING FACILITIES.....	6
Background.....	6
Status of Facilities at Year's End.....	8
Operating Facilities.....	8
Facilities Under Construction.....	8
Facilities Nearing Construction.....	9
Facilities Under Consideration.....	9
Issues Relating to Centralized Processing.....	10
Overall Processing Capacity.....	10
Minimizing Pass-Through.....	10
Conclusions.....	10
WASTE FLOW DESIGNATION.....	11
Background.....	11
Status.....	12
Ramsey and Washington Counties.....	12
Hennepin County.....	13
Anoka County.....	13
Dakota County.....	14
Carver and Scott Counties.....	14
Issues Related to Waste Flow Designation.....	14
Implementation.....	14
Sufficient Processing Capacity.....	14
Monitoring.....	15
Conclusion.....	15
RESIDENTIAL WASTE ABATEMENT.....	16
Background.....	16
Status at Year's End -- Retrenchment and Recovery.....	16
Curbside Programs.....	16
Drop-Off Programs.....	17
Issues Relating to Source-Separated Recycling.....	17
Meeting the Recycling Objectives.....	17
Markets and Intermediate Processing Centers.....	17
Conclusions.....	18
COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTE ABATEMENT...19	19
Background.....	19
Status of Abatement Projects.....	19
Recycling Services.....	19
Super Cycle, Inc.....	19

CONTENTS (continued)

Northland Recycling.....	20
University of Minnesota.....	20
Specialty Bedding.....	20
Issues Relating to Commercial, Industrial and Institutional Waste Abatement.....	20
Conclusions.....	20
YARD WASTE COMPOSTING.....	21
Background.....	21
Waste Reduction.....	21
Centralized Composting Programs.....	22
Issues Pertaining to Yard Waste Abatement.....	22
Conclusions.....	22
ATTACHMENTS.....	25
A Volume-Based Fee Approach to Financing Solid Waste Costs.....	25
Curbside Collection Survey.....	25
Organized Collection Packet.....	25
Solid Waste...at what cost?.....	25
Solid Waste Market Identification and Expansion Report.....	26
Yard Waste Alternatives.....	26

FIGURES

1. Metropolitan Area Landfills, 1986.....	3
2. Planned Operating Capacity of Centralized Processing Facilities, 1985-1991.....	7
3. Season Variations in Solid Waste Generation Versus Average Daily Flow, 1990.....	7
4. Estimated Composition of the Waste Stream, 1990.....	21

TABLES

1. Estimated Source-Separated Centralized Yard waste Composting by County in Tons for the Years 1985 and 1986.....	23
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## SUMMARY

According to reports received from landfill operators in the Twin Cities Metropolitan Area, the landfills are receiving about seven percent more waste than anticipated in the Metropolitan Council policy plan's landfill development schedule. The seven percent increase is not considered significant at this time, however, because annual variations in waste generation frequently exceed ten percent. Also, there are some preliminary indications that even with the higher receiving rates, landfills actually may be using less space than expected. If this is substantiated through further research, it may be possible to extend the Council's landfill development schedule beyond its current end date.

Centralized processing facilities (mass burn plants and refuse-derived-fuel (RDF) plants) that are proposed by the Council's policy plan to handle 80 percent of the region's waste were beginning to come on-line during 1986. In 1987, centralized processing capacity is expected to substantially exceed Council abatement objectives. While the total amount of centralized processing capacity in various stages of planning and development at this time are inadequate to meet the Council's long-term abatement objectives, the counties have made tremendous progress towards regional objectives in 1986.

Four counties (Anoka, Hennepin, Ramsey and Washington) have submitted waste flow designation plans and three counties (Hennepin, Ramsey and Washington) have submitted designation ordinances to the Council. All have been approved by the Council. The Anoka waste designation ordinance is expected for review in early 1987. Designation plans for the three other counties await final decisions on centralized processing facilities expected in 1987.

Progress in source-separated recycling was made in residential, commercial, industrial and institutional sectors in 1986. Residential programs, both curbside and drop-off, appear to have bounced back after experiencing problems in 1985. County efforts in 1987 are expected to result in substantial gains in the forthcoming year. Council-sponsored recycling projects for commercial, industrial and institutional sectors have met with considerable success in 1986, and are expected to show even more substantive results in 1987.

Yard waste abatement efforts increased dramatically during 1985 and 1986. Yard waste appears to be one of the easiest solid waste components to abate. It is readily handled by waste reduction techniques of mulching and backyard composting, and has become the subject of interest by area haulers as a means of reducing out-of-pocket expenses for rapidly increasing tip fees at area landfills and for avoiding the even higher cost tip fees at centralized processing facilities.

Overall, the Council is pleased with the level of abatement progress achieved in 1986 in the metropolitan area. While some measures of abatement progress appear to have been less significant than others, this report does not substantiate the need for, nor contain attached to it, legislation to reassign appropriate governmental responsibilities among cities, counties and metropolitan agencies so as to assure implementation and achievement of the metropolitan and local abatement plans and objectives.

## ABOUT THIS REPORT

The Waste Management Act of 1980, as amended, requires the Metropolitan Council prepare and monitor a plan for the abatement of land disposal of solid waste. Minn. Stat. 473.149, Subd. 2d, states...

...The Council shall report on abatement to the legislative commission before January 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 has 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 attach legislation to the report that reassigns appropriate governmental responsibilities among cities, counties, and metropolitan agencies so as to assure implementation and achievement of the metropolitan and local abatement plans and objectives.

In addition to meeting the statutory requirement for an annual report on abatement progress, this report contains a section on waste flow "designation" that is intended to meet the requirements of Minn. Stat. 115A.89, which reads...

...The reviewing authority shall: (1) require regular reports on the implementation of each designation; (2) periodically evaluate whether each designation as implemented has accomplished its purposes and whether the designation is in the public interest and in furtherance of the state policies and purposes expressed in section 115A.02; and (3) report periodically to the legislature on its conclusions and recommendations.

This is the second annual Abatement Progress Report to the Legislative Commission on Waste Management (LCWM). It is divided into nine sections, which begin with a "summary" that sets out the main points of this report. "About This Report" provides background information about the document and its purpose. "Landfill Development Schedule" reviews changes in the number and capacity of sanitary landfills in the Metropolitan Area since 1980, reviews what the Council's policy plan has established as regional landfill capacity needed in 1985 and 1986, and based on an analysis of available capacity determines whether the landfill development schedule is on-track. "Centralized Processing Facilities" examines progress of the region in developing resource recovery plants with the capability to "process" up to 80 percent of region's solid waste during the 1990's. "Waste Designation" discusses existing designations, their effects and likely future designations.

The section entitled "Residential Recycling Programs" focuses on the major retrenchment of the residential recycling industry in the Twin Cities area that occurred during 1986. "Commercial, Industrial and Institutional Recycling Programs" examines recycling programs begun by the University of Minnesota at its Twin Cities campuses and expansion of office paper and corrugated cardboard recycling by area businesses. "Yard Waste Composting" presents a summary of a major study on yard waste alternatives published recently by the Council. Finally, "Attachments" provides a brief synopsis of reports published by the Council during 1986 that are related to solid waste abatement.

