Morris County

Solid Waste Management Plan

Board of Chosen Freeholders
Solid Waste Advisory Council

1985

MORRIS COUNTY

SOLID WASTE MANAGEMENT PLAN UPDATE

MAY , 1985

Prepared for:

MORRIS COUNTY BOARD OF CHOSEN FREEHOLDERS
MORRIS COUNTY SOLID WASTE ADVISORY COUNCIL

Prepared by:

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FOREWARD

The following is a copy of Morris County's Solid Waste Management Plan Update. This Plan Update was developed by the Morris County Solid Waste Management Staff, in cooperation with the Morris County Solid Waste Advisory Council, for submission to and adoption by the Board of Freeholders.

This Plan Update consists of three components. (1) The first is the Morris County Solid Waste Management Plan which addresses the requirements specified in the New Jersey Solid Waste Management Act. (2) Attached to and following the Plan is the Morris County Solid Waste Management Plan Update Report prepared in June, 1983. This Report contains relevant information from the 1979 Solid Waste Management Plan, provides new information not used in the original study, and modifies the County's solid waste management strategy. (3) The third component of this Plan Update is an Addendum to the 1983 Report. This section provides updated information and modifies Morris County's disposal strategy since the completion of the original 1983 report.

MORRIS COUNTY SOLID WASTE MANAGEMENT PLAN

This Solid Waste Management Plan has been prepared to update the Morris County Solid Waste Management Plan approved by the DEP Commissioner on January 28, 1981, pursuant to the New Jersey Solid Waste Management Act (N.J.S.A. 13:1E-1 et. seq.)

The Act dictates that every solid waste management plan should include the following elements:

1) Designation of department unit or committee of a county government to supervise plan implementation and report thereon as required by the Board of Chosen Freeholders;
2) A statement of the solid waste disposal strategy to be applied, including the maximum practicable use of resource recovery and a plan for using terminated landfill sites;
3) A site plan which shall include all existing solid waste facilities located within the district and sufficient available suitable sites to provide facilities to treat and dispose of actual and projected amounts of solid waste;
4) A survey of proposed collection districts and transportation routes, with projected transportation costs from collection districts to existing or available suitable sites for solid waste facilities;
5) The procedures for coordinating all activities related to the collection and disposal of solid waste by every person engaging in such process within the district and procedures for furnishing the solid waste facilities contained in the solid waste management plan; and

6) The method or methods of financing solid waste management in the district pursuant to the solid waste management plan. (N.J.S.A. 13:1E-21)

This Morris County Solid Waste Management Plan will address the requirements specified in these six paragraphs, in sections numbered one through six, below. In addition, the report required by N.J.S.A. 13:1E-21 is attached, entitled "Morris County Solid Waste Management Plan Update Report-1983". Following that is an Addendum to the Report prepared in April, 1985.

SECTION ONE

The Morris County Board of Chosen Freeholders retain all jurisdiction with respect to the implementation of the Solid Waste Management Plan. The Solid Waste Management staff of the Morris County Planning Board will supervise this effort and advise the Board of Chosen Freeholders as required.

SECTION TWO

A) Solid Waste Disposal Strategy

It is the general policy of the Morris County Solid Waste Management District to ensure that interim and long range disposal of solid waste generated in the County is done in the most cost effective, environmentally sound manner. Interim policy includes the continued disposal of waste in out-of-county landfills until the development of an in-county sanitary landfill in Rockaway Township. Interim policy also calls for the aggressive application of source separation efforts and the potential establishment of one or more transfer stations for the transport of waste to the disposal sites outside of the County and, possibly, to the new in-county facilities. The long term strategy proposes the use of a single waterwall incineration facility for waste volume reduction and energy production for the total waste load of Morris County.

The short range, or interim, disposal of waste generated within Morris County has become a critical issue in recent years. This critical situation has resulted from the termination of two regional landfills in Morris County in 1981 coupled with the District's decision that there is no suitable site in Morris County on which to develop a new sanitary landfill site.

Morris County evaluated potential land disposal sites, in studies requiring nearly two years for completion. Topographic characteristics of Morris County (most importantly the fact that the County hosts the headwaters of three major drainage basins which provide potable water) precluded the rational selection of a large regional landfill site for unprocessed municipal waste. All surface water drainage in Morris County flows to potable surface water supply systems including the City of Jersey City, the City of Newark, Elizabethtown Water Company, Passaic Valley Water Commission, and smaller purveyors providing potable water both within and outside of the County. In addition, most potable water supplied to County residents is derived from subsurface sources.

The Department of Environmental Protection (DEP), through their consultants Dresdner Associates, conducted a landfill siting study which designated Site 6-1B in Rockaway Township as the preferred site in Morris County. In response to the closure of Hamm's Sanitary Landfill in Sussex County, DEP redirected the Morris County waste which was being disposed of at Hamm's Landfill to the Edgeboro Landfill in Middlesex County. In addition, Morris County entered into an Administrative Consent Order with DEP (see Appendix 1).

The Administrative Consent Order provides a development schedule for a potential sanitary landfill at Site 6-1B in Rockaway Township. Initially, DEP was responsible for the completion of an Environmental Impact Statement (EIS) for Site 6-1B. If the EIS disclosed that the site is suitable for landfill development, then Morris County would proceed to develop the landfill facility.

