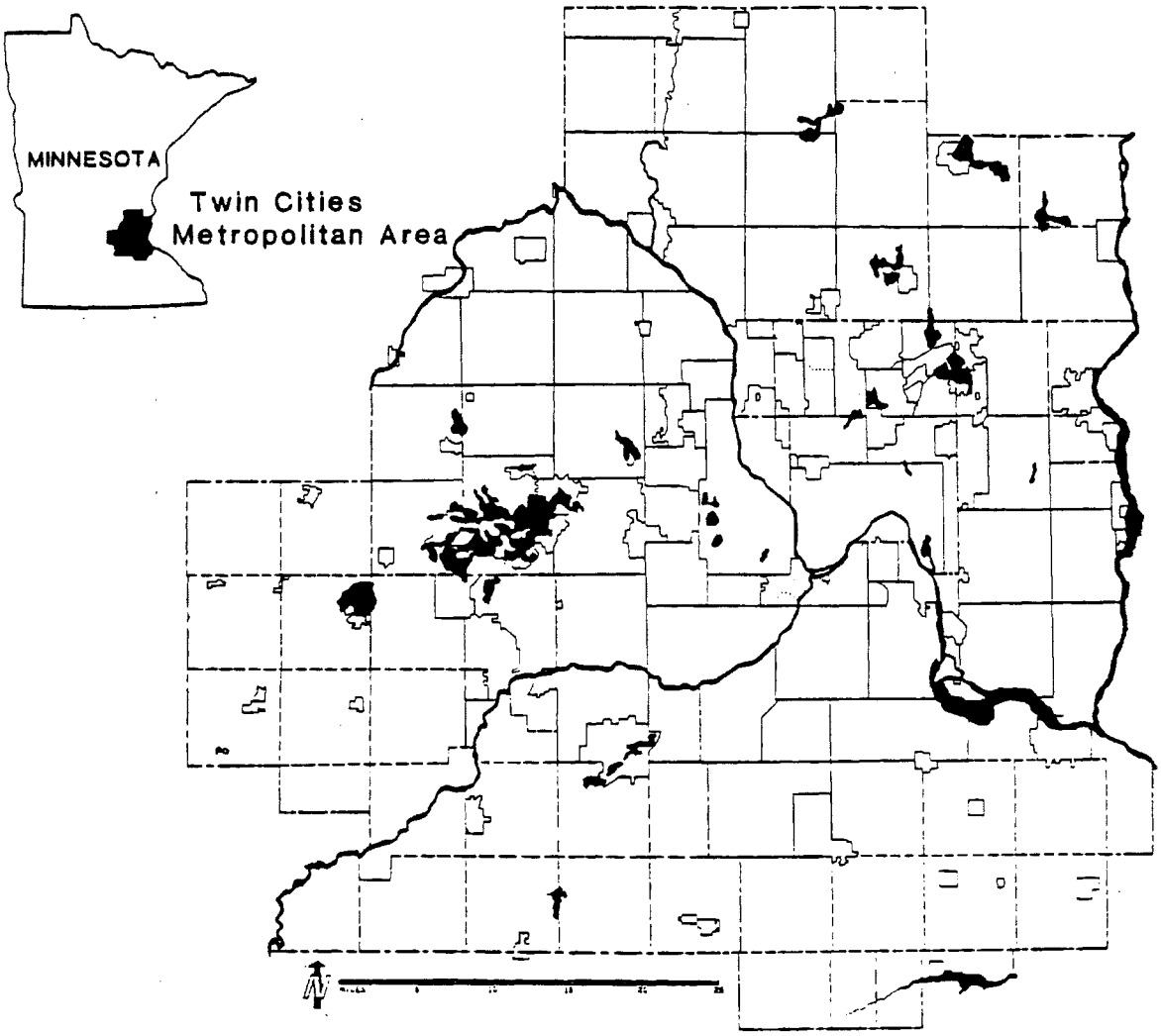
1987 ABATEMENT PROGRESS REPORT for the Twin Cities Metropolitan Area



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

October 1987

1987 ABATEMENT PROGRESS REPORT
FOR THE TWIN CITIES METROPOLITAN AREA

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

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October 30, 1987

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

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SUMMARY

In 1987 the seven county region will exceed the Metropolitan Council's goal for centralized processing of solid waste. The estimated amount of waste that will be processed in 1987 is 263,000, tons or 11.8 percent of the waste stream that would have been landfilled. The Council's goal for 1987 for centralized processing is 4 percent. Acheivement of the Council's regional centralized processing goal of 80 percent of the waste stream in 1990, however, will be delayed until 1992.

In 1987, the Ramsey/Washington refuse-derived fuel plant and the Reuter refuse-derived fuel plant began operation. Permits for the Hennepin Energy Resource Corporation mass burn plant in Minneapolis and the Northern States Power Co. refuse-derived fuel plant in Elk River Elk River facility were granted in 1987, and construction on both facilities was begun. Scott and Carver Counties are working cooperatively to develop processing capacity by 1990 or 1991. Dakota County has undergone some delays, and a centralized processing facility will not become operational until 1992.

Late in 1987, Council staff calculated the amount of the total waste stream, and the percentage being recycled. It did so to clear up confusion concerning recycling goals found in the Council's 1985 Solid Waste Development Guide/Policy Plan. The calculation shows the Council's overall source separation and waste reduction goal equals 38% percent of the total waste stream.

The confusion exists because of the way recycling goals were calculated in 1985. The goals in the Council's March 1985 policy plan are based on the quantity of waste being landfilled in 1985 (77 percent), not the portion that was being recycled (23 percent). Based on a study conducted by Hennepin County, in November of 1985, the Council now estimates that in 1985, 23 percent of the entire waste stream was recycled and continues to be. The waste management goals of the Metropolitan Area are comparable to many of the most progressive areas in the country if goals are evaluated on an equivalent basis.

The counties abated an estimated 2.5 percent of the amount of waste landfilled in 1987. The Council's abatement goal for 1987 is 6 percent of the amount of waste being landfilled. However, many new abatement programs have been developed in 1987 and all seven counties have submitted and received approval of their county solid waste master plans. The master plans contained major commitments to develop a solid waste system consistent with Council policies. Figures 1-4 show a dramatic increase from 1985 to 1987 in the number of residential recycling and composting programs established by cities and counties.

Abatement continues to be difficult to measure, especially within the commercial and industrial sector. However, the use of waste sorts--that is, examining the composition of the waste stream,--at the centralized processing facilities will provide valuable information in the future. The Council will be gathering additional information as it revises its solid waste policy plan.

Future abatement progress can be estimated by comparing the current collection rates of national and local residential recycling and composting programs to

those programs which the counties intend to develop, as identified in their county master plans. The counties expect to abate, through waste reduction and source separation, 18 percent of the waste stream being landfilled in 1990.

The remaining 2 percent difference between that and the Council's 1990 goal of 20 percent waste reduction and source separation is in part due to the delayed development schedule for source-separation programs in Anoka and Dakota Counties.

Figure 5 projects the Metropolitan Area Solid Waste Management System from 1987 to 1992. In 1987 it is expected that 4,810 tons per day of material will be landfilled. This includes 4,340 tons per day of raw waste and 470 tons per day of residuals. By 1992 it is expected that 1,610 tons per day of residuals will be landfilled, and no raw wastes.

CONCLUSIONS

1. The region has traditionally achieved a high level of abatement through source separation. The abatement achieved in 1985 through source separation is estimated to be 23 percent.

2. The region has abated an additional 2.3 percent of the waste above 1985 levels during 1987. This is less than the Council's goal of 6 percent additional source-separation abatement for 1987.

3. The counties' plans for 1990 call for abatement to achieve a 18 percent source-separation and waste reduction abatement above 1985 levels. The counties expect to achieve 20 percent source-separation and waste reduction abatement in 1992. The 20 percent goal is consistent with the Council's goals, but delayed two years.

4. The region achieved an 11.8 percent centralized processing rate in 1987, which is 7.8 percent better than the Council's 1987 goal of 4 percent.

5. The counties and the Council should coordinate data management to provide information necessary for planning and developing additional programs.

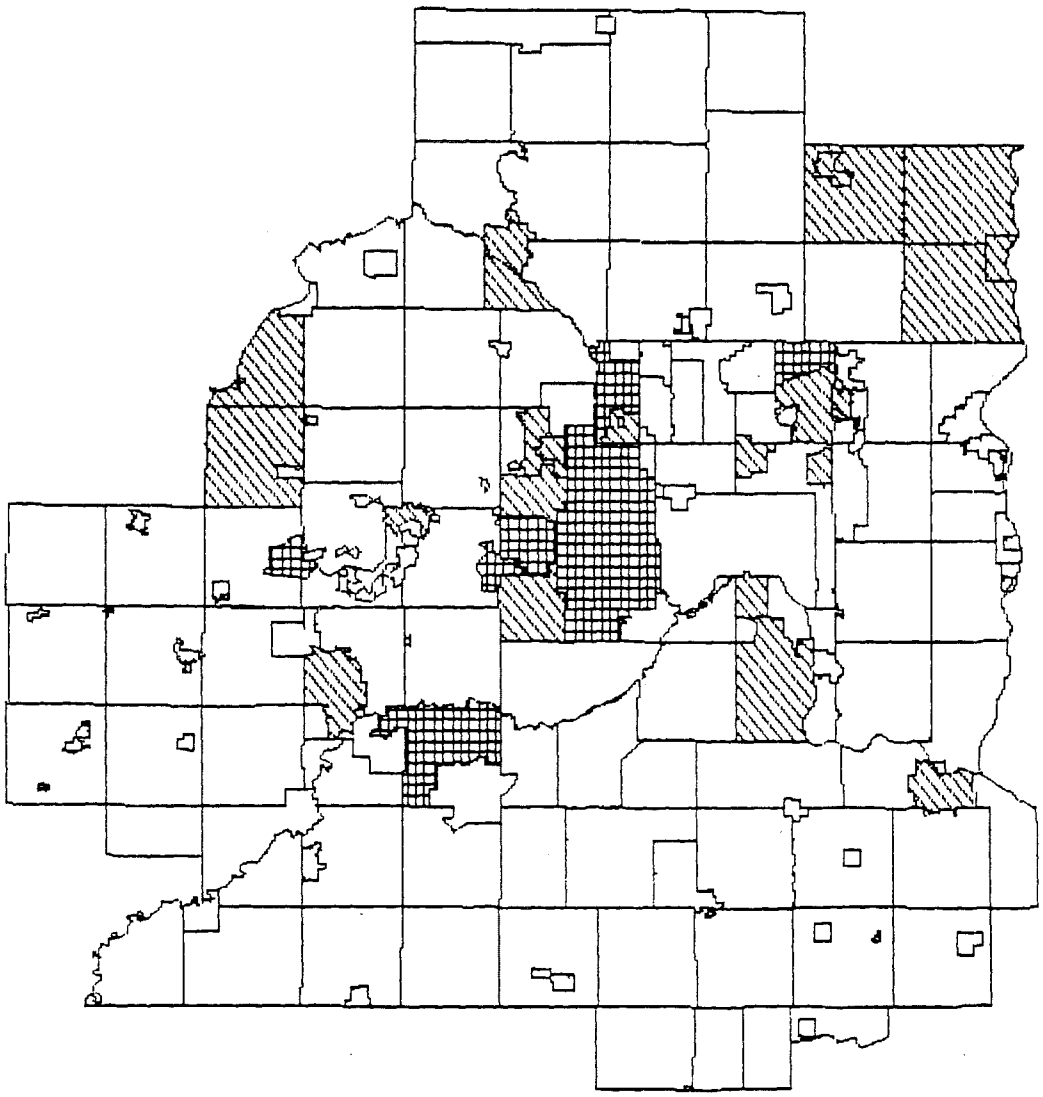
RECOMMENDATIONS

In developing their solid waste master plans, the seven metropolitan counties have made considerable commitments towards waste abatement, including source-separation activities and centralized processing facilities. The counties are also currently working on their recycling implementation strategies to develop permanent programs. In view of the progress and commitments made, the Council recommends that no legislative changes in authority or structure of the solid waste management system in the Metropolitan Area be made during the 1988 legislative session.