## LANDFILL DEVELOPMENT SCHEDULE

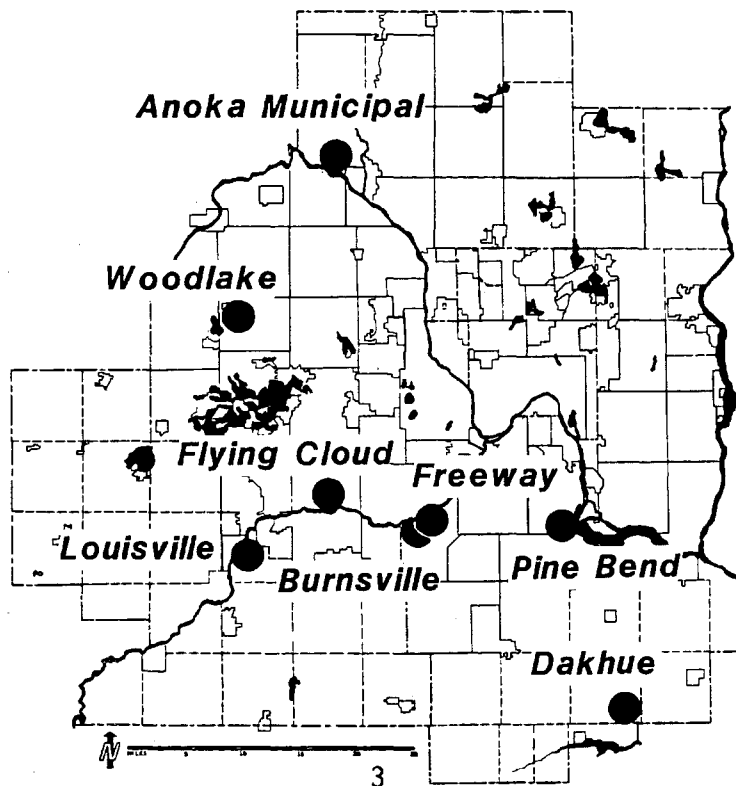
### BACKGROUND

Minnesota Statutes 473.149, Subd. 2e requires that the Council adopt a schedule of disposal capacity to be developed in each county through the year 2000. It further requires that the Council review the development schedule every year and revise the schedule and allocation of disposal capacity required for each county based on the progress made in the implementation of the Council's abatement plans and achievement of its abatement objectives. It is in this context that the following review is made of the landfill development schedule.

### METHOD OF ANALYSIS

The analysis of the landfill development schedule has been done in two ways. First, information is continually being obtained from the Minnesota Pollution Control Agency (MPCA) on the actual receiving rates reported by the landfill operators. Secondly, the Council contracted to have aerial photographs made of the eight landfills in the region. A team of surveyors using the aerial photographs and on-site visits has produced contour maps of the active fill areas at each landfill. These contours were then compared with the permitted fill area contour maps held by the MPCA. The difference between the two sets of contour maps is the remaining permitted landfill capacity of each landfill. In this way, the Council has been able to cross-check its information to ensure an accurate measure of landfilling rates that is needed to evaluate its landfill development schedule. Figure 1 shows the general location of the permitted landfills in the Twin Cities Metropolitan Area.

Figure 1  
METROPOLITAN AREA LANDFILLS, 1986



## LANDFILL DEVELOPMENT SCHEDULE

The Council's policy plan states that as of January 1985 there was 11,909 acre-feet of capacity remaining in the Region's landfills. The plan assumes that residuals will be produced from all centralized processing facilities due to facility downtime, materials rejected because they are not marketable, and ash from energy recovery combustion. For the period 1985 through 1990, it assumes that 40 percent of all waste handled by reduction/recovery technologies will still require landfilling. For the period 1991 through 2000, it projects that the rate will decline to 30 percent due to the development of complementary technologies such as composting, co-composting and improved materials recovery.

The policy plan states that the total landfill capacity needed for the region from 1985 through the year 2000 is 20,605 acre-feet. The figures contained in the plan are the Council's estimate of the amount that will need to be landfilled assuming that the Council's waste reduction/recovery schedule is implemented. Since the estimated unused capacity of permitted space as of January 1985 was 11,909 acre-feet, an additional 8,726 acre-feet of capacity is proposed to be added to the regional system between 1985 and 2000.

This additional capacity is provided for in the plan's development schedule based on a conversion factor one acre-foot of landfill space is needed for every 806.5 tons of unprocessed waste and residuals landfilled. The 1985 estimate of existing capacity did not include any of the proposed expansions that had approval decisions pending. Since the plan was adopted in March 1985, no landfill expansions have been approved, per se. There was, however, one permit modification allowed during the period by the MPCA at Flying Cloud for an additional 526 acre-feet of capacity.

### REPORTED RECEIVING RATES METHOD

Between January 1, 1985, and January 1, 1987, the amount of material received at Metropolitan Area landfills is estimated to be 13,588,0810 cu. yds. (the equivalent of approximately 4,211 acre-feet of landfill space assuming 3,227 cu. yds. per acre-foot of initial in-place compacted material in the landfill). This estimate is based on actual receiving rates reported to the MPCA by landfill operators for the period January 1985 through June 1986. For the period June 1986 through December 1986 the calculation used a five year average of the amount landfilled in the Metro Area for this period. The estimate is higher than the rate of use anticipated in the plan which was 12,733,333 cu. yds. (3,946 acre-feet).

### AERIAL SURVEY METHOD

Aerial photographs of the eight Metropolitan Area landfills were taken in mid-October for the Council. These photographs were then mapped, digitized, on-site transit surveys made, and active fill area contours plotted and compared to MPCA permitted fill area contours. This system of analysis is identical to the technique used to determine remaining landfill capacity as of January 1, 1985. Based on the preliminary results of this work, the estimated remaining approved landfill capacity in the region is 10,811 acre-feet. This figure includes the 526 acre-foot addition approved in 1985 at Flying Cloud landfill.



This compares with 8,489 acre-feet of unused landfill capacity scheduled in the policy plan (9,015 acre-feet if the 526 acre-foot addition is included). The preliminary figures suggest that landfill space is not being used as quickly as anticipated in the plan.

### CONCLUSIONS

Landfills in the Metro Area are receiving about seven percent more material than anticipated in the Council's adopted policy plan. However, this is not a significant variation from the policy plan's calculations. Historically, annual variations in MSW landfill rates of ten percent and more are not uncommon. Such variations reflect changes in regional, state and national economies as well as changes in attitudes expressed by the buying public.

The increase in receiving rates has not caused a faster than expected filling of permitted landfill capacities. In fact, the preliminary results of the aerial survey indicate that permitted space is being used at a slower rate than expected. If the preliminary results are correct, the difference between expected and actual use of permitted capacity is probably the result of considerable subsurface compaction occurring in the older landfills. More information is needed before the preliminary results can be substantiated; and additional work will be required before the reasons for such difference can be known with any degree of certainty.

No change in the policy plan's landfill development schedule and no legislation pertaining to the schedule is being proposed at this time.

## CENTRALIZED PROCESSING FACILITIES

### BACKGROUND

The Council's policy plan (Table 4-7, page 51) established centralized processing recovery levels and target dates for each county and the region as a whole for the years 1985 through 1990 in yearly increments, and for the years 1995 and 2000. The policy plan says that 48,000 tons of mixed municipal solid waste (MSW) should be handled by centralized processing facilities during both 1985 and 1986. This figure was based on expectation that pilot co-compost plants in Anoka and Dakota counties would process about 4,000 tons of MSW annually; that pilot RDF and mass burn plants in Hennepin and Ramsey Counties would "process" 23,000 tons of MSW annually; that the Richards Asphalt mass burn plant in Scott County would process an average 5,000 tons of MSW per year; and that Anderson Windows of Washington County would continue to operate its own in-house resource recovery program removing an average of 16,000 tons per year from the waste stream.

In retrospect, the policy plan's expectations for the years 1985 and 1986 were unrealistic. Pilot plants are frequently used where technology is untried, but none were being proposed at the time the policy plan was being written. Also, while Anderson Windows has a model program for handling internally generated wastes through burning of sawdust and wood processing wastes to produce industrial process steam and recycling plastic scraps, lubricating oils and other materials, it does not operate as a centralized processing facility for externally generated MSW like Richards Asphalt does. In reality, Richards Asphalt Company with its 72 tons-per-day mass burn plant is the only operating centralized MSW processing facility in the region. It processes an average of 18,000 tons of MSW annually.