The DEP, through their consultant Woodward Clyde, determined that Site 6-1B is suitable for development of a state-of-the-art sanitary landfill. The County, therefore, will proceed to develop the landfill facility in Morris County pursuant to the Order. The new Morris County landfill will accept all solid waste generated only within the County.

Morris County will remain dependent on out-of-county land disposal facilitites until the new County landfill is developed. The County will comply with the waste flow directives issued by DEP and BPU.

While Morris County's waste is transported and disposed of out of district, implementation of mandatory multi-material recycling programs at the municipal level will be actively encouraged by the County. When Morris County begins operation of its own disposal facility, all municipalities will be required to have mandatory recycling programs in place, including a mandatory recycling ordinance. Penalties will be assigned to those municipalities held in non-conformance with this requirement.

Current estimates of material recycling represent in excess of 10% of the County waste stream. The Statewide Solid Waste Management Plan, which incorporates the State Recycling Plan, states that a goal of 25% recycling shall be achieved by 1986. Morris County also includes this 25% recycling goal in its Plan to conform with that State goal. It is unlikely that these low technology efforts will result in a waste stream reduction greater than 25%, and therefore more effective volume reduction and energy recovery through incineration is preferred for the long term.

Transfer stations will not be an integral part of the County's solid waste management strategy. Due to the centralized location of the proposed landfill site (Site 6-1B in Rockaway Township), transfer stations would generally not be economically viable. However, traffic related impacts at the landfill and ultimately at Morris County's energy recovery facility can be mitigated through

the use of transfer facilities. Independent proposals for these facilities will be reviewed and approved by the County if deemed suitable.

This plan calls for the development of a waterwall incinerator and energy plant at an acceptable location within the County of Morris. The operation of such a facility will reduce, but not eliminate, the need for land disposal capacity. The location of this future land disposal capacity will be at Site 6-1B in Rockaway Township providing that DEP permits ash residue generated from resource recovery plants to be landfilled at a state approved solid waste landfill. If the ash residue is classified as a hazardous waste, then the material will be required to be disposed of at a hazardous waste landfill.

Morris County has contracted with Bechtel Civil & Minerals to assist in selecting a suitable site for the waste-to-energy facility, to evaluate energy markets, and to review the waste-to-energy technologies. The consultant will also assist in the preparation of the procurement documents, the evaluation and selection of a vendor, and other preconstruction activities.

The County does not wish to preclude the implementation of a regional waste-to-energy facility with one or more surrounding districts. However, since no such arrangements have been finalized, it is prudent for the County to pursue a sole source strategy at this time. Regionalization concepts can be incorporated by Plan amendment in the future, if necessary.

B) Plans for Terminated Landfill Sites

The Morris County Solid Waste Plan Modifications submitted to the Commissioner in December, 1980 contained a plan for terminated landfill sites. However, this plan element was never approved by the Commissioner, so it will be reiterated, with some slight changes, below.

The Morris County Solid Waste Management District recognizes the long term potential problems such as gas buildup, the re-surfacing of previously buried materials and the instability of the landfill mass potentially resulting in unpredictable settling, that may impact on the potential uses of terminated landfill sites. The district also recognizes that terminated landfills may pose peculiar site specific hazards and off site environmental impacts.

Therefore the Morris County Solid Waste Management Plan recommends the following with respect to terminated landfill sites:

i) That these sites be generally designated as "open space" with the condition that public access be restricted until the facility is determined to pose no significant hazard.

ii) That proposals for structural development on terminated landfill sites be required to adequately demonstrate that no significant adverse impact will occur either on-site or off-site due to the proposed development.

iii) That the owner (or other responsible party) of a terminated landfill site, if determined to be generating significant on-site or off-site adverse environmental impacts, institute appropriate mitigating measures to abate such impacts.

SECTION THREE

A site plan showing the location of all registered solid waste facilities is depicted in Figure 2-1 in the attached report entitled "Morris County Solid Waste Management Plan Update - 1983". Of the landfills listed in that report only two are currently available for public use. These are the Mendham Boro Sanitary Landfill (Facility #1418A) and the Mount Arlington

Borough Sanitary Landfill (Facility #1426A), both of which are restricted for the exclusive use of the respective municipalities for the specific waste types permitted for disposal.

Existing disposal facilities provide insufficient capacity to service existing and projected waste generated within the Morris County Solid Waste District. The vast majority of waste generated within Morris County is presently disposed in other districts as noted in Table 6.C-1 of the attached report.

The Morris County Solid Waste Management District had been unable to locate a suitable site for the development of a new sanitary landfill within the district and had been unable to secure interdistrict agreements with the districts which were accepting Morris County waste. Consequently, the Morris County Board of Chosen Freeholders adopted a resolution certifying such failure to the DEP Commissioner in December, 1983, pursuant to N.J.S.A. 13:1E-21.

Subsequently, Morris County entered into the Administrative Consent Order with DEP which outlined a development schedule for a sanitary landfill at Site 6-1B in Rockaway Township (See Table 6.B-2). Therefore, the Morris County Solid Waste Management District proposes the continued use of out-of-County disposal facilities, as depicted in Table 6.C-1, until the development of the Morris County Sanitary Landfill. The landfill will receive all of Morris County's solid waste until the development of the Morris County Resource Recovery Facility.