Figure 1

METROPOLITAN AREA RECYCLING SERVICES

Cities and Townships with Recycling Programs, 1985



Type of Service

Curbside collection

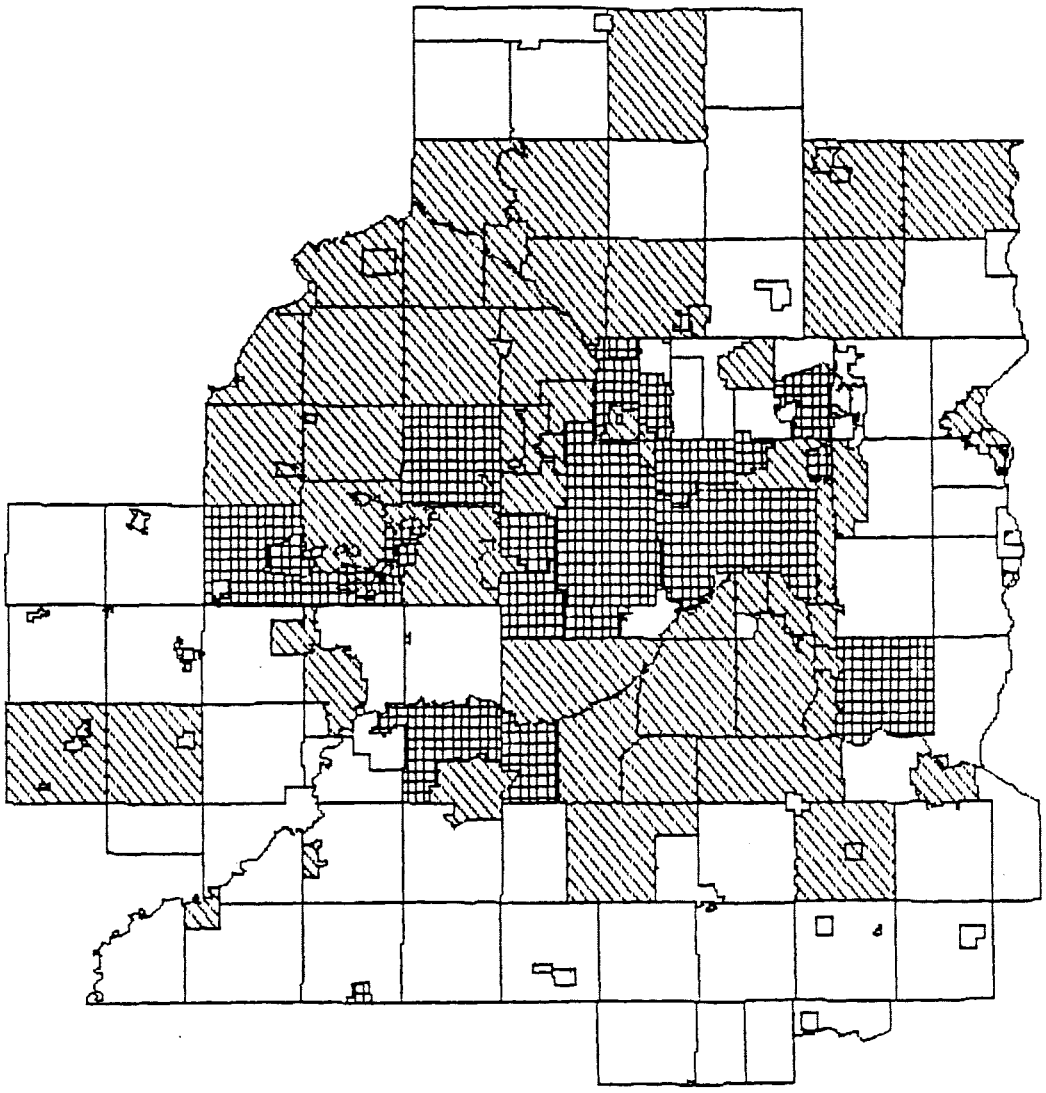
Dropoff

No service

Figure 2

METROPOLITAN AREA RECYCLING SERVICES

Cities and Townships with Recycling Programs, 1987



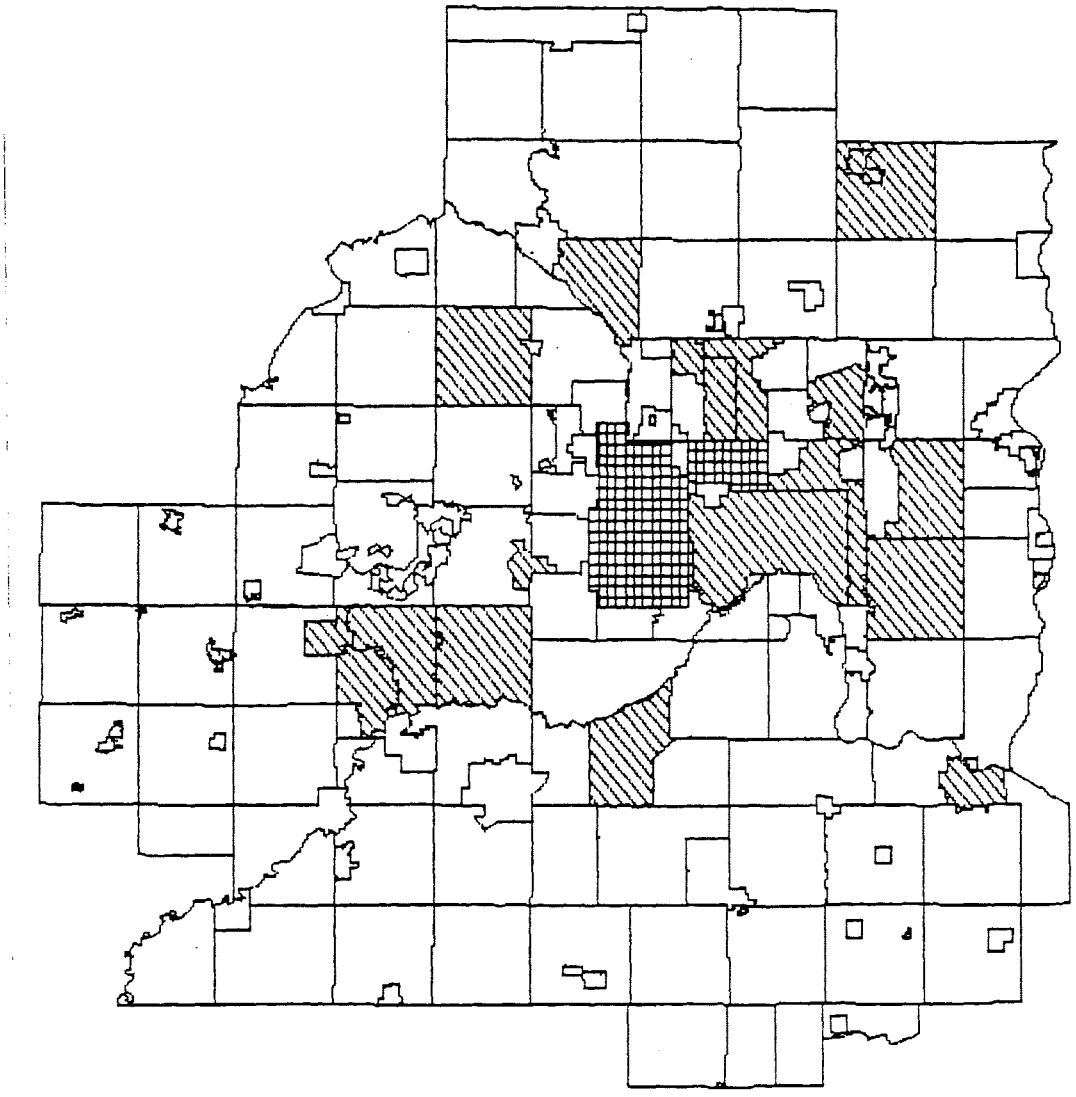
Type of Service

Curbside collection
Dropoff
No service

Figure 3

METROPOLITAN AREA RECYCLING SERVICES

Cities and Townships with Yard Waste Composting Programs, 1985



Type of Service

Curbside collection

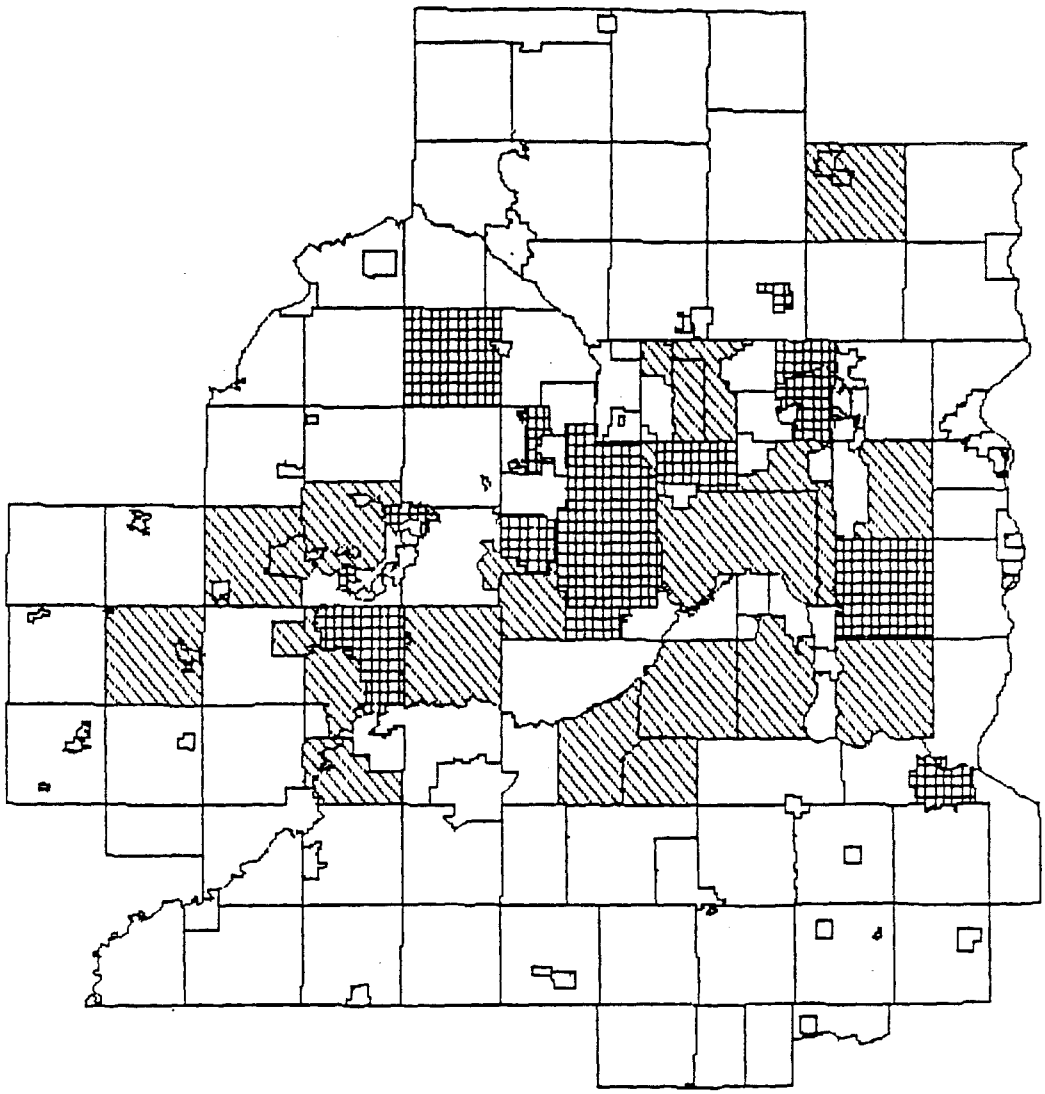
Dropoff

No service

Figure 4

METROPOLITAN AREA RECYCLING SERVICES

Cities and Townships with Yard Waste Composting Programs, 1987



Type of Service

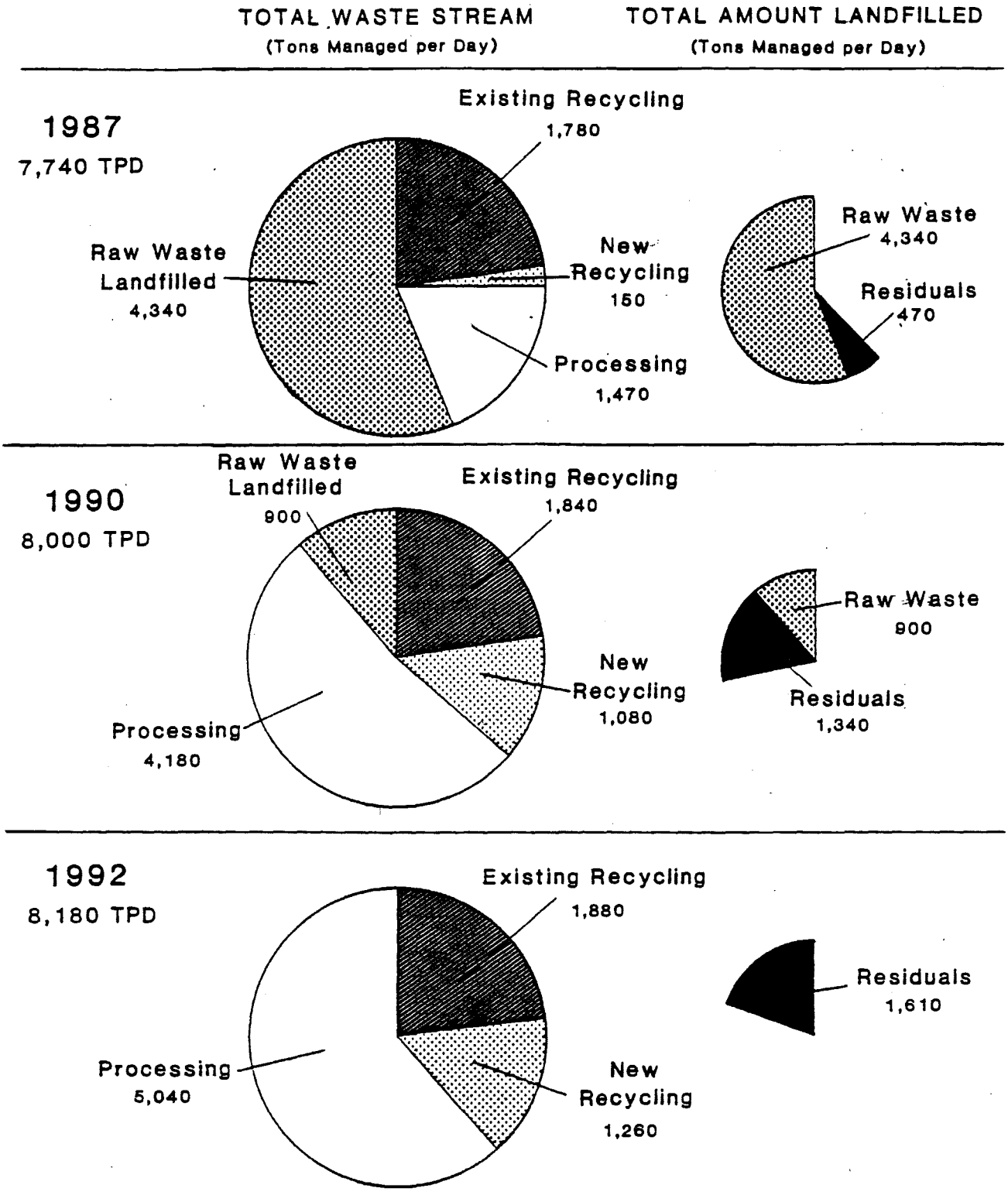
Curbside collection

Dropoff

No service

Figure 5

TWIN CITIES METROPOLITAN AREA SOLID WASTE MANAGEMENT



ABOUT THIS REPORT

This is the third annual Abatement Progress Report to the Legislative Commission on Waste Management (LCWM). The Waste Management Act of 1980, as amended, Minn. Stat. 473.149, Subd. 6, states...

> "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 assesses the degree to which the Council's abatement goals, as defined in its Solid Waste Management Development Guide/Policy Plan, are being achieved. The waste stream is described in the first section. This provides an understanding of the potential abatement levels that can be achieved by the recovery of recyclable materials from the waste stream. It also gives the Council's definition of abatement progress in relationship to the waste produced.

The second section examines the measurement of abatement progress based on current recycling activities. The third section includes a list of known abatement activities for each county by municipality. Also included are estimates of the current abatement levels to be achieved in 1987 with projections for 1990. The fourth section provides a regional summary of abatement progress which includes a projection of the Metropolitan Area's solid waste management system from 1987 to 1992.

The conclusions and recommendation to the report are in the fifth section of the report. The appendix of the report provides information on specific methods used to predict abatement progress for various aspects of the solid waste management system currently operating in the region.

WASTE STREAM COMPOSITION

The amount of each recyclable material contained in the waste stream is the basis for determining abatement potential. It is also necessary to understand the abatement management options available and their potential effectiveness. Table 1 provides the percentages of various components of the residential waste stream and the tons of various materials in the commercial/industrial waste stream that were landfilled in 1987. These estimates do not account for recycling that has begun since 1985. Council estimates indicate that each person in the region produces an average of 2.45 pounds of waste per day or 894 pounds of waste per year. The generation rates for commercial and industrial generators are 3.21 and 7.92 pounds per employee per day, respectively.

The traditionally recycled materials from the residential sector are newspaper, glass and metal. Recyclable materials in the residential waste stream equal 178.5 pounds per person per year. The total of recyclable materials in the entire waste stream generated by the residential sector equals 8.5 percent. If yard waste is added to this, an additional 144.4 pounds per person per year could be separated at the source. The total precentage of the waste stream recoverable from the residential sector is 16.6 percent. That is, if a program were designed to collect all recyclable materials generated by the residential sector, including yard waste, it could not achieve over 16.6 percent abatement of the entire waste stream.

The commercial and industrial sector provides additional opportunity to attain a higher recycling rate through recovery of materials. The materials traditionally considered recyclable from the commercial and industrial waste stream are corrugated, white office paper, metals and glass. The total for these materials is equal to 20.8 percent of the entire waste stream. The white office paper recovery rate is currently over 75 percent. The white office paper remaining in the waste stream equals 3.7 percent. If mixed paper, different colors and grades of paper, is added to the sum of recyclable materials, the total commercial and industrial recycling effort could yield 27.1 percent abatement.

However, the maximum abatement level attainable if all the materials identified as possibly recyclable were recovered is 43.7 percent. The materials identified in the waste stream are not all readily recyclable. Much of the waste identified as potentially recyclable is actually too contaminated to reuse; this is especially true of mixed paper.

The percentage of materials available in the waste stream does not provide an indication of how successful programs will be in recovering the materials. The next section provides information on the relative success of various programs to recover recyclable materials.

TABLE 1

MATERIALS IN THE WASTE STREAM [4]

	Residential		Commercial/Industrial	
	Percent of Total	Lbs Per[5] Person Year	% of Total	Tons Per[6] Year
Organics:				
Newspaper	9.00	80.48	4.32	44,247
Corrugated paper	4.23	37.83	16.74	171,458
Mixed paper	10.83	96.85	18.47	189,178
Yard waste	16.15	144.40	1.93	19,768
Wood waste	6.31	56.40	9.23	94,537
Other organics[2]	35.35	316.12	33.15	339,537
Inorganics:				
Ferrous metals	5.34	47.75	4.99	51,056
Aluminum	0.91	8.14	0.81	8,296
Nonferrous metals	0.12	1.07	0.18	1,844
Glass containers	4.71	42.12	2.88	29,499
Other inorganics[3]	7.04	62.96	7.30	74,770
Total				1,050,394

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

2 Rubber, textiles, plastics, other combustibles.

3 Rock, dirt, cement, plaster, ceramics.

4 Material as received at disposal facilities after recycling has occurred.

5 Assumes a metropolitan area average of 2.45 pounds/person/day.

6 Assumes 54% of the waste stream is generated by commercial/industrial generators and the total waste stream is 2,118,000 in 1987.

Total residential recyclable materials equal 178.49 pounds per person year. Total residential yard waste equals 144.4 pounds per person year. The total of residential recyclable materials is 16.6 percent (includes newspaper, yard waste, glass, aluminum and ferrous metals) of the entire waste stream.

Total commercial recyclable materials equal 17.1 percent of the waste stream (newspaper, corrugated, yard waste, ferrous, aluminum, and glass. The total rises by 9.87 percent if mixed paper is included in the list of recyclable materials to a total of 27.07 percent of the entire waste stream.

The maximum amount of recyclable material, which includes 100 percent of residential commercial/industrial wastes is 43.67 percent.

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MEASURING ABATEMENT

Measuring abatement progress is very complicated in the Metropolitan Area. Abatement activities are conducted by cities, counties and private firms. Private firms that are not working under government contracts are not under obligation to report quantities of recyclable materials recovered. The majority of commercial and industrial abatement programs are private. The data from privately run residential recycling programs, along with data from city sponsored programs in the Metropolitan Area and the country, provide a base of information to predict potential abatement levels achieved by local programs where data is not available.

Table 2 displays recycling programs operated in the country and the pounds per person per month collected by various programs. Table 3 examines selected local programs that have operational data to determine the pounds per person per year of yard waste collected by various types of programs. The data in Tables 2 and 3 has been used to estimate the rate of recovery that may be expected by recycling programs in the region as described in Tables 4 and 5.

Table 4 provides the estimated volume of recyclable materials that would be collected by programs having various collection and promotional characteristics. It shows that the most effective voluntary curbside collection program employs monthly promotion and collects materials on the same day as refuse collection. This voluntary program collects an average of 73 pounds per person per year in the service area. Programs that collect recyclables weekly, with monthly promotion on the same day as refuse collection, average 74 pounds per person per year. Mandatory programs and programs that involve active civic organizations average over 100 pounds per person served by the program in a year. The average mandatory program, collects 121 pounds per person per year, which equals 65 percent of the 187 pounds of recyclables potentially recoverable per person per year, excluding yard waste.

Drop-off recycling programs with active community participation collect an adverage of 102 pounds per person per year. City-sponsored drop-off recycling programs average 35 pounds per person per year.

Table 5 provides estimates of the effectiveness of yard waste collection programs in recovering separated yard waste from the residential waste stream. County-sponsored drop-off programs average 24 pounds per person served, per year. Curbside collection programs for yard waste recover an average of 58 pounds of yard waste per person served, per year. The variability of service is quite high among city-sponsored collection. The highest participation in the Metropolitan Area occurs in a city with organized collection that runs a yard waste collection program for four to six weeks each fall. The participation in this program recovers 98 pounds per person per year. This equals 68 percent of the 144 pounds of yard waste generated per person per year.

At maximum participation rates for residential curbside yard waste and curbside recycling programs, the recovery rate of recyclables would total slightly over 11 percent of the mixed municipal waste stream. The residential recyclables equal 16.6 precent, as noted above.

Very little hard data exists for the expansion or success of abatement programs for commercial and industrial waste generators. Hennepin County estimated in a 1985 study that over 23 percent of all the waste generated was recycled. The

majority of waste recycled was generated by commercial and industrial sources. portion which is disposed of. For some materials the rate of recycling has been traditionally high. Examples of estimated recycling rates include 23 percent for magazines, 40 percent for newspaper, 43 percent for cardboard, 57 percent for nonferrous metals, 60 percent for aluminum and 73 percent for office paper.