As things now stand, 1987 will be the only year until the mid-1990's that the region will have centralized processing capacity that meets or exceeds the objectives established in the policy plan. In January 1987 the privately owned and operated Reuter facility in Eden Prairie is expected to be processing 400 tons per day of MSW, turning it into densified refuse-derived-fuel (dRDF). In July 1987, the 1,000 tons per day Ramsey/Washington refuse-derived-fuel (RDF) plant is expected to become fully operational. With the addition of Reuter and Ramsey/Washington, the regional centralized processing capacity will reach 368,000 tons annually; well in excess of the 81,000 tons proposed in the Council's policy plan.

Figure 2 shows the new centralized processing facilities expected in the Twin Cities Metropolitan Area between 1985 and 1992. As shown, the six proposed facilities will provide a processing capacity of 4,204 tons-per-day by 1991 (4,354 tons-per-day if a Scott/Carver facility is built during this period). This compares to an "average" need in 1991 of 4,678 tons-per-day in centralized processing capacity according to the policy plan, based on a 365 day operating year. Variations in flow occur daily, monthly and seasonally. Figure 3 compares the seasonal flows with the average daily flow. This figure shows that while centralized processing facilities discussed in this report approach the average daily regional need, there are periods during the year when significant amounts of unprocessed MSW will still be going to the landfills.

Figure 2  
 PLANNED OPERATING CAPACITY OF CENTRALIZED PROCESSING FACILITIES\*  
 1985 - 1991

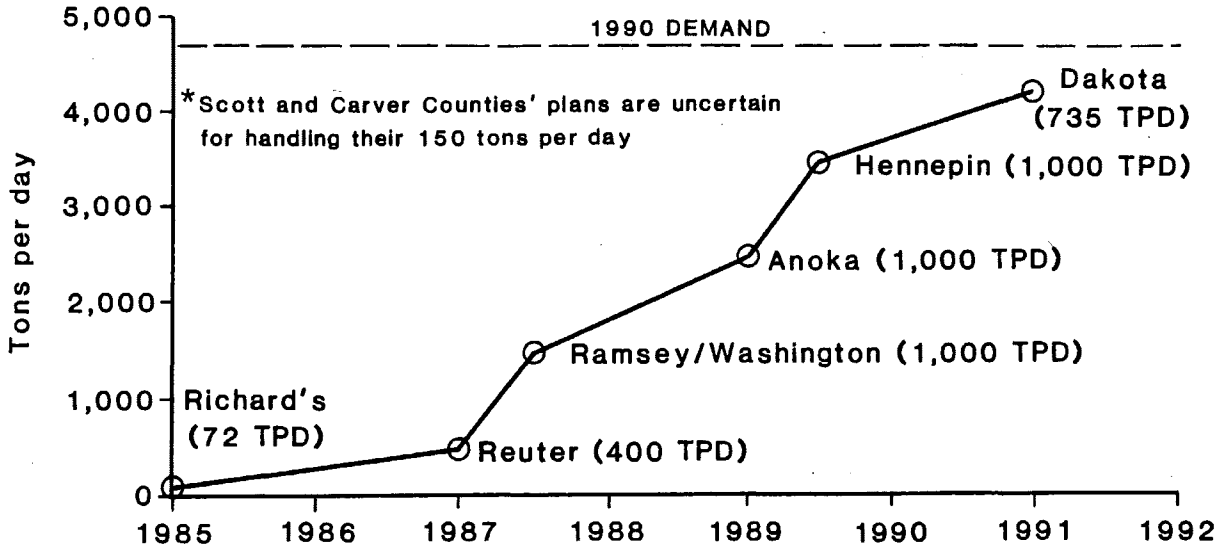
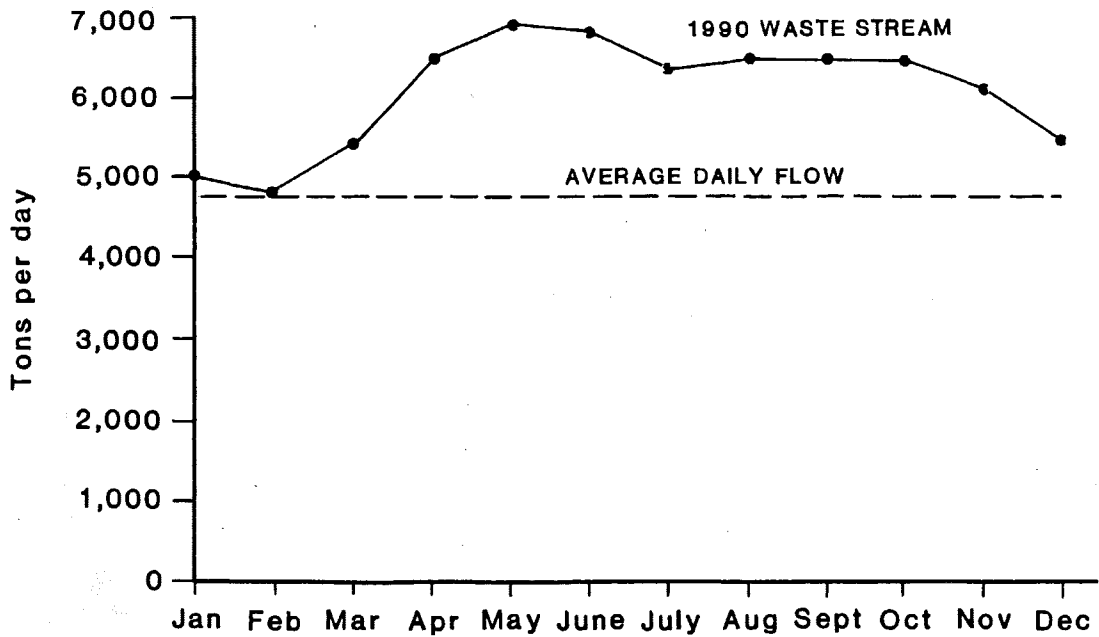


Figure 3  
 SEASONAL VARIATIONS IN SOLID WASTE GENERATION  
 VERSUS AVERAGE DAILY FLOW, 1990



## STATUS OF FACILITIES AT YEAR'S END

### OPERATING FACILITIES

#### Richards Asphalt Company -- Savage

Richards continues to operate a 72 tons-per-day mass burn plant to provide steam for its asphalt plant. The plant receives MSW through private contracts with haulers in Scott and Hennepin counties. As an existing plant, it was exempted from Hennepin County's designation authority for 72 tons-per-day. A second line to raise the total capacity of the facility to 150 tons-per-day had been under consideration (see discussion in 1985 Abatement Progress Report), but has since been delayed for financial reasons.

### FACILITIES UNDER CONSTRUCTION

#### Reuter, Inc. -- Eden Prairie

Reuter's \$12 million dRDF plant was nearing completion in mid-November 1986 and was scheduled to go into operation in mid-December. This two-line 400 tons-per-day facility is proposed to recover glass, aluminum and other metals and produce densified RDF pellets. Waste supply sources are still being negotiated. Reuter proposed during 1986 that it be allowed to prohibit source-separated recycling in Minneapolis under its proposed service contract with the city, arguing that it could recycle glass and metal more cheaply than the city's own source-separation recycling program. While the facility permit was approved by the Metropolitan Council, the proposed prohibition was rejected for being inconsistent with a balanced regional solid waste management system. When completed and a complementary compost facility is developed, Reuter expects that only ten percent of the nonrecyclable material will need to be landfilled.