The Morris County Resource Recovery Facility is proposed for completion in 1990. Site investigations for this facility are presently underway, with site selection anticipated by September, 1985. An implementation schedule is presented in the Administrative Consent Order and in Table 6.B-2 of the attached report.

Finally, the Morris County Solid Waste Management District hereby deems all vegetative waste compost facilities, including existing facilities, proposed facilities, and those which may be proposed in the future, consistent with the Morris County Solid Waste Management Plan, provided that these facilities are designed and operated in conformance with the requirements of the N.J. DEP.

SECTION FOUR

A survey of existing collection districts and transportation routes is presented in Table 2.C-3 of the attached report. Transportation costs are in direct proportion to distance travelled. The Morris County Solid Waste Management District estimates that operations and maintenance cost for hauling in collection vehicles is approximately $0.24/ton-mile. Estimated transportation and disposal costs for the existing waste flows is presented in Table 2.C-3A.

A study performed as part of the attached report indicates that transfer stations would provide for more economical transport of waste to out-of-county disposal sites by many of the constitutent municipalities of the Morris County Solid Waste Management District. However, due to the development of an in-county landfill, economic benefits would not be realized by Morris County municipalities.

SECTION FIVE

A) Procedures for Coordinating Activities

The Morris County Solid Waste Management District intends to petition the N.J. Board of Public Utilities for the designation of franchise status. The designation of the Morris County Solid Waste Management District as a franchise area will enable the district to more effectively coordinate all activities related to the collection and disposal of solid waste.

The three Morris County member municipalities of the Lakeland Regional Solid Waste Management Authority (Butler, Kinnelon and Pequannock) are now disassociated from that Authority and assigned to the Morris County Solid Waste Management District.

B) Procedures for Furnishing Solid Waste Facilities

The cornerstone of Morris County's long range plan for solid waste management is the implementation of an energy recovery facility. It is recommended that this facility is owned and operated by the private sector on a site to be selected by Morris County. If required, the County can purchase the site and lease it to the operator.

It is anticipated that the selection of a full service contractor to own and operate the facility can be made by June, 1986 after review of responses to a request for proposals. While it would be preferable for the facility site and energy customer(s) to be firmed up by the date of issuance of the RFP, it is not considered essential. Nonetheless, the County will pursue these issues in an attempt to hasten the implementation process. The County will develop a resource recovery facility in Morris County according to the timetable stipulated in the Administrative Consent Order.

The County will also entertain unsolicited proposals for the construction and operation of a resource recovery facility prior to the initiation of the procurement process outlined above.

The second key structural element of the Solid Waste Management Plan is the development of a sanitary landfill within Morris County. Procurement of this facility will also comply with the tasks and associated timetable outlined in the Administrative Consent Order. Morris County will undertake those activities, which are the responsibility of the County, in a timely manner.

Table 6.B-1 presents a compilation of studies completed or to be undertaken as part of this long range planning and implementation process.

SECTION SIX

The Morris County Solid Waste Management District recognizes that the preferred approach of utilizing a full service contractor typically involves an equity investment of 20-35 percent by the contractor with the balance of funds provided through the issuance of tax exempt revenue bonds. The District is presently assembling a financial team to advise the District on the optimum financial approach. Bond Counsel, an Investment Advisor and a Senior Investment Banker/Bond Underwriter have already been selected. The County will also appoint one or more investment banking firms as co-managers at the appropriate time.

The Morris County Solid Waste Management District will therefore specify the details regarding the preferred method(s) of financing after analysis and recommendations are rendered by the financial team.

MORRIS COUNTY

SOLID WASTE MANAGEMENT PLAN UPDATE REPORT

June, 1983

Prepared for:

MORRIS COUNTY BOARD OF CHOSEN FREEHOLDERS

MORRIS COUNTY SOLID WASTE ADVISORY COUNCIL

Prepared by:

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Chapter 1 - Introduction and Background

This report has been prepared pursuant to the requirements of the New Jersey Solid Waste Management Act (N.J.S.A. 13:1E-1 et seq.). This statute requires the preparation of long range solid waste management plans by each of the 21 counties and the Hackensack Meadowlands Development Commission.

Morris County's initial solid waste management plan was prepared in 1979 and adopted by the Board of Chosen Freeholders and submitted to the New Jersey Department of Environmental Protection (DEP) in December, 1979. After subsequent modification by the County, the Solid Waste Management Plan was approved by DEP, with additional modifications, in January 1981.

This report is submitted in conformance with the requirement that solid waste plans be updated every two years. As such, this plan update incorporates relevant information from the 1979 Solid Waste Management Plan, provides new information not used in the original study, and will modify the County's strategy in terms of long range solid waste management and energy recovery.

The original District Plan as submitted by the County, called for the upgrading of the Combe Fill North and Combe Fill South landfills, and the expansion of Combe Fill North. This strategy would have provided for interim disposal until resource recovery facilities were implemented. The original Plan directed future waste flow from Kinnelon, Butler, and Pequannock to the resource recovery facility proposed by the Lakeland Regional Solid Waste Management Authority, future waste flow from the remaining eastern Morris County communities to the resource recovery facility proposed by Passaic County, and western County waste to an in-County resource recovery facility which would accept additional waste from Sussex, Warren, or Hunterdon Counties.