Commercial and industrial wastes have been studied in the waste sorts completed in the region. They have usually been examined by grouping the businesses by type such as restaurants, real estate, through the Standard Industrial Code (SIC) sectors. However, different types of businesses within a SIC sector may have very different recycling capabilities and this factor has never been examined.

In general, the finance, insurance and real estate group produces a very high percentage of white office paper in its total waste stream. Machine manufacturing, on the other hand, produces large volumes of cardboard and wood wastes. Table 6 provides the total tons of materials generated by commercial and industrial activities in the waste stream. Table 6 includes all materials identified, even though much of the paper waste is considered nonrecyclable due to contamination. In the future as individual programs are examined for waste abatement, it is necessary to relate the potential for future abatement to the number of employees in related activities, or at a minimum, activities with similar waste generation characteristics.

The demonstration grant program conducted by Recycling Services has provided a glimpse of the rate of recovery a well-organized office paper recovery program may achieve. The program was able to recover an average of 242 pounds of white office paper per employee in a year. This rate is equal to 28 percent of the white office paper available, or 19 percent of the waste generated per employee. This figure may increase to 40 percent of the white office paper or 28 percent of the waste generated per employee, according to information gathered by Recycling Services. The recycling of office paper discussed above is in addition to the estimated 73 percent currently occurring in the region.

No data exists to estimate the effectiveness of programs for recycling corrugated to further reduce the quantity of cardboard disposed of in the region.

Abatement progress is a difficult objective to measure. The measurement of abatement progress has taken many forms, including an assessment of county progress in establishing programs to achieve abatement, an assessment of progress toward the construction of facilities and designation authority, and an assessment of recyclable materials recovered from the waste stream. The previous abatement progress reports have focused on the activities occurring in the region to establish abatement programs.

This year's report examines, to the extent practical, an estimated abatement progress occuring as a result of individual activities by counties and municipalities. Data has been collected on the actual tonnage of materials recovered by various abatement programs during 1987 and based on this, estimates were generated for the entire year. For some programs, good estimates of progress were difficult since many new county abatement programs started in the summer and fall of 1987. The report highlights county

activities, with a regional synopsis provided as a summary for the report. The actual consumption of landfill space is provided in the regional abatement progress summary.

The collection of data on recycling programs may include data from programsoperating prior to 1985. The actual level of new recycling occurring in the region is obscured by this fact. One example of the data reporting problems associated with measuring abatement progress is the inclusion of household goods that have traditionally been collected. The collection of household goods does not assure that the materials will be reused. Some materials collected by recycling programs may ultimately be landfilled rather than reused.

Improved management of the solid waste system will depend on a clear understanding of the waste stream, by sector, for each county and a cooperative data management system between the counties and the Council. Data to determine waste composition will ultimately be collected by the counties through waste sorting at processing facilities.

TABLE 2
RESIDENTIAL RECYCLING PROGRAM
PERFORMANCE - NATIONALLY (excluding yard waste)

City	Population	Tons	Lbs/Person/Year	Collection Frequency Monthly/Weekly/Biweekly	Curbside Program Type City/Private	Same Day/Other Day	Voluntary/Mandatory
St. Cloud	33,000	378	22.9	M	C	O	M
Austin, TX	100,000	2,282	45.6	W	C	S	V
Islip, NY	349,715	10,000	57.2	W	P	O	M
Hamburg, NY	10,000	840	168	W	C	S	M
Burington, RI	16,600	1,103	132.4	M	C	S	M
Dover, NJ	15,000	260	34.7	W	C	O	M
Bowie, MD	30,000	40	2.7	W	C	O	V
Boca Raton, FL	59,000	3,700	125.4	W	C	O	-
N. Palm Beach	17,500	403	46.1	W	C	S	V
Madison, WI	170,000	2,000	23.5	W	C	S	V
Burbank, Co.	87,000	5,816	133.7	B	C	S	V
Grand Rapids, MI	500,000	3,387	13.6	B	C	O	V
Sunnyvale, Calif.	113,000	2,282	57.5	W	C	S	V
Montclaire, NJ	38,000	3,089	162	B	C	O	M
Roxbury, NJ	19,000	614	64	M	C	S	M
Macklenburg, NC	428,000	976	4.6	W	C	S	V
Palo Alto, CA	56,000	5,394	192.6	W	C	S	V
El Paso, CA	425,000	1,275	6.0	B	C	O	V
Monroe Co., PA	70,000	335	9.6	W	C	S	V
Tift Co., GA	33,000	144	8.7	B	C	S	V
Springfield, PA	20,000	1,589	158.9	W	C	S	V
Buscobel, WI	2,662	102	76.6	B	C	O	V
Rockford, IL	139,000	420	6.0	W	C	S	V
Montgomery Co., MD	190,000	12,670	133.4	W	C	O	M
Manitowoc Co., WI	30,000	482	32	M	C	O	M

TABLE 3

YARD WASTE SOURCE SEPARATION
PROGRAM IN THE METROPOLITAN AREA

Program	Type	Promotion *Annual/Other/ Irregular	City/County	Tons	Population	lbs/pop.
Anoka	DO	0	County	1,200	219,158	10.95
Centerville	CS	A	City	50	1,017	98.33
Carver	DO	0	County	3	597	8.61
Chanhassen	CS one day	0	County	96	7,849	24.46
Chaska	DO	0	County	96	9,582	20.04
Lk Minnewashta	DO	0	County	60	4,515	26.58
Victoria	CS one day	0	County	3	1,998	3.00
Waconia	DO	0	County	48	3,177	30.22
Watertown	DO	0	County	48	2,085	46.04
Young America	DO	0	County	36	1,361	52.90
Burnsville	DO	0	City	6	42,583	0.28
Eagan	Do Apr-Nov	0	City	60	35,311	3.40
Hastings	DO	0	City	102	13,825	14.76
Pine Bend	DO	irr	Private	44	---	---
Hennepin Co.	DO	0	County	7,760	(557,601) in program	27.83
Minneapolis	CS street cleaning	0	City	4,206	360,000	23.37
Minnetrista/ Mound	DO	0	City	37	13,208	5.60
Orono	DO 3 days only	0	City	2	7,172	0.56
Richfield	CS super vacs	0	City	412	36,891	22.34
Ramsey County	DO	0	County	2,189	471,369	9.29
White Bear Twnship/Ramsey	CS in fall	0	Private	182	7,574	48.06
Roseville	CS super vacs DO	0	City	1,545	35,178	87.84
White Bear Lk	CS	0	City	748	22,726	65.83
Louisville LF	DO	0	Private	-		
Washington Co.	DO	0	County	959	127,399	15.06

*Type: DO=drop off, CS=curbside

KK130A/CHLGL1
LLB040/PHENV2@5

TABLE 4

RESIDENTIAL SOURCE SEPARATION PROGRAMS

ANTICIPATED ABATEMENT LEVELS

Type	Features		Promotion	Mandatory Voluntary	Pounds/[1][3] Person-Year
Curbside	Monthly		Quarterly	Voluntary	41.5
		Same Day[2]	Quarterly	Voluntary	53.0
		Same Day	Monthly	Voluntary	73.0
	Weekly		Monthly	Voluntary	71.0
		Same Day	Monthly	Voluntary	74.1
	Monthly	Same Day	Monthly	Mandatory	121.0
Dropoff	City Sponsored		Unknown		35.3
	Private		Unknown		49.2
	Community Participation		Unknown		102.4

(1) Pounds per person per year of materials collected from service area population.

(2) Same day means that garbage and recyclables are collected on the same day.

(3) The total pounds per person per year equals 187 pounds.

Date sources: July 1, 1987, Tonnage Payments Report, Metropolitan Council
Waste Age, July 1986, pages 52-53.

KK130A/CHLGL1
LLB040/PHENV2@5

TABLE 5

Residential Yard Waste Abatement Programs

Anticipated Abatement Levels

Type	Promotion[1]	Manditory/Voluntary	Pounds/Person/Yr
City Drop-Off	Seasonal: TV, radio, brochures	Voluntary	5.42
County Drop-Off	" "	Voluntary	24.22
City Collection	" "	Voluntary	57.61[2]
County Collection	N/A*	N/A	N/A

*N/A = Not Available

1 Frequency of promotional activity cannot be assessed from available data.

2 Maximum rate is for Centerville at 98.33 pounds per person year with organized collection and separate fall yard waste collection. Roseville collected 87.84 pounds per person year using a vacuum truck. The promotion for the Roseville program is also quite comprehensive.

Source: Profiles of selected Metropolitan Area Yard Waste Composting Programs, May 1987, Metropolitan Council.

LLB035/PHENV2@5

TABLE 6

Commercial and Industrial Waste Stream

(1987 Estimates)

Generator Type	# of Employees	Total Waste (Tons)	Materials (Tons)
Commercial			
Office	457,606	284,779	
Materials:			
White office paper (clean and contaminated)*			179,400
Newsprint			17,090
Corrugated Cardboard			15,900
Other			72,400
Other Commercial	250,521	155,905	
Materials:			
Corrugated			99,810
Other			56,095
Industrial	421,827	609,708	
Materials:			
Industrial Wastes (ash, sludge, etc.)			127,000
Paper (mixed) clean and contaminated)*			166,194
Glass			57,880
Ferrous			89,630
Corrugated Cardboard			71,648
Other			97,336

*42 percent of paper wastes are estimated to be too contaminated to recycle

Sources: Pope Reid Associates Inc. Hennepin Co. Comp. Recycle Study Vol 1 1985. Metropolitan Council "Solid Waste at What Cost", 1986., "Alternate Strategies and Plans," MRI, 1975.

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ANOKA COUNTY

RESOURCE RECOVERY

Construction of a refuse derived fuel (RDF) facility in the City of Elk River began during 1987. The facility is expected to begin operation in June 1989. The facility is a joint project between Northern States Power Co., Anoka and Hennepin Counties and three nonmetropolitan counties, able to process 1,500 tons of waste per day. The facility is designed to accept 500 tons of waste from Anoka's 1990 generation of 613 tons per day. The remaining waste generated in the county (113 tons per day) is destined for waste reduction, materials recovery or composting as described in the recently approved county master plan.

The operator of the facility, NSP, is required to meet a minimum of 68 percent weight reduction according to the contracts. The combustion of waste will generate an estimated 7-9 percent ash from the waste burned and approximately 19-24 percent rejects/residuals. For Anoka County, this is equal to roughly 32 percent or 160 tons per day of 500 tons of waste delivered to the facility. The landfill space consumed, to the greater density of ash and rejects in a landfill, is anticipated to be one fifth (1/5) of the current landfill demand for county waste. This assumes that 113 tons of waste will be recycled, composted, and/or reduced.

ABATEMENT PROGRAMS

Information has been collected on the abatement levels for 1987 from abatement programs in the county, except waste reduction. The following section provides the efforts that the county has undertaken to achieve abatement followed by the actual results and an estimate of potential further abatement from established abatement programs.

Recyclable Materials

The county efforts are on three programs for the recovery of recyclable materials which include: residential recycling, office paper recovery, and commercial and industrial recycling. The county envisions 10 of the 21 communities in the county having curbside residential recyclables collection and four additional communities receiving partial curbside service covering a population of over 178,000 or 81 percent of the population of the county. Currently, only two cities with a population of 36,600 or 17 percent of the population have curbside collection. The county also plans to have multi-material drop-off centers countywide. Currently only one of the seven cities that the county plan states should be served by a drop-off recycling center actually has one. The county is providing technical assistance and financial assistance to cities in establishing residential recycling programs.

The county estimates that approximately 4 percent of the waste disposed of in the county is in office paper. The county will provide technical assistance to companies that wish to participate in a white office paper recovery program. The county estimates that the program will be able to recover 2 percent of the county's waste stream. The recovery of glass and carboard will be promoted by county technical assistance. The recovery rate for an aggressive program in Anoka County has been estimated to equal 11,000 tons of materials or 6 percent of the waste stream.

Composting

The county recommends that urbanized cities in the county provide curbside collection of yard waste and that the county will help in the siting of composting areas. The county supports city and private ownership of composting sites. According to the county's plan, 8.7 percent of the waste stream is yard waste. The county assumes that 5 percent of the yard waste will be composted in either curbside collection or drop-off programs. In 1987 the county was served by one curbside yard waste program and two county drop-off sites collecting 1,300 tons of yard waste (this figure does not include tonnage figures for a new site opened in October 1987), or 0.6 percent of the waste stream.

Waste Reduction

The primary tools to be employed to encourage waste reduction by the county are public education and school programs to encourage a shift to backyard composting, mulching, reduction in office paper use, and alternate consumer buying habits. The county wishes to achieve 5 percent waste reduction through these programs. No method currently exists to assess the abatement level achieved by these programs.

LANDFILL DEVELOPMENT

Anoka County has continued to make progress on the candidate landfill siting and selection process. The county is in the process of collecting information for the EIS required under state statutes. The Council's schedule for construction and operation of the landfill suggested the landfill begin operation in 1987. The current expectation is that the EIS will be completed in 1989 with the landfill possibly opening in 1990.

Anoka Sanitary Landfill is in the process of completing an environmental review for a proposed expansion. This expansion would contribute 620 acre-feet of landfill capacity to the region. The expansion, if granted, would provide landfill space in the northern part of the region for approximately three years. These developments would reduce the chance that the northern part of the Metropolitan Area will run out of landfill capacity prior to the year 2000.

1987 ANOKA COUNTY ABATEMENT PROGRESS

The Council's policy plan calls for the county to achieve 2 percent waste reduction, 2 percent centralized processing, and 6 percent source separation in 1987. The county plan, however, sets a 1 percent waste reduction goal, a 3 percent source separation goal, and no processing goal for 1987. The county does not anticipate achieving the Council's 20 percent waste reduction/source separation goal for 1990 until 1992.

The county currently has two curbside collection programs for residential recyclable materials and eight drop-off programs. The county as a whole will collect an estimated 4,000 tons of source-separated materials in 1987. The county has not been active in waste abatement in commercial/industrial source separation programs, so it seems unlikely that great progress has been made in these areas in 1987. The county abatement programs are listed with results on Table 7. The current abatement level in the county has been calculated to be approximately 2.4 percent. The programs currently operating in the county will mature over time and be positively affected by additional

promotional activities. The existing programs at maturity are expected to achieve a 3.8 percent abatement level. Table 8 displays existing and potential future abatement levels attributable to existing programs. The county plans, calling for much expanded residential curbside collection and drop-off centers, would achieve a 10.3 percent abatement level if implemented. The 15 percent objective could be met by the county's plans for residential, commercial and industrial source separation programs. The county will need to devote significant resources to meet its abatement projections for both residential, and commercial and industrial recycling programs.

TABLE 7
ANOKA COUNTY ABATEMENT ACTIVITIES

City	Population	Program Type	Estimated Tonnage '87	Newspaper	Glass	Alum.	Tin	Other	Compost
Andover	11,281	paper drive	89.5	89.5					
Anoka	15,950	oil dropoff, paper drive	365.6	280.0				58.6	
Bethel	276								
Blaine	34,632	dropoff, private	100.0	50.0			50.0		
Burns Township	2,160								
Centerville	1,017	yard waste							50, curbside
Circle Pines	4,653	dropoff	105.0	69.6	14.0	2.5		18.9	
Columbia Heights	19,426	dropoff, Scouts	682.0	534.8	41.6	24.4	85.2		
Columbus Township	3,542								
Coon Rapids	42,900	paper drive	403.0	403.0					
East Bethel	7,541	dropoff	51.9	40.0				11.9	
Fridley	29,423	curbside, dropoff	692.1	401.7	93.1	79.5	45.5	72.3	
Ham Lake	8,875								
Hilltop	805								
Lexington	2,278								
Lino Lakes	6,766								
Linwood Township	3,239								
Oak Grove	4,542								
Ramsey	11,395	dropoff	126.4	80.0			46.4		
St. Francis	1,180								
Spring Lake Park	6,647	curbside	79.4	71.4	.6	.5		7.0	
	219,158		2,694.9						1250, drop off county

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TABLE 8
ANOKA COUNTY - CURRENT PROGRAM POTENTIAL

Program	Population	Percent of Population Served	Estimated '87 Tonnage	Lbs./Person/ Year Actual	Program/Tons[1] Mature	Lbs./Person/[1] Year/Mature
Recycling						
Curbside	36,596	16.70	771.5	42.2	2,214.1	121.0
Drop-off	131,684	31.31	1,923.4	29.2	3,239.4	49.2
Composting						
Curbside*	734	.33	50.0	136.0	-	-
Drop-off	-	-	1,250.0	-	-	-
Total Recycling			3,995.0	-	8,008.5	-
Percent of Recycling			2.39		3.76	

[1] Based on the average of national programs.

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CARVER COUNTY

RESOURCE RECOVERY

Since 1983 the county has studied and issued various RFP's to encourage the development of centralized processing capacity. Through its work, the county reached the conclusion that it could not reasonably expect to develop a cost-effective resource recovery facility by itself. In the spring of 1986 Carver and Scott Counties issued a joint RFP for a 200-ton-per-day facility. The RFP was for an integrated facility which could offer a combination of RDF/dRDF, composting/co-composting and centralized processing of recyclables. Carver County's average generation rate is 72 tons per day, Scott County's is 110 tons per day. In the summer of 1986 the Scott and Carver County Boards approved a joint powers agreement for the purpose of hiring a consultant to assist in evaluating proposals. The counties received seven proposals for consideration, four of which were withdrawn. A final decision was to be made by mid-November. The counties are currently in the process of selecting the preferred option for negotiations and development.