#### Ramsey/Washington -- Newport

Northern States Power Company (NSP) was selected in 1984 by the joint Ramsey/Washington Counties Waste-to-Energy Project Board to develop the two-line 1,000 tons-per-day RDF plant in Newport. Construction of the \$21 million plant is on schedule with testing to begin in the spring of 1987 and full operation scheduled to begin in July 1987. The RDF plant is proposed to recover ferrous metals and produce a fluff RDF that will be burned in NSP's plants in Red Wing and Mankato to produce electricity. As proposed, the residuals from the RDF processing plant will be landfilled; however, NSP and the project board are investigating composting or co-composting (with sludge) of the organic fraction of the residuals to reduce the amount of material to be landfilled. Plans to add a third processing line to accommodate 500 tons-per-day of MSW from Dakota County were dropped during 1986 as a result of that county's decision to build a separate plant of its own in Rosemount. It is estimated that 18 percent by weight of the incoming material will need to be landfilled following processing. In addition, NSP and the Ramsey/Washington Project Board received a demonstration grant in 1986 from the Metropolitan Council to conduct a comprehensive solid waste management systems feasibility study to determine the optimum balance of source and mechanical separation of recyclables in the two counties and to investigate the feasibility of locating an intermediate processing facility at the Newport RDF facility.

## FACILITIES NEARING CONSTRUCTION

### Anoka County -- Elk River

NSP has also been selected by Anoka County to construct and operate the Elk River Resource Recovery Facility, a fluff RDF plant, in Elk River (Sherburne County). Contractual waste supply commitments are anticipated with Benton, Sherburne, Stearns and other counties. A contract for a 500 to 1,000 tons-per-day RDF plant was approved by the Metropolitan Council in 1986. In November 1986 the MPCA Board approved a solid waste facility permit for the facility. Consideration is being given to expanding the facility up to 1,500 tons-per-day so that it could also serve part of Hennepin County. If waste flow designation or agreements can be worked out with those counties, the RDF plant would be constructed with up to three processing lines. As proposed, the plant would separate and recycle ferrous metals, and produce fluff RDF which will be burned primarily at the United Power Association electrical generation plant in Elk River. Approximately 30 percent by weight of incoming waste will end up as processing rejects, residuals and ash (from the electrical generation plant) and need to be landfilled. The RDF plant is expected to begin operation in 1989.

### Hennepin County -- Minneapolis

Hennepin County's proposed 1,000 tons-per-day mass burn plant proposal has been approved by the Metropolitan Council. At this time, the MPCA is still in the process of considering the proposal. In addition to the \$81 million plant itself, the proposal calls for the construction of three or four transfer stations to reduce off-route transportation costs for haulers as well as to reduce the number of trucks coming into Minneapolis to deliver waste to the plant. During 1986 the Metropolitan Council completed an environmental impact statement (EIS) on the proposed project. Construction on the plant is expected to begin in 1987, with completion scheduled for 1989. The proposal includes post combustion ferrous recovery, the generation of 37.5 megawatts of electricity, and the possible sale of 190,455 pounds per hour of steam. Approximately 34 percent by weight of the incoming waste will end up as ash and need to be landfilled.

## FACILITIES UNDER CONSIDERATION

### Dakota County -- Rosemount

During 1986 Dakota County decided to negotiate an agreement with a full service vendor to design, construct, own and operate an RDF/co-generation facility capable of processing 735 tons-per-day of MSW. The proposal being negotiated with a joint venture would provide for 32 percent by weight of the incoming waste to end up as by-pass, processing residuals and incinerator ash and generate 22 megawatts of electricity, plus steam for sale. At this time, the county is still negotiating with the selected vendor. In November the county issued a request for proposal (RFP) for a vendor to own, design, construct and operate a co-compost facility that would be co-located with the RDF facility and be able to process between 100 and 400 tons-per-day of unprocessed MSW, processed MSW/RDF rejects and yard waste. Costs of the two facilities are not known at this time.

## Scott and Carver Counties

During 1986 Scott and Carver counties decided to determine the feasibility of constructing a joint venture resource recovery facility to serve both counties. An RFP was issued and several proposals received to handle the joint waste. Proposals included mass burn, RDF fluff, densified RDF, composting and co-composting technologies. The counties are in the process of choosing a consultant to help them evaluate the proposals.

## ISSUES RELATING TO CENTRALIZED PROCESSING

### OVERALL PROCESSING CAPACITY

While the counties have made tremendous progress in the past year to put in place centralized processing facilities, it is clear that the facilities that are built, under construction, nearing construction or under consideration have less capacity than what is needed to process 80 percent of the region's MSW by 1990 (see Figure 2). Additional processing capacity will be needed to reach the Council's solid waste management objectives. Before further decisions are made regarding additional facilities, the Council will re-examine the regional processing needs and facility wastesheds to determine preferred alternatives for addressing regional processing capacity shortfalls.

### MINIMIZING PASS-THROUGH

The Waste Management Act, as amended, says that no waste can be landfilled without first going to a resource recovery facility. The Council's policy plan says that a regional goal is to landfill only the residuals and rejects left after processing by resource recovery facilities. However, it is recognized that some unprocessed waste may need to be landfilled when, for example, a mechanical problem shuts down a processing line for several days. In order to minimize the pass-through of unprocessed wastes, greater attention will need to be given to plant operating procedures and the development of inter-plant agreements to make sure that all feasible and prudent alternatives are considered before unprocessed waste is permitted to be landfilled.

## CONCLUSIONS

In 1985 there was only one centralized processing facility operating in the Metropolitan Area--Richards Asphalt in Savage--a 72 tons-per-day mass burn plant. In 1986 a second facility began operation--Reuter, Inc. in Eden Prairie--a 400 tons-per-day dRDF plant. Also in 1986, a privately proposed 200 tons-per-day mass burn plant scheduled to be built by Waste Energy Systems, Inc. in New Brighton (see 1985 Abatement Progress Report) was denied local zoning approvals and was scuttled. In 1987 a third centralized processing plant will begin operating--Ramsey/Washington Waste-to-Energy Project's NSP facility in Newport--a 1,000 tons-per-day RDF plant. These facilities, plus plants serving Anoka and Hennepin counties that are nearing construction, will mean that more than two-thirds of the region's MSW will be processed by the early 1990s. The counties have made tremendous progress toward implementing the Council's solid waste centralized processing objectives. And, while more will need to be done, no new legislation is needed at this time to further the Council's centralized processing objectives.

## WASTE FLOW DESIGNATION

### BACKGROUND

This is the initial report on the use of designation by metropolitan counties. Designation is the process to control the flow of solid waste to support the development and operation of waste processing facilities. The designation process involves identifying the benefits and estimated costs of designation, preparing a plan and developing an ordinance to implement designation. The process also includes negotiating contracts with haulers and evaluating any requests for exclusion from a county designation process.

The Metropolitan Council reviews the designation plan of each county in the seven county Metropolitan Area. The Council must evaluate whether the designation: will result in recovery of resources or energy from waste, will lessen the demand for landfilling, and is necessary for financial support of the designated facility.

Other factors that must also be considered include: availability of less restrictive waste assurance methods, other feasible and prudent alternatives to accomplish the purposes of designation, furtherance of state/regional policies and purposes, and estimated costs of the designation and facilities.

In the process of approving a designation plan, the Council must also review any request for exclusion of materials to the designation. Exclusion requests are based on:

- o whether the facility requesting exclusion is substantially completed or will be substantially completed within 18 months of the time that the designation plan is approved by the Council;
- o the facility requesting exclusion has or will have contracts for purchases of its product;
- o the materials are or will be under contract for delivery to the facility requesting exclusion at the time the designated facility is completed.

In reviewing a requested exclusion, the Council needs to allow for private development, yet ensure that the project will be built and provide the stated amount of processing capacity. The Council can revoke any exclusion previously granted when it approves the county's designation ordinance.

Following Council approval of the designation plan, the counties are required by law to attempt to negotiate contracts with haulers to use the designated facility. The county then develops a designation ordinance to implement the designation. The designation ordinance, along with any negotiated long-term contracts assuring the delivery of solid waste, are then submitted to the Council for review. The Council must approve the designation ordinance if it determines that the applicant has adhered to prescribed designation procedures, the ordinance is consistent with an approved designation plan and consistent with any Council imposed conditions.