Subsequent modificatons to the Plan, and other DEP actions, resulted in the termination of disposal at Combe Fill North and Combe Fill South, and imposed the requirement that the County locate and develop a new regional sanitary landfill. After nearly two years of study the Board of Chosen Freeholders determined that a suitable landfill site did not exist in Morris County, primarily due to the County population's heavy reliance on ground water and the County's headwater resources which supply surface water to surrounding regions through three major drainage basins (Delaware, Passaic, and Raritan).

Nearly all solid waste presently generated in Morris County is exported to Middlesex, Sussex, and Warren counties for disposal. This fact, coupled with increased unit transport cost since 1979, has made transportation via transfer stations a viable and desired strategy. The maturing of energy recovery technology, and the enactment of federal and state policies requiring the purchase of electricity from small generators, has also resulted in the development of a long term energy recovery strategy which differs substantially from that embodied in the 1979 Plan. Finally, source separation activities have increased dramatically in the past several years, due to increasing disposal and transport costs and increased involvement at the County and State level. This plan update addresses the existing material recovery programs and how they might be improved and expanded.

Chapter 2 - Existing Conditions

Chapter 2 presents an inventory of existing conditions involved in Morris County solid waste management. Initially, new solid waste generation projections will be presented. Following that is a discussion of the collection systems and solid waste facilities presently operating in Morris County.

2.A Solid Waste Generation

There has been wide variation in solid waste generation estimates for Morris County. The Morris County Solid Waste Management Plan-Modifications had estimated the total County waste quantity at 410,662 tons for 1980. The collector/hauler records provided by DEP indicated the County waste quantity to be 573,637 tons for the same year. Such variation causes difficulty in solid waste management planning especially when considering future alternatives for solid waste disposal.

In an attempt to better identify solid waste generation in the County, the Planning staff decided to prepare new waste generation projections for the years 1982-1992. Three options were available for preparing the new projections. First, collector/hauler records provided by DEP supply waste quantities presumably generated in the County. These reports, however, have been unreliable and inconsistent in recording the data. Second, a weighing study can provide useful data if conducted properly. Problems with this option are compounded since there are no regional landfills presently in operation in Morris County. Also, a weighing study is quite expensive if it is to be statistically significant since it has to be conducted over long periods of time and with adequate sample sizes. Third, and the option chosen by the Planning staff, is to utilize current population and economic indicators, as well as data supplied in current studies and other literature, to perform the projections. A full description of the study methodology is described in Solid Waste Generation and Composition for Morris County, New Jersey, February, 1983.

The study classified waste into two types: residential, which includes all waste generated by households, and industrial/commercial, which represents all waste generated by industries, institutions, offices, and commercial establishments throughout the County.

To summarize, the study included the preparation of population and employment projections for Morris County. Waste generation rates were determined on a per capita basis for the residential portion of the waste. Information pertaining to the residential component was obtained from current weighing studies and published literature. Industrial waste generation rates were determined on a ton per employee per year basis and were primarily obtained from responses to the Morris County Industrial Waste Survey, which was conducted in August, 1982.

The results of this study are presented in Tables 2.A-1 through 2.A-11. These new projections were compared to the RAS projections, which were prepared in 1980, and were found to be lower. This was due to the conservative methodology and different data sources used in the study. The new projections coincided with standards found in the literature and other studies and, therefore, were deemed to be a reasonable representation of waste generated in Morris County. In addition, the new projections at the municipal level are felt to be more accurate than those previously prepared.

Table 2.A-12 lists waste quantities for 1980 as reported by the collector/haulers to the N.J.D.E.P. and is presented for purposes of comparison.

These new projections will be useful in interim and long-range solid waste management planning for Morris County. In particular, this data will be useful in the planning efforts directed to the practical development of an energy recovery solid waste disposal system, feasibility and development of transfer stations, and development of recycling programs.

TABLE 4-A-1

SOLID WASTE GENERATION BY MUNICIPALITY
MORRIS COUNTY - 1982

WASTE TYPE / MUNICIPALITY	RESIDENTIAL (TONS/YEAR)	INDUSTRIAL/COMMERCIAL (TONS/YEAR)	TOTAL (TONS/YEAR)
BOONTON	4218	2971	7189
BOONTON TWP.	1644	1718	3362
BUTLER	3834	1718	5552
CHATHAM	4141	2661	6802
CHATHAM TWP.	4484	1038	5522
CHESTER	724	1006	1730
CHESTER TWP.	2668	897	3565
DENVILLE	7169	5246	12415
DOVER	7258	7412	14670
EAST HANOVER	4775	7969	12744
FLORHAM PARK	4644	11590	16234
HANOVER	5989	12735	18724
HARDING	1605	758	2363
JEFFERSON	8363	774	9137
KINNELON	3873	866	4739
LINCOLN PARK	4350	2073	6423
MADISON	7496	3899	11395
MENDHAM	2542	743	3285
MENDHAM TWP.	2302	217	2519
MINE HILL	1629	139	1768
MONTVILLE	7324	4905	12229
MORRIS PLAINS	2612	8480	11092
MORRISTOWN	8148	20983	29131
MORRIS TWP.	9209	4518	13727
MOUNTAIN LAKES	2006	774	2780
MT. ARLINGTON	2172	108	2280
MT. OLIVE	9733	1857	11590
NETCONG	1831	805	2636
PAR-TROY	24637	20905	45542
PASSAIC	3600	1455	5055
PEQUANNOCK	6784	3203	9987
RANDOLPH	9268	3435	12703
RIVERDALE	1237	1006	2243
ROCKAWAY	3446	2491	5937
ROCKAWAY TWP.	9938	7047	16985
ROXBURY	9665	4689	14354
VICTORY GARDENS	519	15	534
WASHINGTON	6070	897	6967
WHARTON	2718	2321	5039
SUBTOTAL	204,625	156,324	360,949
GOVERNMENT	--	22,634	--
TOTAL	204,625	178,958	383,583