The county master plan states a commitment to process 82 percent of the county wastes by 1990 and contains a policy that there should be no more than 15 percent residuals by weight from the processing facility. The facility is expected to become operational in 1991.

ABATEMENT PROGRAMS

Information has been collected on the abatement levels for 1987 from county abatement programs except waste reduction. The following section provides the efforts that the county has undertaken to achieve abatement followed by the actual results and an estimate of potential further abatement from established abatement programs.

Recyclable Materials

The county intends to focus its source separation activities in four areas: residential recycling drop-off and curbside collection; office paper recycling; commercial/industrial corrugated cardboard recycling; and yard waste composting. The county current has three recycling drop-off sites serving 33 percent of the county's population. The county proposes to locate three additional drop-off centers in the larger cities which will also serve the surrounding townships. If the drop-off centers do not achieve the abatement level desired, the county will study the possiblility of establishing curbside recycling collection in two cities and the expansion of the existing curbside programs. Currently only two cities have limited curbside collection of select materials. The programs served 5,175 residents or 7.6 percent of the county's population. The master plan indicates that the county expects to meet half of its 1990 source separation goal of 3,878 tons through these efforts.

County staff will provide technical assistance to the recycling programs. The county will fund all capital expenses for the drop-off centers. During the start-up period, the county will fund the recycling centers' operating costs. The county will be examining long-term funding options as the programs develop.

The County estimates that approximately 4 percent or 1,000 tons per day of its waste is office paper. The county is proposing a pilot office paper recycling

program at the county courthouse. If the program is successful, it will be expanded to area institutions and businesses. The county will fund the pilot program and will provide technical assistance to area businesses. Potential recovery from the pilot project is currently unkown.

The county master plan indicates that about 55 percent of the county's mixed municipal solid waste stream is generated by the commercial and industrial sectors. The commercial waste stream is estimated to be 31 percent office paper and 34 percent cardboard. Industrial waste is estimated to be 17 percent office paper and 27 percent cardboard. The county plans to establish a commercial/industrial recycling advisory committee, develop a pilot program for commercial and industrial recycling of cardboard, and examine the possibility of a commercial glass recycling program. If the pilot cardboard recycling program is successful the county plans to expand the program. Estimates of the amount of cardboard potentially recycled through the pilot program was not provided by the county. Costs for the pilot program will be funded by the county.

Composting

The county plans to expand the existing seven yard-waste composting programs to meet half (1,939 tons in 1990) of the county's 13 percent source separation goal. In 1987, the sites collected approximately 507 tons of yard waste or 1.9 percent of the waste stream. Approximately 95 percent of the compost material brought to the sites were leaves. The county plans to expand its existing program to include grass; complete a pilot program to examine yard waste management system costs and markets; and provide public education. Until the pilot program is completed, the county will continue financial support for the existing and new compost sites.

Waste Reduction

The main component of the county's waste reduction plan is to provide public education on yard waste management (backyard composting and yard waste mulching). The county plans to meet its goal of 5 percent reduction for 1990. No method currently exists to assess the abatement level that will be achieved by waste reduction programs.

LANDFILL DEVELOPMENT

The Council's Solid Waste Policy Plan/Development Guide, 1985 has excluded the county from further work in the landfill site selection process.

1987 CARVER COUNTY ABATEMENT PROGRESS

The Council's policy plan calls for the county to achieve 2% waste reduction, 6 percent source separation, and 0 percent centralized processing in 1987. The county master plan contains the same goals for 1987. The county's goals and the Council's goals for 1990 are the same: 5 percent waste reduction, 13 percent source separation and 82 percent centralized processing. The achievement of the centralized processing goal is dependent on the progress and development of a joint facility with Scott County.

The county currently has two curbside collection programs for residential recyclable materials. One program collects only newspapers and the other program collects aluminum, glass and newspapers. The county has three

recycling drop-off centers and seven yard waste compost drop-off centers. An estimated 1,179 tons of source-separated materials were collected by these programs in 1987. In 1987 the county was not active in commercial/industrial recycling programs.

The county's abatement programs are listed with results in Table 9. The current abatement level in the county has been calculated to be approximately 4.7 percent. The existing programs at maturity are expected to achieve a 5.2 percent abatement level. Table 10 displays existing and potential future abatement levels attributable to existing programs. However, the county master plan calls for expanded recycling drop-off sites and possible expansion of curbside programs and expanded composting drop-off sites. Efforts in office paper recycling and commercial/industrial recycling are being examined.

The county will be submitting for Council review a revised master plan as part of its solid waste facility permit or designation plan for its selected resource recovery option.

TABLE 9
CARVER COUNTY ABATEMENT ACTIVITIES

City	Population	Program Type	Estimated Tonnage '87	Newspaper	Glass	Alum.	Tin	Others	Compost
Benton Township	954	drop-off-community club	29.64		1.64	28.00			
Camdem Township	929								
Carver	697	compost drop-off	4.00						4.00
Chanhassen (part)	7,849	compost drop-off curbside yardwaste	207.00						207.00
Chaska	9,582	compost drop-off	125.00						125.00
		drop-off Goodwill, church newspaper	550.00	115.00	242.00	21.00		171.00	
Chaska Township	209								
Cologne	603								
Dahlgren Township	1,299								
Hamburg	488								
Hancock Township	415								
Hollywood Township	1,146								
Laketown Township	2,430								
Mayer	389								
New Germany	375								
Norwood	1,286								
San Francisco Township	714								
Victoria	1,998	church newspaper	50.00	50.00					
Waconia	3,177	drop-off compost site	62.00						62.00
		Scouts' curbside drop-off compost site	140.00	124.00	12.00	4.00			
Waconia Township	1,429								
Watertown	2,085	drop-off compost site	62.00						62.00
Watertown Township	1,480								
Young America	1,361	compost drop-off	47.00						47.00
Young America Township	1,001	drop-off alum. cans	2.00			2.00			
	41,896		1278.64						

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TABLE 10

CARVER COUNTY - CURRENT PROGRAM POTENTIAL

Program	Population	Percent of Population Served	Estimated '87 Tonnage	Lbs./Person/ Year Actual	Program/Tons[1] Mature	Lbs./Person/[1] Year/Mature
Recycling						
Curbside	5,175	7.58	190.00	73.43	313.09	121.00
Drop-off	11,897	33.16	581.64	97.04	581.64	N/A[2]
Composting						
Curbside	0	0	-	-	-	57.60
Drop-off	26,749[3]	68.85	507.00	311.00	507.00	N/A[2]
Total Population	43,821					
Total Recycling			1,278.64		1,401.73	
Percent/Recycling			4.75		5.2	

[1] Based on the average of national programs.

[2] Individual program exceeded national average programs.

[3] Figure includes two areas which have curbside collection of yard waste since tonnage figures could not be estimated for the curbside programs.

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DAKOTA COUNTY

RESOURCE RECOVERY

Dakota County had planned a RDF-type facility to be built by a private company in the county in 1985. The financing for the facility collapsed and the project was abandoned. The county has revised the ownership criteria for its facility so that the county will own the facility and provide financing. The county is currently reviewing proposals and is expected to select a vendor before the end of the year. The county anticipates that the facility will be operational by 1992, according to the county master plan. The time necessary for environmental review and construction will be approximately 42 months, according to Council estimates. This would predict facility operations will commence in mid-1991.

The circumstances leading to the processing delay were, to a large extent, beyond the control of the county. The progress being made by the county is commendable, given the disruption in the development schedule. No estimates of ash or residuals are available at this time and it is not clear how the development of the facility will affect landfill space consumption or abatement programs. The county has expressed the desire to explore mechanical separation of recyclable materials at the processing facility site as another option for achieving the desired level of abatement.

ABATEMENT PROGRAMS

The county master plan envisions the creation of a Solid Waste Enterprise Fund to support abatement activities in the county. The funding sources will include: the landfill abatement fees for landfilling waste, grants to the county, residuals from the sale of recyclable materials, and processing facility tipping fees. This funding concept is unique to Dakota County and may, if used judiciously, greatly improve abatement activities in the county.

The county plan states that the county lacks information necessary to plan effective commercial and industrial waste abatement programs. The county intends to collect necessary information prior to the end of 1987. The county has placed the onus of developing source separation programs on the shoulders of the cities. The county will provide technical assistance to the cities and unspecified financial support. The current level of abatement activities is provided below.

Recyclable Materials

The county calls for 15 of the county's 34 communities to determine the feasibility of curbside collection programs for recyclable materials. The population to be served would be in excess of 180,000, or 78 percent of the county population. The plan also calls for county development of an intermediate processing center for recyclable materials and a local unit of government office paper recovery program.

The county plan encourages cities to implement organized collection in conjunction with curbside collection. The county plan calls for 6 percent source separation of recyclable materials for 1987, escalating to 15 percent of the waste stream by 1992. The county plan urges communities that have not met the 1989 goals for source separation to adopt ordinances to eliminate the

collection of yard waste. The county does not discuss the establishment of programs to serve the commercial and industrial waste generators in the county. The county has plans to add two additional staff positions to assist communities in the establishment of source separation and abatement programs.

Compost

The county has stated that it will provide a site for the community source separation programs to compost yard waste. The communities that the county has indicated should have curbside source separation programs should also have curbside yard waste collection. The county master plan urges communities to ban the collection of yard waste if the 1989 source separation goals for the county are not met.

Waste Reduction

The primary tools to be employed to encourage waste reduction by the county are public education and school programs to encourage a shift to backyard composting, reduction in office paper use, and a change in consumer buying habits. The county wishes to achieve 5 percent waste reduction through these programs. No method currently exists to measure the abatement level achieved by these programs. The county intends to survey residents to evaluate the effectiveness of waste reduction programs in the county.

LANDFILL DEVELOPMENT

The Council's Solid Waste Policy Plan/Development Guide, 1985 has excluded the county from further work in the landfill site selection process.

1987 DAKOTA COUNTY ABATEMENT PROGRESS

In 1987, 11 communities in Dakota county were served by drop-off recycling services and five communities were served by drop-off yard waste composting sites. No curbside collection programs for recyclable materials or yard waste composting were operated in the county during 1987. All of the cities with drop-off source separation programs are identified in the county plan as communities that should have curbside collection programs. The 11 communities with drop-off recycling represent 76 percent of the county population. Forty-six (46) percent of the county population is served by yard waste composting facilites. Table 11 shows the communities participating in source separation programs. The county has stated a six percent source separation goal for 1987. The estimated abatement level for 1987 is 2,490 tons, or 1.1 percent of the waste stream. Table 12 provides a summary of the population served by source separation programs and the results for 1987 along with an estimate of the potential that existing abatement programs offer once they mature. The estimate of abatement levels that may occur with the existing programs as they mature is 2.5 percent of the waste stream.

The county has not included activities to increase the existing level of commercial and industrial abatement in its master plan. The county cannot expect to achieve over an 11 percent recycling rate through residential source separation programs alone as discussed above.

TABLE 11
DAKOTA COUNTY ABATEMENT ACTIVITIES

City	Population	Program Type	Estimated Tonnage '87	Newspaper	Glass	Alum.	Tin	Other	Compost
Apple Valley	28,538	Goodwill dropoff	123.3	52.2	9.3	0.8		65.7	*new dropoff
Burnsville	42,583	Goodwill dropoff	502.2	211.8	36.5	4.0		250.0	*6, dropoff
Castle Rock Township	1,428								
Coates	198								
Douglas Township	620								
Eagan	35,311	church dropoff	348.8	335.6	13.2				*60, dropoff
Empire Township	1,400								
Eureka Township	1,362								
Farmington	5,010								
Greenvale Township	669								
Hampton	322								
Hampton Township	936								
Hastings	13,825	church dropoff	254.5	252.4		1.4		0.6	*102, dropoff
Inver Grove Heights	19,549	church dropoff	8.0	8.0					*new dropoff
Lakeville	17,865	Goodwill dropoff	82.2						
Lilydale	480								
Marshan Township	1,712								
Mendota	223								
Mendota Heights	8,195	Mn/DOT	--					*oil	
Miesville	176								
New Trier	118								
Nininger Township	826								
Northfield	20								
Randolph	357								
Randolph Township	426								
Ravenna Township	1,816								
Rosemount	6,548	Goodwill	50.0	17.7	4.0	2.7		21.7	
Sciota Township	265								
South St. Paul	20,489	church dropoff	50.0	50.0					
Sunfish Lake	356								
Vermillion	520	school dropoff	74.1	48.2	25.9				
Vermillion Township	1,164	school dropoff							
Waterford Township	483								
West St. Paul	18,134	school dropoff	887.1	692.6	865.2	7.5		92.94	
Other									*44 Pinebend DO
	231,924		2,380.2						

Total Waste Stream = 225,433

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TABLE 12

DAKOTA COUNTY - CURRENT PROGRAM POTENTIAL

Program	Population	Percent of Population Served	Estimated '87 Tonnage	Lbs./Person/ Year Actual	Program/Tons[1] Mature	Lbs./Person/[1] Year/Mature
Recycling						
Curbside	0	0	-	-	-	-
Drop-off	177,605	76.15	2,380.2	26.80	4,369.10	49.20
Composting						
Curbside	0	0	-	-	-	-
Drop-off	107,874*	46.51	168.0	311.00	1,306.35	24.22
Total Population	231,924					
Total Recycling			2,548.0		5,675.40	
Percent Recyling			1.1		2.52	

[1] Based on the average of national programs.

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HENNEPIN COUNTY

RESOURCE RECOVERY

Hennepin County currently has or will have four and possibly five facilities to process waste originating in the county. The facilities in order of processing capacity are:

- The Hennepin Energy Resource Corp. plant which will process 1,000 tons per day in downtown Minneapolis;
- The NSP Elk River facility which will process 800 tons per day of Hennepin County waste and 700 tons per day of other county wastes;
- Reuter in Eden Prairie, capable of processing 400 tons per day; and
- Richard's Asphalt facility in Savage, processing 72 tons of waste per day.

The only two facilities currently operating are Richard's Asphalt and the Reuter facilities. The Reuter facility is accepting only about 200 tons per day of waste, according to information collected from the MPCA. The current processing rate is 87,000 tons per year of the estimated 978,000 tons per year that will require county management. Some 8.9 percent of the Hennepin County waste stream will be processed in 1987.

The major facilities planned by the county are both under construction at the present time. The Anoka facility is expected to begin operation in mid-1989 and the Minneapolis facility in mid-1990. The facilities are sized to accept slightly less than 80 percent of the counties' waste. A solid waste composting facility being considered by the county to process 200 tons of waste per day would meet the 80 percent processing goal stated in the county's master plan.

The county estimates that 27 percent of the processed waste will be converted to ash and residuals, for a total of 192,900 tons per year that will require land disposal. The county plans four transfer stations to assist the flow of waste to facilities. One of the four transfer station sites has been shifted from the orginal proposal in Hopkins to a proposed site in Plymouth.

ABATEMENT PROGRAMS

Recyclable Materials

The county's 1987 goal for waste reduction and source separation is 8 percent: 2 percent waste reduction and 6 percent source separation. The county has developed a sophisticated financing mechanism to encourage municipalities to establish recycling programs. The county will provide up to 80 percent of the costs of operating a city-sponsored recycling program, based on performance. The county has established a 20 percent source separation and waste reduction goal for the county in 1990. The county goals are consistent with Council policy.

The county has added two staff positions to assist cities in the establishment of recycling programs. One staff position is intended to serve the commercial and industrial waste generators in the county, the other is for a recycling coordinator. Additional commitments of resources may be required for

commercial and industrial source separation programs to achieve the 16 percent source separation goal established in the county master plan. The county has estimated that 270,000 households, with a population of 642,000 people, should be served by curbside collection of recyclable materials and yard waste in the county. According to the county plan, 68 percent of the county population will be served by curbside collection.

The county has included provisions in the county solid waste ordinance to allow mandatory source separation programs to be instituted if voluntary programs cannot meet the source separation objectives of the county. The county has instituted ordinance number 13 governing solid waste source separation for Hennepin County. The county has required municipalities to establish programs that will meet the 16 percent source separation goal, or the county will establish a program (in any city not meeting the goal) that will meet it. The county has been very aggressive in promoting source separation.

Compost

Hennepin County has an established yard waste composting program. The county wishes to significantly expand the composting programs in the county so that 68 percent of the population would be served by curbside yard waste collection programs. The county is encouraging rural areas to consider curbside collection where appropriate. The county intends to sponsor pilot yard waste collection programs to determine the appropriate methods and schedules to optimize yard waste collection. Hennepin County has established a network of sites to compost the yard waste and produce a grade of compost acceptable for use by the public. The county currently operates four composting sites in Minnetrista/Mound, Hopkins, Maple Grove and Eden Prairie. Eight municipalities have initiated new curbside collection programs for yard waste in 1987.

Waste Reduction

The primary tools to be employed to encourage waste reduction by the county are public education and school programs to encourage a shift to backyard composting, not bagging, yard waste. The county wishes to achieve 4 percent waste reduction through these programs. No method currently exists to measure the abatement level achieved by these programs.

LANDFILL DEVELOPMENT

Hennepin County has continued to make progress on the candidate landfill siting and selection process. The county is in the process of collecting information for the EIS required under state statutes. The Council's schedule for construction and operation of the landfill suggested the landfill begin operation in 1991. The current expectation is that the EIS will be completed in late 1988 and permitting may be completed in 1990. The landfill development process in Hennepin County appears capable of developing a landfill in a time frame consistent with the Council's goals.