Any amendment to a designation ordinance must be submitted to the Council for approval. Following Council approval of a designation ordinance, any entity proposing to own or operate a resource recovery facility using waste materials subject to a designation ordinance can petition a county for exclusion of the materials generated within its jurisdiction.

In order to monitor the progress of designation, the Council has requested the counties to include designation information in the annual solid waste reports submitted to the Council. The county annual reports are due on March 31 of each year and preliminary reports on abatement performance are due October 1 of each year. The designation information requested is included under the section "Issues Related to Waste Flow Designation."

In September 1985 the Council also approved a series of reporting requirements for entities granted exclusions. The report requirements include project development schedules, monthly updates until the designation ordinance is approved and quarterly reports on input and output of wastes once the facility is operational.

#### STATUS

Four counties in the Metropolitan Area have completed or are in the process of completing their designations. They are Anoka, Hennepin, Ramsey and Washington Counties.

#### RAMSEY AND WASHINGTON COUNTIES

Ramsey and Washington Counties were the first counties to submit a designation plan to the Council. They prepared a joint designation plan requiring that mixed municipal solid waste (MSW) from both counties be delivered to the Ramsey/Washington Waste-to-Energy RDF (refuse derived fuel) facility in Newport. The plan was approved by the Metropolitan Council in December 1984.

The counties' designation ordinances were approved by the Council in July 1985 to assure an adequate supply of waste for the facility. The 1000 TPD (tons-per-day) project will process approximately 70 percent of the MSW in the participating counties. The counties also attempted to negotiate contracts with the private haulers serving the two counties. Currently there are seven haulers under contract. These contracts were not subject to the Council's review since they are short-term agreements effective for only five years. The Council reviews long-term contracts effective longer than a five year period. Necessary facility permit and Northern States Power contract reviews were approved by the Council in June 1985.

Three requests for exclusion to the joint waste designation plan were received by the Council and each request was withdrawn during the review process. Anderson Corporation requested an exclusion for 16 TPD. The company withdrew the request because a proposed facility addition would add redundancy and not provide capacity to process additional waste. Waste-to-Energy Inc. requested an exclusion for a 400 TPD facility. The company withdrew its request based on the uncertainty about waste supply and markets to purchase the product. The other applicant, 3M Company, also withdrew its request in order to refine its proposal for subsequent consideration by the counties.



In late 1985 the Waste-to-Energy Project Board reviewed two petitions for exclusion to the Ramsey/Washington waste designation ordinance. The applicants included the 3M Company and Junker Sanitation. They were requested by the Project Board to wait until a year of operating experience is gained at the resource recovery facility. Both applicants accepted the request.

#### HENNEPIN COUNTY

Hennepin County, in April 1985, was the next county to submit and receive approval of its waste flow designation plan by the Council. The plan designated all non-exempt waste to four proposed transfer stations and a proposed mass burn or RDF facility. Three private companies applied and received Council approval for exclusions from the county's designation authority. Two of the exclusion requests were for the construction of new facilities, Reuter, Inc. for 400 TPD and Waste Energy Systems, Inc. for 150 TPD. The third request was to expand the 72 TPD waste processing facility at Richards Asphalt Co. by adding an additional incinerator. The exclusion request was for 72 TPD.

In February 1986 the county submitted its designation ordinance for Council review. The ordinance allows Hennepin County to assure an adequate supply of waste to operate a 1,000 TPD mass burn project in Minneapolis. It will incinerate approximately 40 percent of the mixed municipal solid waste generated in Hennepin County. Two of the previously granted exclusions were revoked by the Council in February 1986. Waste Energy Systems, Inc. failed to receive necessary permits from the city in which the project was to be located. Richards Asphalt Co. did not receive corporate authorization to proceed with the project.

The one remaining exclusion to the county's designation ordinance is Reuter, Inc. in Eden Prairie, a 400 ton-per-day dRDF plant. Construction of the facility will be completed in the December 1986. Reuter is currently negotiating with Minneapolis to contract for 350 TPD of solid waste to process. The additional 50 TPD will come from private haulers that service the cities of Shorewood, Hopkins and Minnetonka.

Hennepin County received Council approval of its contract with Hennepin Energy Resource Company-Blount in July 1986 and Council approval on the permit for the facility in November 1986. It is awaiting Minnesota Pollution Control Agency approval for a combined solid waste and air quality construction and operating permit.

#### ANOKA COUNTY

Anoka County submitted its waste designation plan to the Council in June 1985. The county planned to select a vendor to build a 500-1,500 TPD facility and guaranteed delivery of a minimum of 350 TPD from Anoka County. One exclusion was applied for, by Waste Energy Systems Inc. and granted. However, it is anticipated that the company will withdraw its request during the review of the county's designation ordinance since the company did not receive the necessary permits from the city in which the project was to be located. The Council approved the designation plan in September 1985.

The Metropolitan Council approved an amended designation plan for Anoka County in December 1985. The amended plan clarified that the resource recovery facility will be planned for a nominal capacity of 500 TPD unless sufficient waste can be obtained from other counties to design a 1,000-1,500 TPD operating level. A 500 TPD facility would process approximately 83 percent of the MSW in Anoka County. It also designated Northern States Power Co. as the vendor of the facility.

It is expected that the Anoka County ordinance will be submitted for Council review in early 1987. The Council approved the contract with NSP in September 1986. A formal review on the permit for the facility was not completed since the facility is located in Elk River, outside of the seven county Metropolitan Area. However, the Council did provide comments on the permit to the Minnesota Pollution Control Agency which approved the permit for the facility on November 25, 1986.

#### DAKOTA COUNTY

Dakota County is negotiating an agreement with a vendor to construct a 735 ton per day RDF/co-generation facility. The Council is anticipating the submission of the county's designation plan in early 1987.

#### CARVER AND SCOTT COUNTIES

Carver and Scott Counties are currently evaluating various resource recovery proposals. Designation planning should begin in 1987.

### ISSUES RELATED TO WASTE FLOW DESIGNATION

#### IMPLEMENTATION

Ramsey and Washington Counties will be the first to begin implementation of designation ordinances when the Newport facility starts full operation in the spring of 1987. During the first part of 1987, the Waste-to-Energy Project Board will provide information and public education to haulers and the community on the designation process.

Each county is developing its own enforcement program. Potential enforcement problems the counties may encounter and need to be prepared to handle as part of the implementation include an increase in illegal dumping and out-of-state disposal (in the case of Washington County).

#### SUFFICIENT PROCESSING CAPACITY

Counties need to ensure that they have sufficient waste processing capacity for the amount of waste that they will be controlling in the designation process. Counties will need to negotiate with other projects for capacity during emergencies, maintenance repairs and periods of excess waste generation. This is necessary to remain consistent with the Council's policy plan that processible mixed municipal solid waste shall be prohibited from land disposal in the Metropolitan Area after 1990.

## MONITORING

In order to monitor the progress of designation, the counties are required to submit the additional information outlined below. This information will be incorporated by the counties in the solid waste reports submitted to the Metropolitan Council in March and October each year:

1. Rates and charges for designated facilities;
2. Percentages of acceptable waste diverted to landfill itemized according to whether it is categorized as "excess waste" or "waste generated during an interruption of the designation requirement";
3. A summary of operational or other problems that resulted in an "interruption of the designation requirement";
4. A description of contractual arrangements for waste delivery or exemptions granted from designation requirements during the period covered by the report;
5. A description of enforcement actions or programs undertaken during the period covered by the report along with related expense estimates; and
6. Other reasonable information requested by the Council in the future.

## CONCLUSION

All of the seven counties in the Metropolitan Area are expected to complete their initial waste flow designation planning activities in 1987. Also, during 1987 the first designation ordinances will be implemented in Ramsey and Washington Counties. The Council will require regular reports on the implementation of each designation to evaluate whether it has accomplished its purpose. No changes in legislation pertaining to waste flow designation are being proposed by the Council at this time.