SOLID WASTE GENERATION BY MUNICIPALITY
MORRIS COUNTY - 1983

WASTE TYPE / MUNICIPALITY	RESIDENTIAL (TONS/YEAR)	INDUSTRIAL/COMMERCIAL (TONS/YEAR)	TOTAL (TONS/YEAR)
BOONTON	4296	3096	7392
BOONTON TWP.	1696	1790	3486
BUTLER	3960	1790	5750
CHATHAM	4198	2773	6971
CHATHAM TWP.	4638	1080	5718
CHESTER	749	1048	1797
CHESTER TWP.	2782	935	3717
DENVILLE	7371	5466	12837
DOVER	7429	7723	15152
EAST HANOVER	4975	8303	13278
FLORHAM PARK	4764	12076	16840
HANOVER	6198	13269	19467
HARDING	1646	790	2436
JEFFERSON	8689	806	9495
KINNELON	3981	903	4884
LINCOLN PARK	4451	2160	6611
MADISON	7601	4063	11664
MENDHAM	2664	774	3438
MENDHAM TWP.	2400	226	2626
MINE HILL	1659	145	1804
MONTVILLE	7631	5111	12742
MORRIS PLAINS	2667	8835	11502
MORRISTOWN	8308	21863	30171
MORRIS TWP.	9464	4708	14172
MOUNTAIN LAKES	2030	806	2836
MT. ARLINGTON	2260	113	2373
MT. OLIVE	10204	1935	12139
NETCONG	1913	838	2751
PAR-TROY	25212	21782	46994
PASSAIC	3687	1516	5203
PEQUANNOCK	6932	3337	10269
RANDOLPH	9722	3579	13301
RIVERDALE	1260	1048	2308
ROCKAWAY	3557	2596	6153
ROCKAWAY TWP.	10237	7275	17512
ROXBURY	10065	4885	14950
VICTORY GARDENS	534	16	550
WASHINGTON	6437	935	7372
WHARTON	2786	2418	5204
SUBTOTAL	211,053	162,812	373,865
GOVERNMENT	—	22,775	—
TOTAL	211,053	185,587	396,640

TABLE 2.A-3

SOLID WASTE GENERATION BY MUNICIPALITY
MORRIS COUNTY - 1984

WASTE TYPE / MUNICIPALITY	RESIDENTIAL (TONS/YEAR)	INDUSTRIAL/COMMERCIAL (TONS/YEAR)	TOTAL (TONS/YEAR)
BOONTON	4372	3220	7592
BOONTON TWP.	1748	1862	3610
BUTLER	4087	1862	5949
CHATHAM	4253	2885	7138
CHATHAM TWP.	4794	1124	5918
CHESTER	774	1090	1864
CHESTER TWP.	2898	973	3871
DENVILLE	7573	5686	13259
DOVER	7600	8034	15634
EAST HANOVER	5179	8637	13816
FLORHAM PARK	4882	12562	17444
HANOVER	6411	13803	20214
HARDING	1687	822	2509
JEFFERSON	9022	839	9861
KINNELON	4089	939	5028
LINCOLN PARK	4552	2247	6799
MADISON	7748	4226	11974
MENDHAM	2789	805	3594
MENDHAM TWP.	2499	235	2734
MINE HILL	1690	151	1841
MONTVILLE	7944	5317	13261
MORRIS PLAINS	2723	9191	11914
MORRISTOWN	8465	22743	31208
MORRIS TWP.	9719	4897	14616
MOUNTAIN LAKES	2052	839	2891
MT. ARLINGTON	2350	117	2467
MT. OLIVE	10685	2013	12698
NETCONG	1995	872	2867
PAR-TROY	25784	22659	48443
PASSAIC	3774	1577	5351
PEQUANNOCK	7077	3472	10549
RANDOLPH	10186	3723	13909
RIVERDALE	1282	1090	2372
ROCKAWAY	3670	2700	6370
ROCKAWAY TWP.	10539	7504	18043
ROXBURY	10473	5082	15555
VICTORY GARDENS	548	17	565
WASHINGTON	6814	973	7787
WHARTON	2853	2516	5369
SUBTOTAL	217,580	169,304	386,884
GOVERNMENT	--	22,917	--
TOTAL	217,580	192,221	409,801