1987 HENNEPIN COUNTY ABATEMENT PROGRESS

In 1987, Hennepin County had 15 operating curbside collection programs serving more than 557,000 residents, or 57 percent of the county population. Many of the programs are less than a year old and four began after Jan. 1, 1987. The curbside collection programs will collect an estimated 14,543 tons of materials in 1987. The county plan calls for cities over 10,000 to have

curbside collection. The plan is for 11 communities to either start programs, as is the case with Eden Prairie, or upgrade programs from drop-off to curbside. The total population of these cities is 316,764 in 1987. The total curbside collection called for in the county plan would then serve a population of 873,764, or 90 percent of the county population. Currently 365,967 people reside in areas served by drop-off recycling programs. If the communities identified to provide curbside collection convert to drop-off programs, only53,338 people currently served by drop-off programs would continue to be served by them. Table 13 shows the communities in Hennepin County with recycling programs and the 1987 level of materials collection achieved by those programs.

Separate yard waste collection was conducted in nine communities during 1987. Four of the programs have less than one year of operation and no collection figures available. The city of Minneapolis collects street sweepings which include leaves in the fall. The Minneapolis program planned to start separate collection of yard waste in fall 1987. Over half of the residents served by curbside yard waste collection in Hennepin County live in Minneapolis. The total number of residents served by curbside collection in Hennepin County is 569,800 people, or 58 percent of the population. Seven communities have drop-off yard waste composting sites that are used by residents in adjoining communities as well. The drop-off composting sites in Hennepin County serve a population in excess of 41,000.

The county collected a total of 17,858 tons of recyclable materials and 7,397 tons of yard waste in 1987, for an abatement total of 25,138 tons of materials. The total county waste generated for 1987 is estimated to be 982,814 tons. The abatement level estimated for 1987 is 2.6 percent. Many of the programs currently operated in the county are in the early stages of implementation and are expected to recover more materials as they mature. As Table 14 indicates,the residential source separation programs currently operated in the county are expected to recover 6.4 percent of the waste stream as they mature. The Council does not have figures on the success of waste reduction, or commercial and industrial source separation programs to achieve the county's abatement goals.

TABLE 13
HENNEPIN COUNTY ABATEMENT ACTIVITIES

City	Population[1]	Program Type	Estimated Tonnage '87	Newspaper	Glass	Alum.	Tin	Other	Compost
Bloomington	84,289	Private drop off	1,180	1,180					
Brooklyn Center	30,267	Church drop off	New						
Brooklyn Park	51,424	Drop off	New						
Champlin	11,642	City drop off	156.5	82.4	40.2	1.0		32.9	
Corcoran	4,802	City drop off							
Crystal	24,628	School drop off	250.5	223.2		0.5		18.2	New CS fall
Dayton	4,176	City drop off							
Deephaven	3,671	Curbside							
Eden Prairie	26,214								1,222 Do
Edina	45,523	Curbside/Goodwill	1,251.7	843.8	167.4	13.8		212.9	238/month
Excelsior	2,601	Curbside	58.4						
Fort Snelling	216								
Golden Valley	21,541	Women's Club Drop off	500						
Greenfield-WHRC	1,504	Drop off							
Greenwood	653	Curbside	63.9	63.9					
Hanover	242	Private drop off							
Hassan Twp.	1,910	Drop off							
Hopkins	15,211	School drop off							456/week
Independence-WHRC	2,684	City drop off	45.8	34.9	9.4	1.0			
Long Lake-WHRC	1,955	Private drop off	New						
Loretto-WHRC	345	Private drop off	New						
Maple Grove-WHRC	30,969	Private drop off	New						1,096 cs
Maple Plain	1,622	Private drop off							
Medicine Lake	407	Curbside							
Medina-WHRC	2,867	City drop off	270.8	211.7	24.6	8.4		26.16	
Minneapolis	360,000	Curbside	8,201.1						4,206 cs
Minnetonka	42,636	Church drop off	227.8	227.8					
Minnetonka Beach-WHRC	575	Private drop off	New						
Minnetrista	3,446	Curbside	26.0						30 do
Mound	9,742	Curbside scouts	236.7						7 do
New Hope	22,770	Church drop off							
Orono-WHRC	7,172	Drop off	New						2 do
Osseo	2,801								
Plymouth	41,207	Curbside scouts	1,106.7						
Richfield	36,891	Curbside	1,387.1	1271.8					412 cs
Robbinsdale	14,212	Drop off	341.5	227.2	71.4	16.6		26.6	
Rockford	2,500	County drop off	108.2						
Rogers	708	Drop off							
St. Anthony	5,312	WMJ drop off							New
St. Bonifacious	1,053								
St. Louis Park	42,713	Curbside	1,816.3	1,216.5	34.5			565.3	13.0 cs
Shorewood	4,788	Curbside	152						
Spring Park	1,474	Curbside	10.8						New do
Tonka Bay	1,436	Curbside							8 cs
Wayzata	3,654	Scouts drop off	232.5	224.7	5.8	2.1			New cs&do
Woodland	500	Curbside							
Totals	974,852		17,858.3						739.66

Hennepin 2.81% SS and compost of total county

TABLE 14
HENNEPIN COUNTY - CURRENT PROGRAM POTENTIAL

Program	Population	Percent of County	Tonnage	Lbs./Person/ Yr. Served	Mature[1] Programs	Lbs./Person/[1] Year
Recycling						
Curbside	557,239	57.16	14,543.2	52.2	33,713.0	121.0
Drop off	365,967	37.54	3,315.1	18.1	9,002.8	49.2
None	51,646	5.3				
Compost						
Curbside[2]	569,804	58.45	6,018.6	21.13	16,410.4	57.6
Drop off	39,712	4.07	1,261	63.51[3]	est.1,923.6	24.22
None	365,336	37.48				
Total Population	974,852					
Total Recycled			25,137.9		61,049.8	
Percent Recycled			2.56		6.44	

[1] Based on the average of national programs.
[2] Minneapolis does not collect yard waste from households, only the street sweepings.
[3] Communities not counted share yard waste drop-off sites.

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RAMSEY COUNTY

RESOURCE RECOVERY

The first large-scale centralized processing facility in the Metropolitan Area began operations on July 29, 1987. The Ramsey/Washington Resource Recovery RDF facility in Newport is operated by Northern States Power Co. The 1,000-ton-per-day facility is expected to process approximately 160,000 tons of waste from Ramsey and Washington Counties in 1987, or 30 percent of the counties' waste stream. The Council's centralized processing goal for the region is 4 percent.

The facility is currently undergoing some expected modifications and adjustments. NSP has quaranteed to the counties that it will process at least 280,800 tons per year or 918 tons per operating day. The facility has the capability to process 1,150 tons per day, with increased operating hours. There is the capability to process an additional 500 tons per day with the addition of a processing line. It is expected that 32 percent of the wastes processed will be residuals and rejects and will be landfilled.

Designation of the county waste stream to the Newport facility began on July 13, 1987. The counties are currently in the process of amending their designation ordinances to ensure consistency with state law avoiding landfilling of the county's waste in other states. The counties are also taking enforcement action against violators of the counties' current designation ordinance.

The counties are also examining the need for a co-compost facility and intermediate processing in conjunction with the Newport facility, and also the need for a transfer station to serve the counties. The counties are also evaluating the need for a ban on the delivery of yard waste to the facility as part of their recycling implementation strategy. The counties are also evaluating risks related to household hazardous waste in order to design programs to handle such materials.

ABATEMENT PROGRAMS

Information has been collected on the abatement levels for 1987 from county abatement programs except waste reduction. The following section shows the efforts the county has undertaken to achieve abatement, followed by the actual results and an estimate of potential further abatement from established abatement programs.

Recyclable Materials

The county has developed a very strong focus on curbside collection of residential recycling, and will also be focusing on yard waste drop-off sites and commercial/industrial recycling. By the end of 1987 more than 361,000 people, or 76 percent of the county's population, will be served by curbside recycling. The county envisions that virtually all of the county's population will be served by 1988. The county also has a number of recycling drop-off centers throughout the county, serving 315,666 people or 67 percent of the county population. The county is providing technical and financial assistance to the cities in the short term and will be examining long-term funding options within the development of the recycling implementation strategy in 1988.

The county master plan indicates that the county will meet half of its source separation goal through commercial/industrial recycling. The county will be providing technical assistance and information to agencies and organizations on avoided costs of disposal and incentives for recycling.

Composting

The county currently operates a network of eight composting drop-off sites, and there are two additional city-operated yard waste curbside collection and drop-off compost sites in the county. The drop-off sites serve a population of 363,735 people, or 77 percent of the county population, and the curbside programs of yard waste serve approximately 65,478 people, or 14 percent of the county population.

The county plans to double the number of compost drop-off sites from eight to sixteen. The county plans that all of the new sites will be operational by 1992. The county will continue to provide financial and technical assistance to local communities. The county will also be exploring, with adjacent counties, the development of a very large compost site, to manage the large volumes of wastes if county-wide curbside collection of yard waste is provided.

Waste Reduction

The main component of the county's waste reduction plan is to provide public education on yard waste management (backyard composting and yard waste mulching). The county plans to meet its goal of 4 percent reduction for 1990. No method currently exists to assess the abatement level achieved by waste reduction programs.

LANDFILL DEVELOPMENT

The Council's Solid Waste Policy Plan/Development Guide, 1985 , has excluded the county from further work in the landfill site selection process.

1987 RAMSEY COUNTY ABATEMENT PROGRESS

The Council's policy plan calls for the county to achieve 2 percent waste reduction, 9 percent source separation, and 5 percent centralized processing in 1987. The Council's goals for 1990 are 4 percent waste reduction, 19 percent source separation and 77 percent centralized processing. The county's goal for source separation in 1990 is different from the Council's. The county plans to meet 16 to 19 percent source separation in 1992 instead of in 1990.

The Ramsey/Washington Resource Recovery Facility will be processing over 30 percent of the two counties' wastes in 1987 and will exceed the Council's goals for the two counties in 1987. It is expected that the counties will continue to meet their goals. The counties also have plans to examine several options to ensure sufficient processing capacity; these include expanded operational hours, granting waste exclusion requests, third operational line, etc.

The county goal for 1992 is 16 to 19 percent source separation, or 76,144 to 90,421 tons. The county plans to achieve half of its 1992 goal through residential recycling programs and half through commercial/industrial recycling programs.

The county currently has curbside recycling serving 77% of the county population. The majority of the curbside programs started in 1987. Approximately 3,818 tons were collected through those programs in 1987. The county has a number of recycling drop-off centers serving 67% of its population and approximately 5,954 tons were collected in 1987. (The figure does include 2,600 tons of material from a regional Goodwill center in which 93% of the material is household goods and 1,327 tons of material from a private transfer station.) The two curbside yard waste programs served 65,478 people, or 14 percent of the county population, and collected 3,720 tons of yard waste in 1987. The compost drop-off sites served at least 363,735 people, or 77 percent of the county population and received 2,762 tons of yard waste in 1987.

The county's abatement programs are listed with results on Table 15. The current abatement level in the county for 1987 was calculated to be 3.5%. The existing programs at maturity are expected to achieve a 7.8% abatement level. Table 16 displays existing and potential future abatement levels attributable to existing programs. By the end of 1988, the county plans to have curbside recycling programs available to all county residents. Also in 1988 some curbside programs will be offering twice monthly pick-up service.

TABLE 15
RAMSEY COUNTY ABATEMENT ACTIVITIES

City	Population[1]	Program Type	Estimated Tonnage '87	Newspaper	Glass	Alum.	Tin	Other	Compost
Arden Hills	9,162	compost-drop-off	352.00						352.00
Falcon Heights	5,412	new curbside	84.00	63.00	18.00	1.00		2.00	
Gem Lake	406								
Lauderdale	2,231	Goodwill drop-off	2600.00[2]	78.00	52.00	26.00		2444.00	
		new curbside	100.00	75.00	1.00	22.00		2.00	
Little Canada	8,231	new curbside	90.00	68.00	20.00			2.00	
Maplewood	28,775	compost, drop-off	580.00						580.00
		Goodwill drop-off	750.00[3]	22.00	7.00	1.00		720.00	
Mounds View	12,928	compost, drop-off	250.00						250.00
New Brighton	23,310	Scouts, new curbside	250.00	188.00	55.00	2.00		5.00	
North Oaks	3,121	nonprofit drop-off, new curbside	180.00	151.00	25.00	2.00		2.00	
North St. Paul	12,210	nonprofit drop-off new curbside	300.00	255.00	25.00	5.00		15.00	
Roseville	35,178	compost-curbside	2500.00						2500.00
		Scouts, new curbside	376.00	282.00	83.00	3.00		8.00	
St. Anthony	2,329	drop-off	190.00	152.00	19.00	5.00		14.00	
St. Paul	267,000	compost-drop-off	1400.00						1400.00
		curbside expansion	4722.00	2568.00	727.00	33.00		1394.00	
Shoreview	22,560	compost-drop-off	180.00						180.00
Spring Lake Park	126								
Vadnais Heights	8,090								
White Bear Lake	22,726	compost-curbside	980.00						980.00
White Bear Township	7,574	compost-curbside	130.00						130.00
		curbside recycling	240.00	180.00	53.00	2.00		5.00	
TOTAL	471,369		16,254.00						

[1] Population served for compost drop-off sites includes only the city in which the site is located.
[2] Regional Goodwill center - 93 percent of the material is household goods.
[3] Goodwill center - 96 percent of the material is household goods.

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TABLE 16

RAMSEY COUNTY - CURRENT PROGRAM POTENTIAL

Program	Population	Percent of Population Served	Estimated '87 Tonnage	Lbs./Person/ Year Actual	Program/Tons[1] Mature	Lbs./Person/[1] Year/Mature
Recycling						
Curbside	361,146	76.61	3,818	21.14	21,849.33	121.0
Drop-off	315,666[2]	66.68	5,954[3]	37.72	7,765.38	49.2
Composting						
Curbside	65,478	13.89	3,720[4]	113.62	1,885.77	57.6
Drop-off	363,735	77.16	2,762	15.19	4,404.83	24.22
Total Population	471,369					
Total Recycling			16,254		35,905.00	
Percent Recyling			3.52%		7.8	

[1] Based on the average of national programs.

[2] Population served for compost drop-off sites and most recycling drop-off sites includes only the city in which the site is located.

[3] Figures include a regional Goodwill center at 2,600 in which 93 percent of the material is household goods and a private transfer station at 1,327 tons.

[4] City of Roseville vacuums residential leaves during fall months and collected approximately 2500 tons in 1987.

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SCOTT COUNTY

RESOURCE RECOVERY

Within Scott County there currently is one privately owned solid waste incinerator, Richard's Asphalt Co. Richard's facility is permitted for 70 tons per day, but currently incinerates approximately 60 tons per day. The facility uses the steam produced from the combustion of 10 tons of Scott County waste and 50 tons of Hennepin County waste per day to manufacture asphalt.

In the spring of 1986, Scott and Carver Counties issued a joint RFP for a 200-ton-per-day facility. The RFP was for an integrated facility which could offer a combination of RDF/dRDF, composting/co-composting and centralized processing of recyclables. Scott County's average generation rate is 110 tons per day, Carver County's is 72 tons per day. In the summer of 1986 the Scott and Carver County Boards approved a joint powers agreement for the purpose of hiring a consultant to assist in evaluating vendor proposals. The counties received seven proposals for consideration, four of which were withdrawn. The vendor was to be picked by mid-November. The counties are currently in the process of selecting the preferred option for negotiations and development.

The county master plan states a commitment to process 83 percent of its residential waste stream by 1990, and prohibit processible mixed municipal waste from land disposal in Scott County by 1990. A facility is expected to become operational in 1990.

ABATEMENT PROGRAM

Information has been collected on the abatement levels for 1987 from county abatement programs except waste reduction. The following section provides the efforts the county has undertaken to achieve abatement, followed by the actual results and an estimate of potential further abatement from established abatement programs.

Recyclable Materials

The county is exploring the best approach for a county-wide source separation program. The county plans to make recycling services available to all residents. The county is currently working on a pilot curbside recycling project that could be expanded county-wide.

The county does not currently sponsor any of the recycling programs. Current programs are provided by private and nonprofit organizations and one city-sponsored program. The six drop-off sites and the limited curbside programs in two cities are serving a population of 35,500 or 68 percent of the county's population.

The county master plan indicates that the county expects to meet its entire 1990 goal of 14% through the curbside and/or drop-off recycling programs. The county intends to meet its goal without the inclusion of source-separated yard waste, since centralized composting is being proposed by the vendors under consideration. The master plan does indicate that if the county's goals cannnot be met without source-separated yard waste, then compost sites will be established. Funding and staff assistance for the recycling programs will be provided by the county.

Early in 1988 the county staff will survey commercial and industrial firms to gather data and serve as a clearinghouse for recycling information and improved waste management possibilities for county businesses. The master plan does not contain any policies or commitment for the separation of recycling material from commercial or industrial waste.

Composting

The county's preference is to compost yard waste along with mixed municipal waste. The decision as to whether establish central composting sites or compost yard waste with mixed municipal waste may be in conjunction with the selection of a centralized processing facility. The county currently has one leaf drop-off site at Dem-Con Demolition Landfill (adjacent to the Louisville Sanitary Landfill). The site was opened in the fall of 1986 and has received approximately one ton of material.

Waste Reduction

The main component of the county's waste reduction plan is to provide public education on yard waste management (backyard composting and yard waste mulching). The county plans to meet its goal of 3 percent reduction for 1990. No method currently exists to assess the abatement level achieved by waste reduction programs.

LANDFILL DEVELOPMENT

In May 1987 the Council estimated that there may be as much as four years of remaining capacity at the Louisville Sanitary Landfill in Scott County. Many factors affect remaining capacity such as compaction rates, receiving rates and proposed new MPCA rules. The Council's Solid Waste Policy Plan/Development Guide, 1985, has excluded the county from further work in the landfill site selection process.