## RESIDENTIAL WASTE ABATEMENT

### BACKGROUND

Residential recycling services in the Metropolitan Area include curbside pickup of materials and sites for materials drop-off. Traditionally, service has been provided by local volunteer groups (scouts, schools, churches, clubs) or by recycling contractors; and the recyclable materials have included newspapers, glass containers, metal beverage containers, tin cans and cardboard.

Multi-material residential curbside pickup service and drop-off sites have usually been developed and sponsored by cities, although in some cases service is provided by private groups or recycling contractors without official sanction from the local government. In the past few years, there has been a move away from informal service agreements towards formal service contracts with attendant insurance and performance requirements. This movement continued during 1986; along with it came the realization by the Council that recycling could not be self-supporting in the foreseeable future and that source-separated materials recycling should be financed as an important new solid waste service-- a necessary adjunct to curbside trash pickup in the region.

The tonnage figures presented below come from reports submitted by those cities that have applied for tonnage payments from the Metropolitan Council in the spring and fall of 1986. These figures may be representative of source-separated recycling activities in the region, but they do not include tonnages collected in cities that have decided for some reason not to apply for tonnage payments and frequently do not reflect tonnages collected by private and voluntary organizations that may operate within reporting communities. The tonnage figures presented below underrepresent the true picture of source-separated recycling in the region, but at this time there is no better measure of this activity.

### STATUS AT YEAR'S END

#### CURBSIDE PROGRAMS

At the end of 1985, the number of curbside recycling program had declined to eight (Excelsior, Fridley, Minneapolis, Mound, Richfield, St. Louis Park, St. Paul and Shakopee). In the spring of 1986, a new contractor--SuperCycle--came on the scene, the Council's 50 cents-per-household rebate and tonnage payment programs began to influence city recycling decisions, and some smaller single-material curbside programs run by volunteer organizations began reporting on tonnages collected. For the first quarter of 1986, 10 curbside programs reported recycling 2,126 tons (an annualized rate of 8,504 tons).

By the fall of 1986, the number of curbside recycling programs had bounced back to 13. These programs reported recycling 6,172 tons of materials during the six month period from April 1 through September 30, 1986 (an annualized rate of 12,344 tons). The cities with curbside programs included: Eagan, Edina (part), Fridley, Medina, Minneapolis, Mound, Plymouth, Richfield, St. Louis Park, St. Paul (part), Shakopee, Spring Lake Park, and Waconia. Also during this period, Hennepin and Ramsey counties made substantial commitments from general revenues to develop and finance city-run residential curbside programs. And most of the other counties have established programs using their landfill surcharge funds to help underwrite the cost of residential recycling programs.

## DROP-OFF PROGRAMS

By the end of 1985, there were 27 cities with recycling drop-off centers. No estimates of the amount of recycled materials are available for 1984 or 1985, as there were no reporting requirements and no means to accurately measure the flow of material through the various sites.

Twenty-four cities applied for tonnage payments for materials collected during the first quarter of 1986 at drop-off centers within their boundaries. They reported collecting 1,296 tons of recyclable material (an annualized recycling rate of 5,184 tons).

By the fall of 1986, the number of cities requesting tonnage payments for drop-off centers increased to 27 and the amount of material collected during the period April-September 1986 was 4,062 tons (an annualized rate of 8,124 tons).

An important change in drop-off centers occurred during 1986 which is not clearly reflected in the numbers presented above. Goodwill Industries closed their unattended drop-boxes in the Region and began opening "attended" drop-off centers. Where the drop-boxes focused on the collection of clothes and small repairable appliance and furniture; the attended centers have expanded to take glass, aluminum, newspapers and cardboard in addition to the more traditional Goodwill recyclables. Chaska, Burnsville, Apple Valley, Lakeville and Rosemount are now served by the attended drop-off centers; and Goodwill is working with a number of other cities in the region to open similar centers in 1987.

## ISSUES RELATED TO SOURCE-SEPARATED RECYCLING

### MEETING THE RECYCLING OBJECTIVES

The Council's residential source-separated recycling objective for 1986 is 72,505 tons (combined curbside and drop-off). Based on tonnage payment requests through the end of September 1986 (13,610 tons), an estimated 18,600 tons of material from residences will be recycled in 1986. The figures for 1986 represent our best available estimate based on tonnage payments for recycling in the region, but do not accurately reflect all the residential recycling that is being done.

There are a large number of volunteer-run recycling programs whose collections have not been counted by the cities within which they operate; and there may be others for whom we have received no tonnage payment requests and so have no record of materials collected. Although the residential source-separated recycling objective for 1986 was probably not met, the commitments made by Hennepin, Ramsey and the other counties to increase municipal recycling programs in 1987 are substantial and will need to be evaluated before any legislation to remedy the shortfall is recommended.

### MARKETS AND INTERMEDIATE PROCESSING CENTERS

Residential recycling materials markets traditionally have been unstable in this part of the country. Market prices for aluminium, ferrous and newspaper tend to rise and fall with the national economy and the strength of the dollar

on the international market. Glass prices have remained relatively stable, although declining in terms of real dollars over the past 20 years. One way to help deal with the problem of markets is to find and/or develop new uses for recyclable materials. The Council has addressed this issue elsewhere (see the attached Market Identification Report). Another way to deal with this issue is to provide more uniform, higher quality recyclables in greater amounts so as to impact market supply and demand. Intermediate processing centers, like the Ramsey County Rice Street facility run by Super Cycle, provide a mechanism to do just that. As noted elsewhere, Ramsey and Washington Counties and NSP have received a grant from the Council to examine the need for other intermediate processing centers.

### CONCLUSIONS

Residential recycling faced a crisis in late 1985 and appears to have weathered the storm. The number of communities with curbside pickups and drop-off centers have increased during 1986. Progress was made in 1986, but mostly in terms of recovery from system problems experienced during 1985. The amount of material that was source-separated and recycled from residential sources in 1986 based on tonnage payments was significantly below Council objectives, but does not accurately reflect all the source-separated recycling that is happening in the region. Major financial commitments made by Hennepin and Ramsey counties in 1986 to encourage their cities to get moving toward residential recycling are expected to result in substantial increases in tonnages in 1987. These commitments, coupled with the financial support offered by the other counties from their landfill surcharge monies, should dramatically improve progress towards the Council's objectives in 1987. No legislation is being recommended at this time to deal with the shortfall; but this position will be re-examined in next year's report following an evaluation of the 1987 residential recycling program results.

## COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTE ABATEMENT

### BACKGROUND

Commercial, industrial and institutional generators produce the majority of all mixed municipal solid wastes generated in the region. Exactly how much they produce is not known at present on either a regional or county basis, because many businesses and institutions have had waste reduction programs in place for years and have managed to divert significant amounts of waste from area landfills. Often such diversions take the form of in-house waste-to-energy boilers that burn paper, wood and other organic materials to produce steam for heating and cooling, industrial processes, and/or electrical generation. In Washington County, for example, one firm--Anderson Windows in Bayport--recovers over 50,000 tons of waste annually. This compares with an estimated total county generation of MSW being landfilled in 1985 of 85,000 tons.

As centralized processing facilities come on-line during the next few years and wastes are diverted from area landfills, more information on waste generation rates by sector will become available. It is estimated, however, that these sectors contribute nearly 50 percent of all MSW presently being landfilled. The focus of this section of the abatement progress report is on the programs that are being put in place currently to abate the commercial, industrial and institutional wastes that are still in the waste stream. The major materials which comprise this part of the waste stream are office paper, corrugated cardboard, ferrous and nonferrous metals, glass and plastics.

### STATUS OF ABATEMENT PROJECTS

Several new waste abatement projects that focus on these sectors were begun in 1986 and were partially funded through the Metropolitan Council's grant and loan programs. These projects will account for an additional 16,800 tons of material to be abated from the waste stream in 1986, with additional tonnages expected in the upcoming years. The projects begun in 1986 through the Metropolitan Council's grant and loan program are detailed below.