SOLID WASTE GENERATION BY MUNICIPALITY
MORRIS COUNTY - 1985

WASTE TYPE / MUNICIPALITY	RESIDENTIAL (TONS/YEAR)	INDUSTRIAL/COMMERCIAL (TONS/YEAR)	TOTAL (TONS/YEAR)
BOONTON	4447	3345	7792
BOONTON TWP.	1801	1934	3735
BUTLER	4216	1934	6150
CHATHAM	4304	2996	7300
CHATHAM TWP.	4950	1167	6117
CHESTER	800	1132	1932
CHESTER TWP.	3016	1010	4026
DENVILLE	7774	5906	13680
DOVER	7769	8345	16114
EAST HANOVER	5385	8972	14357
FLORHAM PARK	5001	13048	18049
HANOVER	6625	14337	20962
HARDING	1727	854	2581
JEFFERSON	9357	871	10228
KINNELON	4197	976	5173
LINCOLN PARK	4651	2334	6985
MADISON	7868	4390	12258
MENDHAM	2916	836	3752
MENDHAM TWP.	2600	244	2844
MINE HILL	1719	157	1876
MONTVILLE	8261	5522	13783
MORRIS PLAINS	2777	9547	12324
MORRISTOWN	8618	23623	32241
MORRIS TWP.	9973	5087	15060
MOUNTAIN LAKES	2072	871	2943
MT. ARLINGTON	2440	122	2562
MT. OLIVE	11175	2090	13265
NETCONG	2079	906	2985
PAR-TROY	26348	23536	49884
PASSAIC	3860	1638	5498
PEQUANNOCK	7221	3606	10827
RANDOLPH	10660	3867	14527
RIVERDALE	1303	1132	2435
ROCKAWAY	3782	2805	6587
ROCKAWAY TWP.	10841	7732	18573
ROXBURY	10886	5278	16164
VICTORY GARDENS	562	17	579
WASHINGTON	7201	1010	8211
WHARTON	2920	2613	5533
SUBTOTAL	224,102	175,790	399,892
GOVERNMENT	--	23,058	--
TOTAL	224,102	198,848	422,950

TABLE 2.A-5

SOLID WASTE GENERATION BY MUNICIPALITY
MORRIS COUNTY - 1986

WASTE TYPE / MUNICIPALITY	RESIDENTIAL (TONS/YEAR)	INDUSTRIAL/COMMERCIAL (TONS/YEAR)	TOTAL (TONS/YEAR)
BOONTON	4521	3397	7918
BOONTON TWP.	1854	1964	3818
BUTLER	4344	1964	6308
CHATHAM	4356	3043	7399
CHATHAM TWP.	5108	1185	6293
CHESTER	826	1150	1976
CHESTER TWP.	3134	1026	4160
DENVILLE	7977	5998	13975
DOVER	7939	8475	16414
EAST HANOVER	5592	9112	14704
FLORHAM PARK	5120	13252	18372
HANOVER	6840	14562	21402
HARDING	1768	867	2635
JEFFERSON	9695	885	10580
KINNELON	4306	991	5297
LINCOLN PARK	4751	2371	7122
MADISON	7990	4459	12449
MENDHAM	3044	849	3893
MENDHAM TWP.	2701	248	2949
MINE HILL	1749	159	1908
MONTVILLE	8579	5609	14188
MORRIS PLAINS	2832	9696	12528
MORRISTOWN	8773	23992	32765
MORRIS TWP.	10229	5166	15395
MOUNTAIN LAKES	2093	885	2978
MT. ARLINGTON	2532	124	2656
MT. OLIVE	11666	2123	13789
NETCONG	2163	920	3083
PAR-TROY	26918	23904	50822
PASSAIC	3946	1663	5609
PEQUANNOCK	7365	3663	11028
RANDOLPH	11135	3928	15063
RIVERDALE	1324	1150	2474
ROCKAWAY	3896	2849	6745
ROCKAWAY TWP.	11144	7828	18972
ROXBURY	11301	5361	16662
VICTORY GARDENS	577	18	595
WASHINGTON	7588	1026	8614
WHARTON	2987	2654	5641
SUBTOTAL	230,663	178,516	409,179
GOVERNMENT	--	22,834	--
TOTAL	230,663	201,350	432,013