1987 SCOTT COUNTY ABATEMENT PROGRESS

The Council's policy plan calls for the county to achieve 2 percent waste reduction, 6 percent source separation and 18 percent centralized processing in 1987. The county master plan contains the same goals for 1987. The county's goals and the Council's goals for 1990 are the same: 3 percent waste reduction, 14 percent source separation and 83 percent centralized processing. The achievement of the centralized processing goal for 1990 is dependent on the progress and development of a joint facility with Carver County.

Within the county there currently are six drop-off sites and two limited-material curbside collection programs for residential recyclable materials. A total of 666 tons of residential material will be recycled in the county in 1987. The one leaf drop-off site will collect approximately one ton of material in 1987. In 1987 the county was not active in commercial/industrial recycling programs. The county's abatement programs are listed with results in Table 17.

The current abatement level in the county for 1987 was calculated to be 1.6 percent of the county's waste stream. The existing programs at maturity are

expected to achieve a 2.1 percent abatement level. Table 18 displays existing and potential future abatement levels attributable to existing programs.

The county plans to have county-wide residential recycling programs. The county does not plan to source-separate yard waste, but prefers to compost the yard waste along with mixed municipal waste. The issue of yard waste will be dependent on the type of centralized processing facility selected. Following its survey of commercial/industrial sectors, the county will make more specific recycling plans for that area.

In 1987 the county processed 7.6 percent of the county wastes at the Richard's facility.

The county will be submitting for Council review a revised master plan as part of its solid waste facility permit or designation plan for its selected resource recovery option.

TABLE 17
SCOTT COUNTY ABATEMENT ACTIVITIES

City	Population	Program Type	Estimated Tonnage '87	Newspaper	Glass	Alum.	Tin	Other	Compost
Belle Plaine	3,091	curbside, drop-off	20.00		18.00	2.00			
Belle Plaine Township	776								
Blakeley Township	507								
Cedar Lake Township	1,614								
Credit River Township	2,707								
Elko	296								
Helena Township	1,240								
Jackson Township	1,487								
Jordon	2,871	church drop-off	16.00		12.00	4.00			
Louisville Township	859								
New Market	311								
New Market Township	1,865								
New Prague	2,150	curbside, drop-off	120.00	96.00	21.00	3.00			
Prior Lake	9,710	drop-off, Scouts	110.00	82.00	28.00				
St. Lawrence Township	400								
Sand Creek Township	1,560								
Savage	6,400	church drop-off, Scouts, curbside	100.00	70.00	20.00	10.00			
Shakopee	11,236	church drop-off, Scouts, curbside	300.00	210.00	60.00	30.00			
Spring Lake Township	2,767								
TOTAL	51,847		666.00						

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TABLE 18
SCOTT COUNTY - CURRENT PROGRAM POTENTIAL

Program	Population	Percent of Population Served	Estimated '87 Tonnage	Lbs./Person/ Year Actual	Program/Tons[1] Mature	Lbs./Person/[1] Year/Mature
Recycling						
Curbside	-	-	-	-	-	121.00
Drop-off	35,458	68.39	666.00[2]	37.56	872.27	49.20
Composting						
Curbside	-	-	-	-	-	57.60
Drop-off	-	-	-	-	-	24.22
Total Population	51,847					
Total Recycling			666.00		872.27	
Percent/Recycling			1.57		2.06	

[1] Based on the average of national programs.
[2] Some areas are also served by curbside collection of certain materials by community groups, e.g., Boy Scouts.

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WASHINGTON COUNTY

RESOURCE RECOVERY

The first-large scale centralized processing facility in the Metropolitan Area began operations on July 29, 1987. The Ramsey/Washington Resource Recovery RDF facility in Newport is operated by Northern States Power Co. The 1,000-ton-per-day facility is expected to process approximately 160,000 tons of waste from Ramsey and Washington Counties in 1987, or 30 percent of the counties' waste stream. The Council's centralized processing goal for the region is 4 percent.

The facility is currently undergoing some modifications and adjustments. NSP has guaranteed to the counties that it will process at least 280,800 tons per year or 918 tons per operating day. The facility has the capability to process 1,150 tons per day, with increased operating hours. Thereis the capability to process an additional 500 tons per day with the additionof a processing line. It is expected that 32 percent of the wastes processed will be residuals and rejects and will be landfilled.

Designation of the county waste stream to the Newport facility began on July 13, 1987. The counties are currently in the process of amending their designation ordinances to ensure consistency with state law avoiding landfilling of the county's waste in other states. The counties' are also taking enforcement action against violators of the counties' current designation ordinance.

The counties are also examining the need for a co-compost facility and intermediate processing in conjunction with the Newport facility and also the need for a transfer station to serve the counties. The counties are also evaluating the need for a ban on the delivery of yard waste to the facility as part of their recycling implementation strategy. The counties are also evaluating risks related to household hazardous waste in order to design programs to handle such materials.

ABATEMENT PROGRAMS

Information has been collected on the abatement levels for 1987 from county abatement programs except waste reduction. The following section shows the efforts the county has undertaken to achieve abatement, followed by the actual results and an estimate of potential further abatement from established abatement programs.

Recyclable Materials

The county is focusing its efforts in the areas of residential recycling and commercial/industrial recycling. Each community in the county is to decide on which programs will meet their needs and the county's goals; in areas where local recycling efforts do not develop, the county will initiate recycling programs. Cities will be examining both residential and commercial/industrial recycling. The county will provide financial and technical assistance to the local governments.

The county encourages communities with existing organized collection to implement curbside recycling when present contracts are due to be renewed and

encourages haulers and communities to examine fees based on waste generation. County staff will coordinate a voluntary program of industrial waste reduction and recycling activities including cooperative marketing and development of local markets. The county believes that each community will, between now and 1990, develop balanced and comprehensive landfill abatement programs.

Currently there is one pilot curbside recyclable material collection program in the county, located in Forest Lake Township. Two additional communities (Woodbury and Lake Elmo) are drafting RFPs to develop curbside programs. The county has provided funds to communities for seven drop-off sites for recyclable materials in the county which also serve a population of 83,500, or 65 percent of the county's population. There are other noncounty-sponsored sites that serve county residents. The county has also provided funds to the Forest Lake School District to begin a recycling program in all schools in the district. The program began during the 1987 school year.

Composting

The county plans to increase the number of compost drop-off sites. The county currently has four compost drop-off sites, serving a population of 69,311, or 53 percent of the county's population. Currently two waste haulers, within a private joint project, are providing curbside yard waste pick-up to an approximate population of 69,700, or 55 percent of the county's population. Approximately 1,200 tons of yard waste will be collected in 1987. At least two other haulers provide curbside collection of yard waste to serve another 15 percent of the county's population.

The county will provide financial and technical assistance to cities if they choose a yard waste source separation program to meet county goals. The county is currently exploring the need for a ban on yard waste to the Newport facility.

Waste Reduction

The main component of the county's waste reduction plan is to provide public education on yard waste management (backyard composting and yard waste mulching). The county has provided funds for waste education in schools, newspapers, television and informational brochures. The county plans to meet its goal of 5 percent reduction for 1990. No method currently exists to assess the abatement level achieved by waste reduction programs.

LANDFILL DEVELOPMENT

Washington County has continued to make progress on the candidate landfill siting process. The county has selected a consultant to prepare the EAW on the candidate landfill site, and the EAW is expected to be completed by the end of 1987. The Council's schedule for construction and operation of the landfill is 1993. The current timeline is compatible with Council policy.

1987 WASHINGTON COUNTY ABATEMENT PROGRESS

The Council's policy plan calls for the county to achieve 2 percent waste reduction, 6 percent source separation and 19-25 percent centralized processing in 1987. The county master plan contains the same goals as the Council's. The county's goals and the Council's goals for 1990 are the same: 5 percent waste reduction, 16 percent source separation and 79 percent centralized processing.

The Ramsey/Washington Resource Recovery Facility will be processing over 30 percent of the two counties' wastes in 1987 and will exceed the Council's goals for the two counties in 1987. It is expected that the counties will continue to meet their processing goals. The counties also have plans to examine several options to ensure sufficient processing capacity; these include expanded operational hours, granting waste exclusion requests, increasing recycling efforts and a third operational line.

The county currently has seven recycling drop-off centers and one curbside collection program for residential recyclable materials. Approximately 879 tons of material will be recycled in the county in 1987. The county has established four compost drop-off sites, and approximately 1,300 tons will be received at those sites in 1987. In addition two haulers are working jointly in a private effort to provide curbside collection of yard waste in a portion of the county. Approximately 1,200 tons of yard waste will be collected by this project in 1987.

The county's abatement programs are listed with results on Table 19. The current abatement level in the county for 1987 was calculated to be 3.78%. The existing programs at maturity are expected to achieve a 5.5 percent abatement level. Table 20 displays existing and potential future abatement levels attributable to existing programs.

The county has adopted the same source sparation goals as the Council and has committed resources to meet those goals. This will included expansion of existing programs and devlopment of new source separation programs. The county is committed to assisting local governments to develop these programs.

TABLE 19
WASHINGTON COUNTY ABATEMENT ACTIVITIES

City	Population	Program Type	Estimated Tonnage '87	Newspaper	Glass	Alum.	Tin	Other	Compost
Afton	2,570								
Bayport	2,820	shared Goodwill drop-off							
Baytown Township	878								
Birchwood	1,031								
Cottage Grove	20,753	compost drop-off	186.00						186.00
		shared Goodwill	120.00[1]	.19	2.00	1.00		98.00	
Dellwood	784								
Denmark Township	1,212								
Forest Lake	5,360	compost drop-off, recycling drop-off	120.00[1]						507.00
Forest Lake Township	5,680	served by Lakes Center drop-off	220.00						
		new curbside	------						
Grant Township	3,364	private trans. station drop-off							
Grey Cloud Township	340								
Hugo	3,976	Scouts, new drop-off	98.00	79.00				19.00	
Lake Elmo	5,935	compost drop-off	120.00						120.00
Lakeland	1,995								
Lake St. Croix Beach	1,177								
Lakeland Shores	185								
Landfall	653								
Mahtomedi	4,291								
Marine on St. Croix	550	served by Scan. Ctr.							
May Township	2,276	served by Scan. Ctr.							
Newport	3,526	shared Goodwill	17.00						
New Scandia Township	3,077	shared drop-off	150.00	95.00	24.00	1.00		20.00	
Oakdale	14,168	Goodwill drop-off	84.00	38.00	6.00	1.00		45.00	
Oak Park Heights	3,392	shared Goodwill							
Pine Springs	419								
St. Mary's Point	351								
St. Paul Park	4,797	shared Goodwill							
Stillwater	13,116	shared Goodwill	70.00	54.00	13.00	8.00		5.00	
Stillwater Township	1,872								
West Lakeland Township	1,383								
Willernie	670	compost curbside	1200.00[2]						1,200.00[2]
Woodbury	14,520	compost drop-off	480.00						480.00
TOTAL	127,399		3372.00						

[1] Majority of materials are household goods.
[2] Site is located in Woodbury, yet curbside service to larger population.

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TABLE 20

WASHINGTON COUNTY - CURRENT PROGRAM POTENTIAL

Program	Population	Percent of Population Served	Estimated '87 Tonnage	Lbs./Person/ Year Actual	Program/Tons[1] Mature	Lbs./Person/[1] Year/Mature
Recycling						
Curbside						121.0
Drop-off	83,491	65.53	879	21.06	2,053.88	492.0
Composting						
Curbside	69,670	54.69	1,200	34.45	2,006.49	57.6
Drop-off	69,311	54.00	1,293	37.30	839.36	24.22
Total Population	127,399					
Total Recycling			3,372		4,899.73	
Percent Recyling			3.78		5.50	

[1] Based on the average of national programs.

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SUMMARY OF REGIONAL ABATEMENT PROGRESS

The definition of abatement progress in the Council's Solid Waste Management Development Guide/Policy Plan has caused some confusion in the region and the state. To understand the definition of abatement, it is necessary to understand the waste stream identified in the plan.

The waste stream in the March 1985 policy plan was based on the quantity of waste landfilled in 1985, and the growth that could be expected in the landfilling of waste as the population grew. The waste stream identified in the 1985 policy plan did not include waste that was already being recycled. A significant level of recycling activity has occurred in the region for a number of years. The activities of the Waldorf Corporation in paper recycling and North Star Steel in ferrous metals recovery are just two of many examples. Many of the recycling activities predate the Council's involvement in solid waste management. In 1985, Hennepin County commissioned a study to evaluate the potential for waste abatement through a comprehensive recycling program. A report was issued in November 1985 and concluded that 23 percent of the waste generated was recycled prior to disposal.

Accordingly, the total 1987 waste stream in the region is estimated to be 2,825,100 tons of waste. Of this, it is estimated that 23 percent or 649,773 tons of waste continues to be recycled and 77 percent or 2,175,327 tons of waste would have been landfilled if additional abatement programs had not been instituted in the region.

Therefore, the Council's stated goal of 20 percent waste abatement and source separation is actually equal to 15 percent of the total waste generated. With the addition of the ongoing recycling activites, since 1985, the overall goal equals 38 percent of the total waste generated. The Council continues to measure abatement progress as progress toward the management of the amount that would have been landfilled.

Other parts of the country are attempting to recover 42 to 46 percent of the waste stream. The waste management goals of the Twin Cities Metropolitan Area are comparable to many of the most progressive areas in the country if goals are evaluated on an equivalent basis. The Metropolitan Area is ahead of most areas in progress toward processing the remaining waste to achieve landfill abatement and environmental protection objectives. The Council's definition of abatement progress is the improved management of that portion of the solid waste stream that was landfilled in 1985 to reduce, to the greatest extent possible, the need to landfill waste.

The high level of recycling occurring by private parties in the region makes the measurement of additional abatement progress over the 1985 level very difficult. The commercial and industrial waste stream is poorly understood. The recycling activities in this sector have traditionally been very high. The examination of commercial and industrial waste abatement cannot differentiate between new recycling and existing recycling. The use of waste sorts at the central processing facilities and documentation of commercial and industrial waste disposal will shed light on the issue as the facilities become operational.

In 1987, the Ramsey/Washington and Reuter facilities began operation and numerous programs were initiated or expanded to source-separate waste. The facility permits for the Hennepin Energy Resource Corporation facility and the

NSP Elk River facility were granted in 1987, and construction on both facilities was begun. Dakota, Scott and Carver Counties are all actively pursuing options for processing capacity for their individual counties' waste. The operating facilities mentioned above and the Richard's Asphalt facility are estimated to have processed 263,000 tons of waste in 1987, which equals 11.8 percent of the waste stream.

The Council's plan envisioned only 4 percent processing of waste in the region during 1987. The processing goal of 80 percent by 1990 will not be met in the region. The processing delays in some of the counties will mean that 3,772 tons of waste per day will be processed in 1990, which is equal to 63 percent of the solid waste stream. The centralized processing goal of 80 percent for the region will be achieved in 1992, according to current plans.

The counties have made major commitments to abate waste going to landfills. The last of the county master plans should be approved by the Council by the end of November. The counties have accepted the Council's goals for waste abatement programs and have stated goals for tonnages of materials recovered that approach the regional abatement goals for 1990. The progress to date and the level of commitment to abatement programs is of some concern to the Council.

The abatement levels achieved by each county are shown in Table 21. Hennepin and Ramsey Counties have instituted many new programs during 1987. The current level of source-separation abatement activity in each county is below the Council's goal of 6 percent. The programs currently in place would exceed 6 percent in Hennepin and Ramsey counties as they develop into mature programs. The existing activities in the other metropolitan counties cannot meet the Council's 1987 goal even when they mature. The overall abatement level for source-separated wastes for 1987 is estimated to be nearly 53,000 tons of waste. This represents 2.52 percent of the waste that will be disposed of in 1987. The programs currently in place in the region for source separation will be capable of 5.6 percent abatement at maturity. Development of a source-separation abatement program for Anoka and Dakota Counties is adjusted to meet the abatement progress objectives for their counties in 1992 rather than 1990. This, in part, provides a reason why programs currently established cannot meet the 1987 source-separation abatement goal.

The period between 1985 and 1987 has witnessed a dramatic shift in the methods used to implement source-separation programs. The pre-1985 source-separation system relied on independent collectors whose primary source of revenue came from selling recycable materials. The drop in prices in late 1985 forced many of the firms involved in recycling residential materials out of business.

The Council has used its abatement funds to encourage private companies to explore business opportunities in residential source separation. At the same time the counties and cities in the region have begun to provide financial support for the collection of source-separated recycable materials as a service to their communities.

Also, in the last legislative session the Cost Recovery Program was sunsetted and replaced with the Local Recycling Development Grant Program. This program will provide $1.5 million dollars from the Metropolitan Landfill Abatement Fund (plus $1.5 million in county matching funds) over the next biennium to the seven metropolitan counties. The purpose of this program is to help metropolitan counties develop permanent local recycling programs. The counties

TABLE 21

Results of Existing Programs at Maturity

	1987 Abatement Levels*		Programs at Maturity**	
	Tons	%	Tons	%
Anoka	3,995	2.39	8,008	3.76
Carver	1,279	4.75	1,402	5.20
Dakota	2,548	1.10	5,675	2.52
Hennepin	25,138	2.56	61,050	6.44
Ramsey	16,254	3.52	35,905	7.78
Scott	666	1.57	872	2.06
Washington	3,372	3.78	4,900	5.50
Regional Results*	53,252	2.52	117,812	5.56
Metropolitan Council 1987 Goal		6.00		

* Using calculate waste generation rates.

** Maturity is defined as the level of abatement that can be expected from an established, well-run, and promoted program based on national and regional data.

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are to apply to the Council for a portion of the funds by Dec. 1, 1987, and to submit their Recycling Implementation Strategy to the Council by Dec. 1, 1988.