### RECYCLING SERVICES

This project involving high-quality office paper recycling in multi-tenant office buildings was partially funded through a \$50,000 Metropolitan Council demonstration grant. Recycling Services is expected to provide service to 100 businesses in multi-tenant office buildings. The target material is high quality office paper with the company providing pickup, marketing, education, technical assistance and the development of brochures. The business will be providing service to office buildings in 14 cities in the Metro Area, including both Minneapolis and St. Paul. Approximately 250 tons will be abated during the first year of operation.

### SUPER CYCLE, INC.

Super Cycle, Inc. received a \$35,000 demonstration grant from the Metropolitan Council in 1986 to work with the Dayton's in Rosedale as well as 200 small business generators of corrugated cardboard. Super Cycle will pick up

corrugated cardboard, market the product and provide outreach and publicity efforts. It expects to abate over 300 tons of corrugated cardboard during the first year of operation of this demonstration project.

#### NORTHLAND RECYCLING

This new business received a \$10,000 incentive grant from the Metropolitan Council to start up and begin collecting aluminum, glass and corrugated cardboard from bars, restaurants and liquor stores. The company focuses primarily on the Bloomington I-494 strip and downtown St. Paul and Minneapolis. Northland has been able to show various bar and restaurant owners that they can save substantial amounts of money now spent on garbage disposal costs by installing bins for glass and compactors for corrugated cardboard that Northland will pick up instead and market. The company has a goal of abating 1,176 tons of material during the first year.

#### UNIVERSITY OF MINNESOTA

The University of Minnesota received a \$10,000 incentive grant to expand its existing office paper program to 12 other buildings on campus. The project includes orientation and training instructions for new employees and it expects an increase in participation to between 30 and 55 percent. Through this program an additional 120 tons of office paper will be abated from the waste stream.

#### SPECIALTY BEDDING

This \$10,000 incentive grant program recipient is unique in that it provides a new end-market for wastepaper. The company is making bedding material for livestock from ground wastepaper and cardboard. Specialty Bedding receives its waste material from local paper brokers and haulers servicing local publishing accounts. The company has a production goal of five tons per hour and plans on reusing 15,000 tons of mixed office paper, other paper and cardboard during its first year. Specialty Bedding is currently located on a farm in New Market Township in Scott County. The location enables the company to demonstrate its effectiveness and is conveniently located to potential agricultural customers.

#### ISSUES RELATED TO COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL WASTE ABATEMENT

The office paper recycling objective for 1986 in the Council's policy plan is 2,267 tons. If the new programs are successful, over 3,000 tons of office paper will be recycled in the region in 1986, in addition to that recycled by existing programs. It is very difficult to ascertain the current levels of office paper recycling, because of the number of private specialty recyclers that are reluctant to provide data about volumes of material recycled, their markets or their clients for reasons of competition. With the other materials, it is even more difficult to measure specific abatement activities.

#### CONCLUSIONS

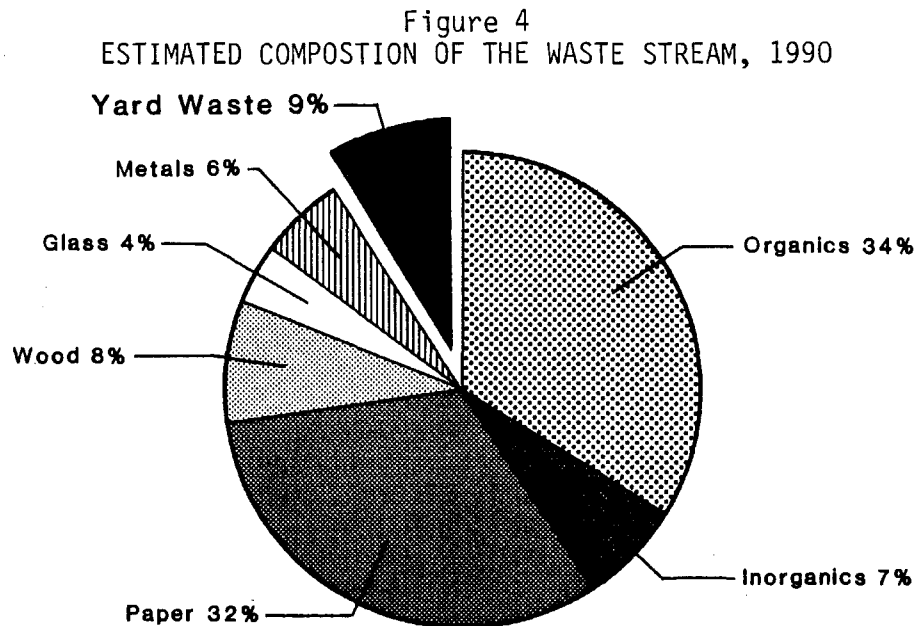
Although abatement projects begun in 1986 aimed at commercial businesses appear to be very successful, more effort will need to be focused on industrial and institutional waste abatement in 1987. Information is limited on overall waste generation and abatement activities within these sectors of the local economy, but the efforts put forward in 1986 provide the region with a substantial gain toward the Council's overall abatement objectives.



## YARD WASTE COMPOSTING

### BACKGROUND

Yard waste consists of grass, leaves, garden wastes and brush. This definition excludes wood wastes which -- while capable of being chipped, mulched and composted -- are normally handled outside of routine refuse collection services. Figure 4 highlights yard waste contribution to the general waste stream, nearly nine percent of wastes that are landfilled are yard wastes.



In 1986, an estimated 175,000 tons of yard waste will be landfilled and an estimated 35,000 tons of yard waste will be abated through waste reduction and centralized composting.

### WASTE REDUCTION

Waste reduction objectives established by the Council's policy plan for 1986 is approximately 22,000 tons. Actual waste reduction is extremely difficult to measure as it takes place at the location where waste is normally generated and acts to keep material out of the waste stream. Ideally, it could be measured as the difference between the total amount of MSW generated in the region and the total amount of MSW that is recycled or handled by centralized processing facilities. In reality, annual variations in the waste generation render the "ideal" method useless.

The policy plan estimated that removal of yard waste from the waste stream via mulching and backyard composting would constitute the vast majority of the waste reduction efforts in the region through the mid-1990s. Mulching which consists of frequent mowing of grass in spring and summer, and the shredding of leaves in the fall, involves disposing of yard waste where it lies without bagging or raking. It requires no unusual pieces of capital equipment, no extra work, and no recurring costs. Backyard composting involving gathering yard wastes into a pile (which may be enclosed by a fence, boards or

containers) and composting through periodic watering and turning until the material resembles black dirt. This alternative requires little equipment and is very low cost, but requires somewhat more labor than mulching. In both cases, yard waste stays where it was grown and is beneficially reused.

#### CENTRALIZED COMPOSTING PROGRAMS

The 1985 Abatement Progress Report estimated that 5,924 tons of yard waste were composted in the region in 1984. Note that reporting of yard waste composting volumes by counties takes place the spring after the material is collected. In 1984 there were 20 centralized composting sites serving both drop-off and curbside collection programs. Only four cities provided curbside collection service.

In 1985 centralized composting handled over 11,100 tons of yard waste at 24 sites. An estimated 4,400 tons were handled through drop-off programs and an estimated 6,700 were collected by seven municipal curbside programs. Estimates of the tonnages handled by the various curbside and drop-off programs in 1985 are found in Table 1 below.

Table 1 also identifies new programs that began to accept yard waste for the first time in 1986. In 1986 there were 11 new drop-off programs established and four new curbside programs proposed. One of the new programs in each category was a proposal by two Washington County haulers to form a joint venture offering curbside collection services to portions of 19 cities in Ramsey and Washington Counties. The proposal was funded in part through a \$50,000 demonstration grant from the Metropolitan Council.