TABLE 2.A-6

SOLID WASTE GENERATION BY MUNICIPALITY
MORRIS COUNTY - 1987

WASTE TYPE / MUNICIPALITY	RESIDENTIAL (TONS/YEAR)	INDUSTRIAL/COMMERCIAL (TONS/YEAR)	TOTAL (TONS/YEAR)
BOONTON	4594	3450	8044
BOONTON TWP.	1908	1994	3902
BUTLER	4475	1994	6469
CHATHAM	4406	3090	7496
CHATHAM TWP.	5267	1204	6471
CHESTER	852	1168	2020
CHESTER TWP.	3255	1042	4297
DENVILLE	8180	6091	14271
DOVER	8109	8606	16715
EAST HANOVER	5803	9253	15056
FLORHAM PARK	5239	13457	18696
HANOVER	7058	14786	21844
HARDING	1809	880	2689
JEFFERSON	10037	898	10935
KINNELON	4415	1006	5421
LINCOLN PARK	4851	2407	7258
MADISON	8108	4527	12635
MENDHAM	3174	862	4036
MENDHAM TWP.	2804	251	3055
MINE HILL	1778	162	1940
MONTVILLE	8904	5695	14599
MORRIS PLAINS	2887	9845	12732
MORRISTOWN	8924	24362	33286
MORRIS TWP.	10486	5246	15732
MOUNTAIN LAKES	2112	898	3010
MT. ARLINGTON	2624	126	2750
MT. OLIVE	12168	2156	14324
NETCONG	2249	934	3183
PAR-TROY	27484	24272	51756
PASSAIC	4033	1689	5722
PEQUANNOCK	7509	3719	11228
RANDOLPH	11619	3988	15607
RIVERDALE	1345	1168	2513
ROCKAWAY	4011	2893	6904
ROCKAWAY TWP.	11450	7924	19374
ROXBURY	11723	5444	17167
VICTORY GARDENS	591	18	609
WASHINGTON	7985	1042	9027
WHARTON	3055	2695	5750
SUBTOTAL	237,281	181,242	418,523
GOVERNMENT	--	22,610	--
TOTAL	237,281	203,852	441,133

TABLE 2.A-7

SOLID WASTE GENERATION BY MUNICIPALITY
MORRIS COUNTY - 1988

WASTE TYPE / MUNICIPALITY	RESIDENTIAL (TONS/YEAR)	INDUSTRIAL/COMMERCIAL (TONS/YEAR)	TOTAL (Tons/month)	TOTAL (TONS/YEAR)	
BOONTON	4681	3502	681.92	8183	P
BOONTON TWP.	1968	2024	332.67	3992	P
BUTLER	4620	2024	553.67	6644	P
CHATHAM	4468	3137	633.75	7605	P
CHATHAM TWP.	5445	1222	555.58	6667	P
CHESTER	881	1185	172.17	2066	
CHESTER TWP.	3388	1058	370.50	4446	
DENVILLE	8411	6183	1216.17	14594	P
DOVER	8303	8736	1419.92	17039	
EAST HANOVER	6036	9393	1291.00	15429	P
FLORHAM PARK	5374	13661	1586.25	19035	P
HANOVER	7301	15011	1859.33	22312	P
HARDING	1855	894	229.08	2749	P
JEFFERSON	10417	912	944.08	11329	
KINNELON	4539	1021	463.33	5560	P
LINCOLN PARK	4965	2444	617.42	7409	P
MADISON	8249	4596	1070.42	12845	P
MENDHAM	3318	875	349.42	4193	
MENDHAM TWP.	2919	255	264.50	3174	
MINE HILL	1812	164	164.67	1976	
MONTVILLE	9262	5782	1253.67	15044	P
MORRIS PLAINS	2949	9995	1078.67	12944	P
MORRISTOWN	9103	24732	2819.58	33835	P
MORRIS TWP.	10778	5326	1342.00	16104	P
MOUNTAIN LAKES	2137	912	254.08	3049	P
MT. ARLINGTON	2727	128	237.92	2855	
MT. OLIVE	12720	2189	1242.42	14909	
NETCONG	2344	948	274.33	3292	
PAR-TROY	28136	24641	4398.08	52777	P
PASSAIC	4132	1714	487.17	5846	P
PEQUANNOCK	7674	3775	954.08	11449	P
RANDOLPH	12152	4049	1350.08	16201	
RIVERDALE	1370	1185	212.92	2555	P
ROCKAWAY	4140	2936	589.67	7076	
ROCKAWAY TWP.	11795	8020	1651.33	19816	
ROXBURY	12191	5526	1476.42	17717	
VICTORY GARDENS	607	18	52.08	625	
WASHINGTON	8419	1058	789.75	9477	
WHARTON	3131	2736	488.92	5867	
SUBTOTAL	244,717	183,967	35,723.67	428,684	
GOVERNMENT	--	22,385		--	
TOTAL	244,717	206,352	37587.08	451,069	

TABLE 2.A-6

SOLID WASTE GENERATION BY MUNICIPALITY
MORRIS COUNTY - 1989

WASTE TYPE / MUNICIPALITY	RESIDENTIAL (TONS/YEAR)	INDUSTRIAL/COMMERCIAL (TONS/YEAR)	TOTAL (TONS/YEAR
BOONTON	4751	3554	8305
BOONTON TWP.	2023	2055	4078
BUTLER	4753	2055	6808
CHATHAM	4512	3184	7696
CHATHAM TWP.	5608	1240	6848
CHESTER	907	1203	2110
CHESTER TWP.	3513	1074	4587
DENVILLE	8616	6275	14891
DOVER	8472	8847	17319
EAST HANOVER	6255	9533	15788
FLORHAM PARK	5493	13865	19358
HANOVER	7525	15235	22760
HARDING	1896	907	2803
JEFFERSON	10770	926	11696
KINNELON	4649	1037	5686
LINCOLN PARK	5064	2481	7545
MADISON	8361	4665	13026
MENDHAM	3453	889	4342
MENDHAM TWP.	3025	259	3284
MINE HILL	1840	167	2007
MONTVILLE	9598	5868	15466
MORRIS PLAINS	3003	10144	13147
MORRISTOWN	9250	25102	34352
MORRIS TWP.	11036	5405	16441
MOUNTAIN LAKES	2153	926	3079
MT. ARLINGTON	2822	130	2952
MT. OLIVE	13243	2221	15464
NETCONG	2433	963	3396
PAR-TROY	28696	25009	53705
PASSAIC	4218	1740	5958
PEQUANNOCK	7815	3832	11647
RANDOLPH	12658	4110	16768
RIVERDALE	1390	1203	2593
ROCKAWAY	4257	2980	7237
ROCKAWAY TWP.	12104	8116	20220
ROXBURY	12627	5609	18236
VICTORY GARDENS	621	18	639
WASHINGTON	8837	1074	9911
WHARTON	3199	2777	5976
SUBTOTAL	251,446	186,678	438,124
GOVERNMENT	--	22,161	--
TOTAL	251,446	208,839	460,285