The rapid expansion of curbside collection services in the region demonstrates the effectiveness of new funding and support mechanisms. Figures 1 and 2 show the growth in the number of recycling programs from 1985-1987. Figures 3 and 4 show the growth in the number of yard waste compost programs from 1985-1987. The Council anticipates continued instances where businesses decide to withdraw from recycling services. A mechanism will be needed to encourage the participation of new companies in providing recycling services in the future.

All the metropolitan counties have committed to greatly expanded programs for source separation in their master plans. The degree of detail about specific commitments varies by county. Hennepin and Ramsey lead the other counties in commitment to programs and funding for source-separation abatement programs. Table 22 shows the level of abatement that the counties intend to achieve by 1990 for various source-separation abatement programs. Scott and Washington Counties did not provide additional detail concerning their abatement plans in the master plans approved by the Council.

The counties expect to abate, through waste reduction and source-separation programs, 381,000 tons of waste in 1990. This total is equal to approximately 18 percent of the 1990 waste stream. The remaining 2 percent difference between the Council's 1990 goal and anticipated results, according to the master plans, is in part due to the delayed development schedule for source-separation programs in Anoka and Dakota Counties. The counties will need to carefully monitor the development of source-separation abatement programs to assure that their abatement goals will be met.

The most important measure of abatement progress lies in the consumption of landfill space. Actual measurements of landfill capacity and consumption were made in the Preliminary Landfill Capacity Evaluation Report released by the Council in May 1987. The measurements do not address the space consumed during 1987. The report does, however, provide disposal rates and waste generation estimates for the region. The comparison of the generation rates to the actual receiving rates for waste at landfills provides an additional estimate of abatement.

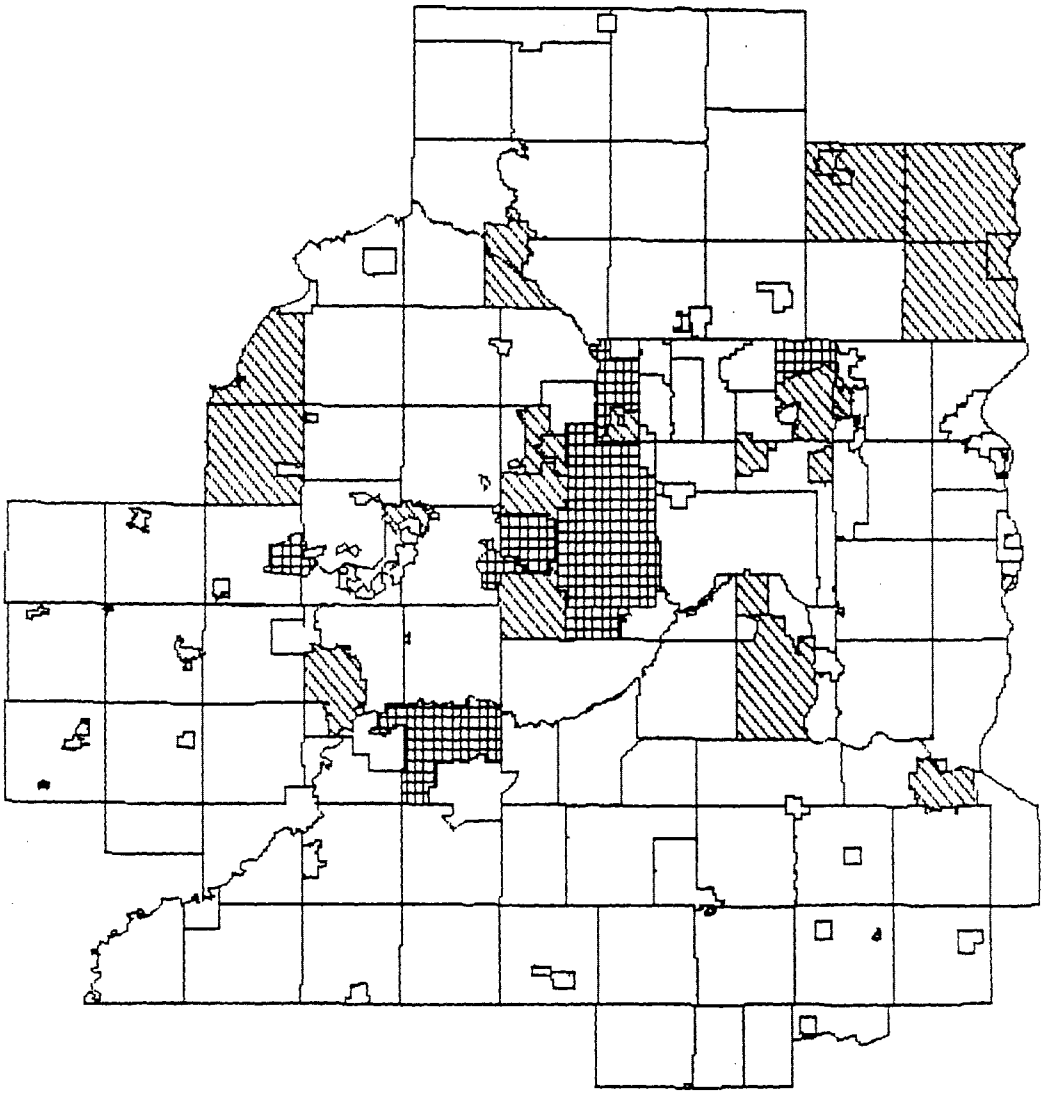
Table 23 provides the January through June total of waste received at landfills in the region. The landfills typically receive 49.2 percent of the waste from January through June. The total waste expected to be landfilled in the region during 1987 is 1,917,218 tons. The total of all wastes processed, source separated, and disposed of unprocessed (this does not include ash and residuals) equals 2,233,874 tons. This is 5.5 percent greater than the estimated waste.

Table 24 shows the amount of waste produced, processed, abated and landfilled during 1987 and the percent of waste managed by each management method. The calculations estimate that 85.8 percent of the waste stream will be disposed of unprocessed in 1987. The estimates for waste reduction and commercial and industrial source separation progress are obscured by the fact that the actual waste managed exceeds the predicted waste stream. The variation in the waste stream from any given year to the next may be as much as 20 percent. No inferences can be drawn from the quantity of waste disposed of at landfills to abatement program success. An analysis of the composition of the waste stream is necessary to determine the effectiveness of abatement and waste reduction

Figure 1

METROPOLITAN AREA RECYCLING SERVICES

Cities and Townships with Recycling Programs, 1985



Type of Service

Curbside collection

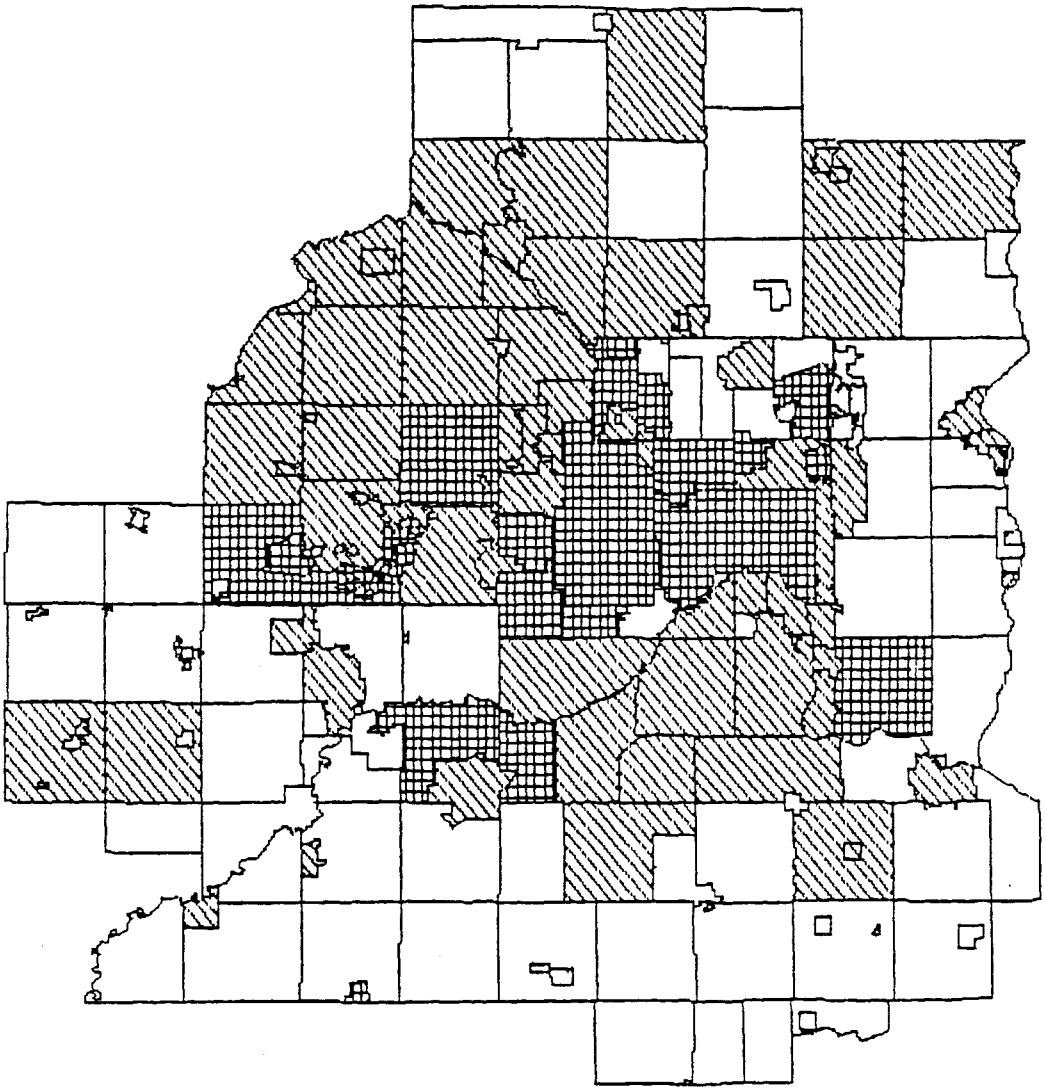
Dropoff

No service

Figure 2

METROPOLITAN AREA RECYCLING SERVICES

Cities and Townships with Recycling Programs, 1987



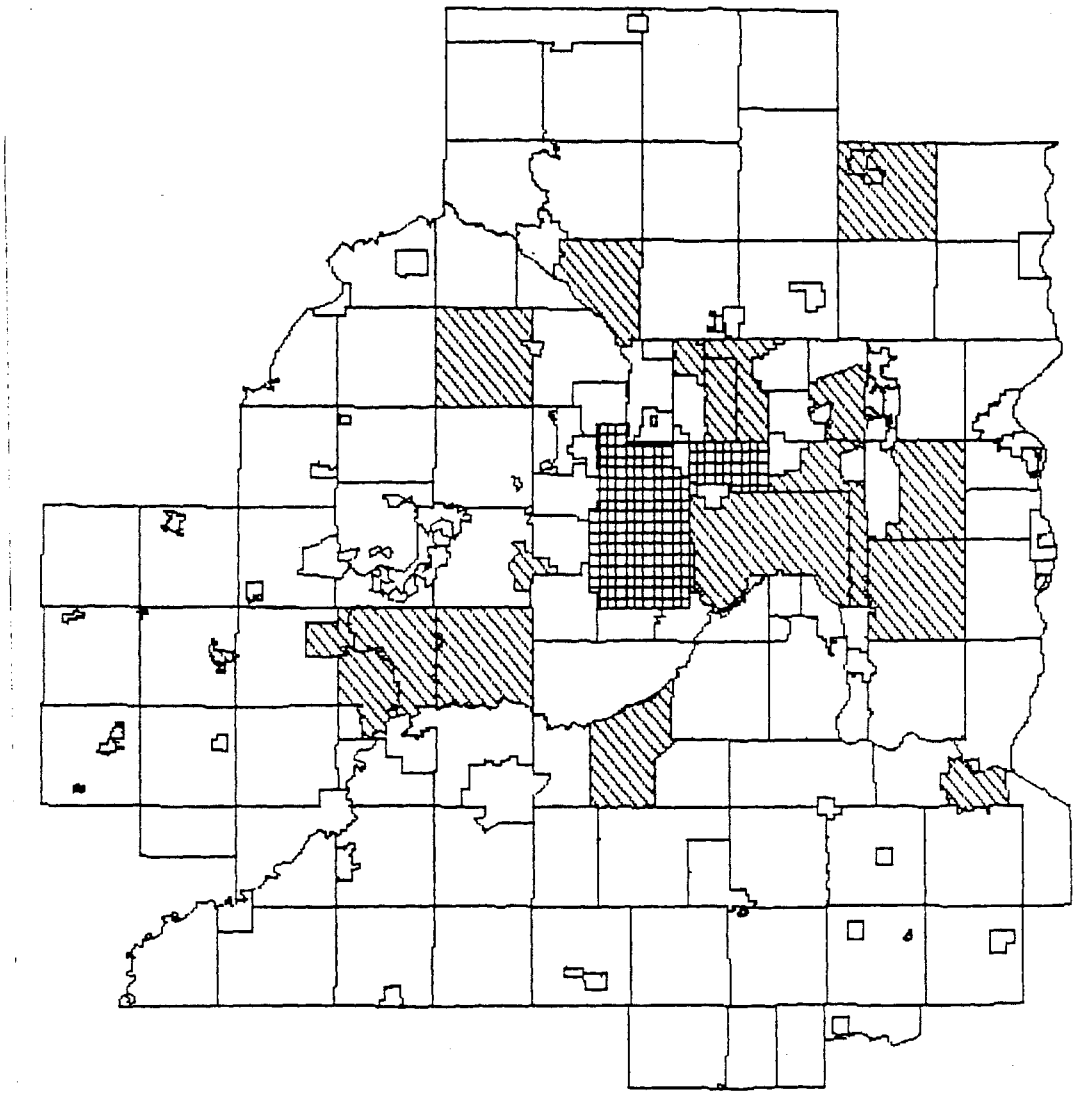
Type of Service

Curbside collection
Dropoff
No service

Figure 3

METROPOLITAN AREA RECYCLING SERVICES

Cities and Townships with Yard Waste Composting Programs, 1985



Type of Service

Curbside collection

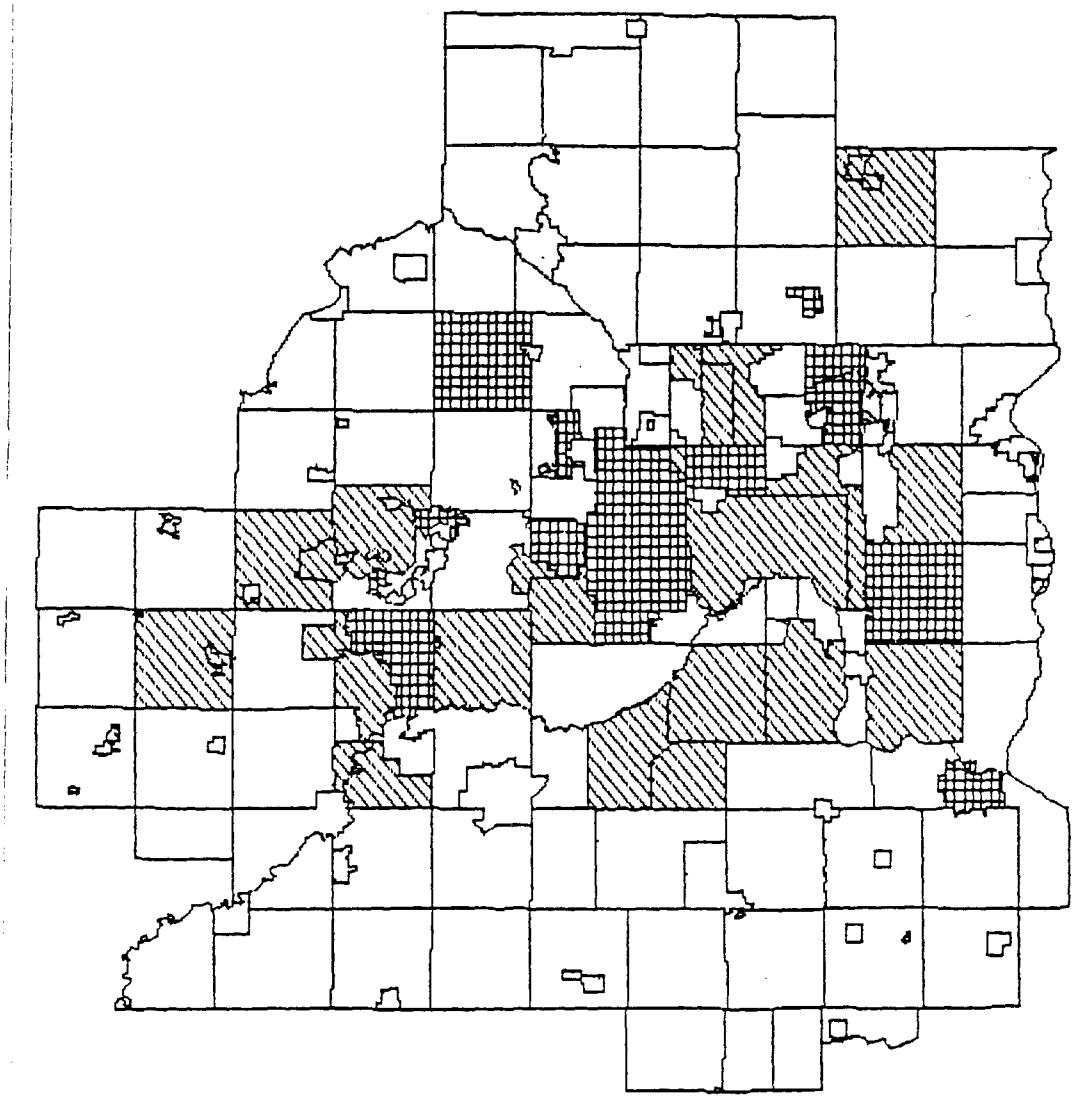
Dropoff

No service

Figure 4

METROPOLITAN AREA RECYCLING SERVICES

Cities and Townships with Yard Waste Composting Programs, 1987



Type of Service

Curbside collection

Dropoff

No service

TABLE 22
ANTICIPATED 1990 ABATEMENT RESULTS
(Based on Mature Programs to be Established in Accordance With County Master Plans)

	RESIDENTIAL											
	Source Separation				Yard Waste							
	Curb Side		Drop Off		Curb Side		Drop Off					
County	Population/ Percent of Population	Tons	Population/ Percent of Population	Tons	Population/ Percent of Population	Tons	Population/ Percent of Population	Tons	Commercial/ Industrial Tons	Waste Reduction Tons	Residential* Recycling Unspecified	Residential* Composting Unspecified
Anoka	178,000 81%	10,770	40,905 19%	1,006	178,000 81%	5,126	40,905 19%	495	11,000	9,200		
Carver	22,246 53%	--	18,694 45%	--		--		--	0	1,455	1,939	1,939
Dakota	180,000 78%	10,900	27,700 12%	681	180,000 78%	5,184	27,700 12%	338	160	9,400		
Hennepin	873,764 90%	52,863	53,335 10%	1,312	660,200 68%	19,014	310,672 32%	3,762	63,000	39,500		
Ramsey	471,369 100%	28,517	0 0%	0			471,369 100%	12,300	47,337	19,036		
Scott		--		--		--		--	0	1,402	3,736	
Washington		--		--		--		--	0	4,717	15,105	

Total of all abatement in 1990 = 381,194, or 17.5 percent.
Total waste tons in 1990 = 2,173,619.