#### ISSUES PERTAINING TO YARD WASTE ABATEMENT

In 1986 the high cost of landfilling yard waste was brought home to local haulers. Residential haulers have traditionally set their annual refuse collection rates taking into account that waste volumes will double in the fall because of leaves. This fall, however, landfill rates nearly doubled; causing residential haulers to experience a four-fold increase in out-of-pocket expense for landfilling. As a result, there is strong interest on the part of many haulers to move towards removing yard waste from the regular MSW waste stream. Also, several haulers have begun charging customers extra for handling yard waste.

As centralized processing facilities come on-line during the next few years with their higher tip fees, the costs of disposing of yard waste as MSW will continue to increase. The Yard Waste Alternatives report prepared by Council staff during 1986 (see attachments) found that it would cost the region less to separately collect and compost yard waste than to keep it in the waste stream and have it processed by the new centralized processing facilities.

#### CONCLUSIONS

Significant progress was made in 1985 and appears to have been made in 1986 to abate yard waste in the region. Cities and counties are expanding the centralized composting efforts, and haulers are showing increased interest in having yard waste handled separately from general MSW. Increasing disposal costs will continue the movement toward yard waste abatement.

Table 1  
ESTIMATED SOURCE-SEPARATED CENTRALIZED YARD WASTE COMPOSTING BY COUNTY  
IN TONS FOR THE YEARS 1985 AND 1986

<u>County/Sponsor</u>	<u>Drop-off</u>	<u>Curbside</u>
<b>Anoka County</b>		
Anoka County	270	0
<b>Carver County</b>		
City of Carver	*	0
Chanhassen	0	40
Chaska	110	*
Hamburg	*	0
Laketown	10	0
Norwood	*	0
Victoria	40	0
Waconia	20	0
Watertown	30	0
Young America	*	0
<b>Dakota County</b>		
Apple Valley	*	0
Burnsville	10	0
Eagan	160	0
Hastings	10	10
Inver Grove Heights	*	0
Lakeville	*	0
Mendota Heights	*	0
Pine Bend Landfill	70	0
Rosemount	*	0
South Saint Paul	*	0
West Saint Paul	*	0
<b>Hennepin County</b>		
Edina	0	*
Hennepin County (2 sites)	2,529	0
Hopkins	585	0
Medina	*	0
Minneapolis	0	4,561
Minnetrista/Mound	*	0
Orono	*	0
Richfield	0	*
Wayzata	*	0
<b>Ramsey County</b>		
Ramsey County	1,370	0
Arden Hills	included above	0
Maplewood	included above	0
Mounds View	included above	0
Saint Paul (4 sites)	included above	*

<u>County/Sponsor</u>	<u>Drop-off</u>	<u>Curbside</u>
Roseville	350	1,310
White Bear Lake	0	740
Scott County		
Jordan	0	25
Louisville Landfill	*	0
Washington County		
Compost Concepts (joint venture)	*	*
Cottage Grove	70	0
Forest Lake	140	0
Lake Elmo	40	0
Woodbury	70	10
Subtotal Region in 1985	4,410	6,746
TOTAL REGION IN 1985		11,156

\*Programs started in 1986.

## ATTACHMENTS

### A VOLUME-BASED FEE APPROACH TO FINANCING SOLID WASTE COSTS

Various methods of implementing volume-based fees are examined in this October 1986 report by Council solid waste staff. A volume-based fee for solid waste collection can also be referred to as a variable-can-rate or a variable-rate-charge. This is the concept of charging the customer based on the amount of waste put out for collection, rather than charging one rate for all customers regardless of the volume collected. Volume-based fees for collection are usually implemented through a per-can charge or by purchase of standard marked bags. Ramsey County is using a volume-based system to charge commercial and industrial waste generators for the RDF facility in Newport. The report details seven cities in the United States that have a volume-based charge. A few private haulers in the Twin Cities Metro Area are also implementing some sort of volume-based fee for residential service. The study concludes that volume-based fees may have a beneficial, though indirect, effect on reducing the amount of residential waste in the waste stream and are vital to the equitable financing of the solid waste system. The study recommends that different strategies be further studied for implementation in the Metro Area and that such a fee structure be considered when cities enter into organized collection contracts.

### CURBSIDE COLLECTION SURVEY

The telephone survey conducted by the Council during the summer of 1986, focused on curbside collection programs both within the Twin Cities Metro Area and around the country. The survey packet also includes information about national programs surveyed by the Massachusetts Bureau of Solid Waste Disposal. Programs were compared for several characteristics including cost and financing, tonnage and materials collected, participation rates, start-up dates, haulers, number of households served, collection frequency, provision of collection materials, and mandatory versus voluntary participation. Generally, higher participation rates occur where participation is mandatory and/or when pickup occurs weekly. Some of the cities surveyed were St. Paul, Minneapolis, St. Louis Park and Edina within the Twin Cities Area; Ann Arbor, Michigan; Austin, Texas; and Burbank and San Jose, California.

### ORGANIZED COLLECTION PACKET

The organized collection packet was created as a tool for citizens, community officials and haulers to explain various aspects of organized collection. Information is also provided to haulers on how organized collection will affect their business. Issues related to performance bonds, district size and hauler equipment are described. Also included in the packet is a step-by-step process for evaluating the current collection system, terms for collection contracts, and how to issue RFPs for organized collection.

### SOLID WASTE...AT WHAT COST?

The technical assistance package, Solid Waste...At What Cost?, is a factbook on the current solid waste system. It also provides information on the system that is expected to be in place in the early 1990s. The current cost of collecting, transporting and disposing of solid waste in the Metro Area is approximately \$63.30 per ton per day. This is expected to increase

significantly as new centralized processing facilities come on-line in the next few years. The technical package presents several other solid waste economic indicators in the region. They are landfill tipping fees, transfer station tipping fees, waste stream generation and composition, costs of different means of residential collection, market prices for recyclables, grant and loan activities and energy recovery information.

#### SOLID WASTE MARKET IDENTIFICATION AND EXPANSION REPORT

The February 1986 Solid Waste Market Identification and Expansion Report identifies the local markets for recyclable materials. The materials highlighted in the report are wastepaper, aluminum scrap, used beverage containers, ferrous metals, glass, plastics, textiles, tires, waste motor oil and yard waste. The nature of the local end-market depends upon the type of material recycled. Glass, aluminum and newspapers are traditional residential source-separated materials with relatively stable markets. Glass, corrugated cardboard containers and high-grade office paper have stable markets with potential for growth. The report recommends the Council to share interagency resources and expertise to foster the success of market expansion efforts. Regional intermediate processing facilities are also recommended as a medium to increase both the quality and quantity of materials marketed.

Recent changes in the structure of the Region's markets for recyclables include two new animal bedding companies and a proposal made by Anchor Glass to install an improved glass processing system in 1987. The animal bedding companies process about 145 combined tons-per-day of mixed waste paper. Anchor's proposal to invest in an improved glass processing system that will remove metal and paper will ease current quality requirements for glass recycling.

#### YARD WASTE ALTERNATIVES

The report, Yard Waste Alternatives, published in November 1986, focuses on the collection, composting, marketing and financing alternatives to land-filling yard waste. The 1985 regional policy plan states that no yard waste will be permitted to be landfilled after 1990. Therefore, the yard waste in the region is likely to be handled through backyard composting, mulching and centralized composting. Over 180,000 tons of yard waste were generated in 1985. This is expected to jump to 231,000 tons in the year 2000.

The report says that mulching and backyard composting are the most cost-efficient ways of dealing with yard wastes, but that centralized composting is less expensive than landfilling or handling yard waste at centralized processing facilities. Composting can be carried out through a variety of means from backyard set-ups to high technology alternatives. Once composting has taken place, there is the question of marketing the material, either through giveaway programs, free delivery or sales. The Yard Waste Alternatives report concludes by stating that: 1) complete removal of yard waste from the waste stream is feasible, 2) grass and leaves can be composted together and 3) there needs to be a set of standards developed for compost material.