*1990 programs provided by county.

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TABLE 23

LANDFILL UTILIZATION

January through June 1987 and 1987 Estimate

	Space consumed January through June 1987	
Landfill	Cubic Yards	Tons
Anoka	375,725	123,990
Burnsville	566,963	187,098
Dakhue	58,859	19,600
Freeway	72,923	24,305
Flying Cloud	21,482	7,154
Louisville	509,096	169,529
Pine Bend	---	421,264
Woodlake	225,102	74,959
Total (January through June 1987)		1,020,745
Estimate of 1987 receiving rates*	=	2,077,218

(49.14% of the waste is received by area landfills from January through June)

*estimates pre date Ramsey Washington Project initiation

Sources: MPCA, Minnesota Department of Revenue

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TABLE 24

Abatement Summary

			% of measure waste
Total Program Work (based on population estimates) = 2,117,192			
Processed (est)	Richards	23,040	
	Reuter	80,000	
	Ramsey/Washington	160,000	
	Total	263,040	11.8
Recycled/Residential Source Separation*			
	Anoka	3,995	
	Carver	1,509	
	Dakota	2,548	
	Hennepin	25,138	
	Ramsey	16,254	
	Scott	666	
	Washington	3,372	
	Total	53,252	2.5
Commercial/Industrial		Unknown	Unknown
Waste Reduction		Unknown	Unknown
Landfilled (estimate less expected Rasmey/Washington processing) = 1,917,218			85.8

Total estimated waste based on data collected = 2,233,874

*The total does not include an estimate of commercial and industrial source separation or waste reduction.

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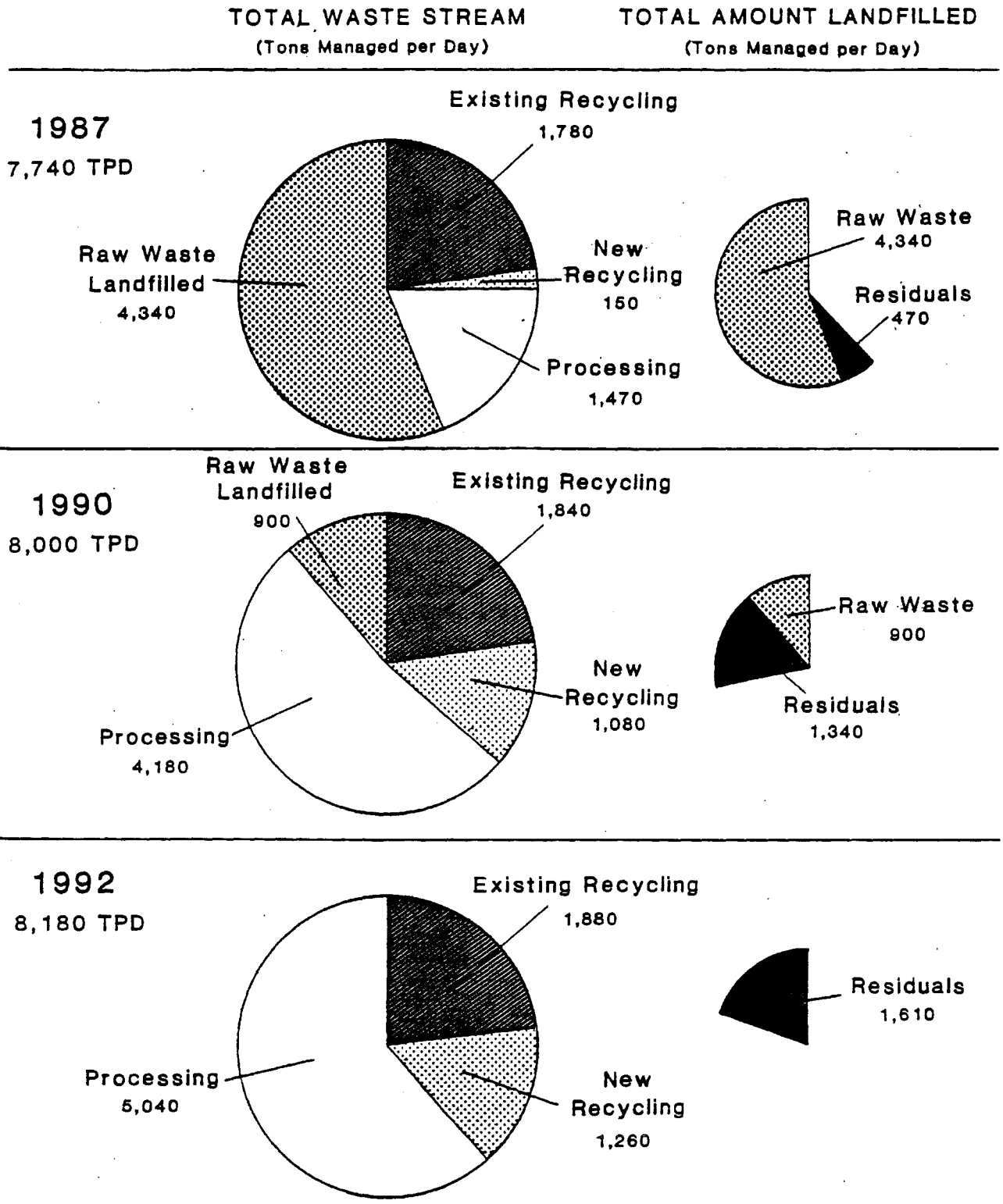
programs. Methods to determine abatement progress are contained in Appendix A.

Figure 5 projects the Metropolitan Area Solid Waste Management System from 1987 to 1992. In 1987 it is expected that 4,810 tons per day of material will be landfilled. This includes 4,340 tons per day of raw waste and 470 tons per day of residuals. By 1992 it is expected that 1,610 tons per day of residuals will be landfilled, and no raw wastes.

Figure 5

TWIN CITIES METROPOLITAN AREA SOLID WASTE MANAGEMENT



CONCLUSIONS

1. The region has traditionally achieved a high level of abatement through source separation. The abatement achieved in 1985 through source separation is estimated to be 23 percent.

2. The region has abated an additional 2.3 percent of the waste above 1985 levels during 1987. This is less than the Council's goal of 6 percent additional source-separation abatement for 1987.

3. The counties' plans for 1990 call for abatement to achieve a 18 percent source-separation and waste reduction abatement above 1985 levels. The counties expect to achieve 20 percent source-separation and waste reduction abatement in 1992. The 20 percent goal is consistent with the Council's goals, but delayed two years.

4. The region achieved an 11.8 percent centralized processing rate in 1987, which is 7.8 percent better than the Council's 1987 goal of 4 percent.

5. The counties and the Council should coordinate data management to provide information necessary for planning and developing additional programs.

RECOMMENDATIONS

In developing their solid waste master plans, the seven metropolitan counties have made considerable commitments towards waste abatement, including source-separation activities and centralized processing facilities. The counties are also currently working on their recycling implementation strategies to develop permanent programs. In view of the progress and commitments made, the Council recommends that no legislative changes in authority or structure of the solid waste management system in the Metropolitan Area be made during the 1988 legislative session.

Appendix A

MEASURING FUTURE ABATEMENT PROGRESS

CENTRALIZED PROCESSING

The measurement of abatement through centralized processing may be obtained through the analysis of information collected by the processing facilities. The actual abatement level is measured through the assessment of tons of ash, residuals, and rejects that remain after processing. The density of the materials as well as their moisture content will be important in the determination of the landfill space that will be consumed by the by-products of resource recovery facilities.

The counties were required by legislation to report their waste types and quantities to the Council in 1984. The reports were intended to provide an assessment of actual waste stream generated in each county. The reports provided a synthesis of data produced by the Council in 1975 in co-operation with MRI Inc. The counties do not have a complete picture of waste generated currently; but can provide an estimate of the residuals and rejects that they anticipate from their processing facilities.

The processing and source separation goals of the Council are based on the assumption that 100 percent of the waste may be recycled or processed. The unprocessible portion of the waste stream may be as high as 8 percent. The facilities are also concerned about the acceptance of certain types of commercial and industrial waste. Paint sludges, that are currently allowed in mixed municipal waste landfills, contain small quantities of hazardous constituents. The processing facilities may remove this material from the waste stream prior to processing. Unprocessible wastes have the potential to impact landfill capacity and the environment. The quantity of non-processible wastes currently generated in the region needs to be determined to assist in planning for landfill capacity. The only method available to assess the constituents of the waste stream is through load analysis and waste sorts at landfills. The counties are relying on work done in Hennepin County to determine waste types and quantities. The actual waste stream may vary considerably by county. In assessing abatement progress, the counties will need to determine the materials that cannot be managed through methods other than landfilling.

Prior to the time the facilities begin operation, progress toward the processing goals of the counties may be determined through the estimated processing capacity, ash and residuals produced, and progress made toward initiation of service at processing facilities. Progress toward the processing portion of the abatement goal can be estimated by the project schedule and the processing capacity. The actual landfill abatement is equal to the space that would be occupied by unprocessed waste less the landfill volume consumed by the resultant ash and residuals from processing operations. The majority of landfill abatement in the planned solid waste system will occur as a result of waste processing operations.

Assessment of Abatement through Processing

1. Determine whether counties' plans provide adequate processing capacity in the region for the year 1990 and beyond.

   1.a. If processing capacity is inadeqate determine which counties have a processing shortfall and the extent of the shortfall.

2. Determine if planned processing facilities will be developed and if they will be operational at the time planned.

   2.a. If facilities will not be developed as planned, determine the amount of waste that will be disposed unprocessed as a consequence of the delay.

3. Determine if operational facilities operate at the design capacity or above and meet processing residuals and ash estimates.

   3.a. If facilities operate below capacity how much waste will be disposed unprocessed as a consequence of the down rating of the facility.

   3.b. If facilities produce more ash or residuals than anticipated, determine how much additional waste must be disposed.

4. Determine the over all landfill abatement from processing facilities.

5. Evaluate plans for residuals and ash management to determine if material management and reuse will reduce the amount of material to be landfilled.

   5.a. Evaluate the implementation of residual and ash disposal projects for landfill abatement levels.

RESIDENTIAL RECYCLING

The assessment of abatement progress for recycling both residential and commercial/industrial, and waste reduction presently cannot rely on hard data. The mix of private, non and for profit operators in conjunction with city programs makes tracking actual volumes of materials recovered very difficult. Many of the collection programs that are not city sponsored do not report the volume of materials recovered. The major material markets for paper are very reluctant to discuss the volume of recyclable materials that they handle. The competition among commercial materials brokers inhibits the flow of information related to volumes of materials managed. The Council's tonnage payment program has been marginally successful in determining the quantities of materials recovered for recycling programs in the region. The information gained from the participants in the tonnage rebate program has been used to assess the level of abatement progress attainable through various types of abatement programs.

The assessment of yard waste composting and waste reduction is not dependent on as many actors in the region. The counties have taken the lead in providing services and collecting data on a continuing basis. The details of abatement assessment for yard waste management and other residential abatement programs are provided below.

Assessment of Abatement Through Residential Recycling

1. Collect information on the operation and characteristics of all residential recycling programs conducted in the metropolitan area.

2. Collect data on the quantity and types of recycled materials collected by programs operating in the metropolitan area.

3. Perform waste sorts at processing facilities to determine the composition of waste and the quantity of recyclable materials in the waste stream.

4. Determine the areas from which waste is derived to assess individual abatement programs by waste composition analysis.

YARD WASTE ABATEMENT

The volumes of yard waste managed by abatement programs is not consistently measured. The incidence of backyard composting or grass mulching is hard to measure. The yard waste reduction program sponsored by the counties does not have a directly measurable result. The counties base their waste reduction progress on program implementation through staff efforts. The actual progress in waste reduction can be determined through survey mechanisms. The counties have relied on analysis done by CURA staff at the University of Minnesota. The results can provide a general level of participation and an estimate of waste abatement. Developing a firm numerical assessment of waste reduction progress does not appear likely. The total goal for waste abatement of 4 percent is half of the annual fluctuation observed in the waste stream. Progress toward the elimination of the yard waste from the stream through waste reduction and source separation may be observed by the percentage of yard waste to the total waste arriving at processing facilities or landfills.

Yard Waste Source Separation

The counties are also addressing yard waste management through source separation of yard waste and the use of either drop-off or curbside collection of yard waste for composting. The volumes of yard waste managed are estimated from the size of leaf compost piles by applying a density factor to estimate the tons of yard waste collected. The use of scales at yard waste composting sites or requiring vehicles carrying yard waste to be weighed may be an unnecessary program expense. The level of abatement progress can best be determined through the analysis of the yard waste remaining in the mixed municipal waste stream versus the quantity of yard waste delivered to composting sites. The goal of most counties to compost 8 percent of the waste is equal to the total of yard waste. The majority of yard waste is generated by the residential sector. Analysis of residential waste for yard waste content will quickly tell whether or not the source separation goal is being met. Yard waste volumes are very sensitive to weather. A drop in the quantity of yard waste delivered to the landfill or the resource recovery facility will not necessarily correspond to an increase in yard waste delivered to composting sites. Both composting sites and processing or disposal facilities need to be monitored in order to assess yard waste abatement progress. Methods to assess the abatement of yard waste are detailed below.

Yard Waste Abatement Determination

The following steps may be used to determine future abatement progress from actual data.

1. Survey residents on waste reduction practices as they relate to waste reduction.

2. Determine the volume of yard waste delivered to composting facilities on a monthly basis.

3. Determine the volume of waste delivered to landfills or the processing facilities on a monthly basis.

4. Calculate yard waste abatement.

Appendix B

LANDFILL UTILIZATION AND CAPACITY ANALYSIS

The tracking of landfill use is the most significant indicator of actual abatement progress. Unfortunately, the deliveries of waste and actual waste generation are subject to a great deal of seasonal variation and extraordinary circumstances. Storms and special events have a significant impact on waste generation immediately after their occurence. The annual variation in waste generation in the early 1970's was as high as 23 percent. The wide variation in potential waste generation can completely obscure abatement activities if only landfill and facility receiving rates are used to determine abatement progress. The change in landfill use can be studied by evaluating long term trends and seasonal variation in waste deliveries along with other measurers of abatement progress.

The total waste disposed in the region will be delivered to metropolitan area landfills or landfills in Chisago, Sherburne, or Wright counties. The vast majority of metropolitan area wastes are disposed in metropolitan area landfills. The waste delivered to any single landfill is dependent on costs and operation of that landfill. The total waste delivered in the region can be calculated from the sum of the individual landfills on a monthly basis. Examination of the delivery rates for waste in the region should follow a annual pattern of waste generation. An early spring for example will make an annual waste generation calculated from March data appear much larger than might be expected. The waste generation rates for any single county cannot be determined through landfill data analysis.

The landfill data can be used to estimate landfill use rates. The receiving rate data must be compared to aerial surveys to determine the actual landfill use rate and any changes in landfill use rate. Changes in landfill use rates for the region can provide a measure of waste abatement progress in the metropolitan area. The use rates will be effected by the density of ash and residuals compared to the mixed municipal waste currently disposed in the region.

ASSESSMENT OF LANDFILL ABATEMENT

1. Collect data from the MPCA and Department of Revenue on landfill receiving rates.

2. Determine if unusual waste generation patterns are demonstrated by the data.

   2.a. Do unusual patterns appear in the total waste disposed in the region? If no, go to 3.
   2.b. Determine which landfill has received excess waste and call landfill to determine why excess waste is being received.

3. Collect actual landfill capacity numbers from aerial surveys.

   3.a. Confirm capacity estimates with each landfill.

4. Determine use rates and in-place waste densities from available data.

5. Determine if the data shows an unusual use rate or capacities not consistent with the expectations.

5.a. If the use rates are not consistent, discuss differences with the landfill.

In the future, the use of separate landfill cells and a better understanding of unprocessible wastes will provide a better estimate of landfill space required to manage solid waste in an environment where significant amounts of waste are processed.

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