TABLE 2.A-9

SOLID WASTE GENERATION BY MUNICIPALITY
MORRIS COUNTY - 1990

WASTE TYPE / MUNICIPALITY	RESIDENTIAL (TONS/YEAR)	INDUSTRIAL/COMMERCIAL (TONS/YEAR)	TOTAL (TONS/YEAR)
BOONTON	4819	3607	8426
BOONTON TWP.	2078	2085	4163
BUTLER	4887	2085	6972
CHATHAM	4554	3231	7785
CHATHAM TWP.	5772	1258	7030
CHESTER	934	1221	2155
CHESTER TWP.	3640	1089	4729
DENVILLE	8820	6368	15188
DOVER	8637	8998	17635
EAST HANOVER	6476	9674	16150
FLORHAM PARK	5611	14069	19680
HANOVER	7749	15460	23209
HARDING	1936	920	2856
JEFFERSON	11127	939	12066
KINNELON	4759	1052	5811
LINCOLN PARK	5161	2517	7678
MADISON	8469	4734	13203
MENDHAM	3592	902	4494
MENDHAM TWP.	3133	263	3396
MINE HILL	1867	169	2036
MONTVILLE	9938	5955	15893
MORRIS PLAINS	3055	10294	13349
MORRISTOWN	9393	25472	34865
MORRIS TWP.	11294	5485	16779
MOUNTAIN LAKES	2168	939	3107
MT. ARLINGTON	2919	131	3050
MT. OLIVE	13775	2254	16029
NETCONG	2523	977	3500
PAR-TROY	29249	25378	54627
PASSAIC	4302	1766	6068
PEQUANNOCK	7953	3888	11841
RANDOLPH	13172	4170	17342
RIVERDALE	1409	1221	2630
ROCKAWAY	4374	3024	7398
ROCKAWAY TWP.	12414	8212	20626
ROXBURY	13070	5692	18762
VICTORY GARDENS	636	19	655
WASHINGTON	9264	1089	10353
WHARTON	3265	2818	6083
SUBTOTAL	258,194	189,425	447,619
GOVERNMENT	--	21,938	--
TOTAL	258,194	211,363	469,557

TABLE 2.A-10

SOLID WASTE GENERATION BY MUNICIPALITY
MORRIS COUNTY - 1991

WASTE TYPE / MUNICIPALITY	RESIDENTIAL (TONS/YEAR)	INDUSTRIAL/COMMERCIAL (TONS/YEAR)	TOTAL (TONS/YEAR)
BOONTON	4886	3609	8495
BOONTON TWP.	2134	2087	4221
BUTLER	5023	2087	7110
CHATHAM	4593	3233	7826
CHATHAM TWP.	5940	1259	7199
CHESTER	961	1222	2183
CHESTER TWP.	3770	1090	4860
DENVILLE	9027	6372	15399
DOVER	8803	9004	17807
EAST HANOVER	6704	9681	16385
FLORHAM PARK	5730	14079	19809
HANOVER	7980	15471	23451
HARDING	1977	921	2898
JEFFERSON	11494	940	12434
KINNELON	4870	1053	5923
LINCOLN PARK	5258	2519	7777
MADISON	8573	4737	13310
MENDHAM	3734	902	4636
MENDHAM TWP.	3245	263	3508
MINE HILL	1894	169	2063
MONTVILLE	10288	5959	16247
MORRIS PLAINS	3106	10301	13407
MORRISTOWN	9534	25490	35024
MORRIS TWP.	11534	5489	17043
MOUNTAIN LAKES	2181	940	3121
MT. ARLINGTON	3019	132	3151
MT. OLIVE	14326	2256	16582
NETCONG	2617	977	3594
PAR-TROY	29802	25396	55198
PASSAIC	4387	1767	6154
PEQUANNOCK	8090	3891	11981
RANDOLPH	13706	4173	17879
RIVERDALE	1428	1222	2650
ROCKAWAY	4494	3026	7520
ROCKAWAY TWP.	12730	8217	20947
ROXBURY	13525	5696	19221
VICTORY GARDENS	651	19	670
WASHINGTON	9708	1090	10798
WHARTON	3332	2820	6152
SUBTOTAL	265,074	189,559	454,633
GOVERNMENT	--	22,007	—
TOTAL	265,074	211,566	476,640

TABLE 2.A-11

SOLID WASTE GENERATION BY MUNICIPALITY
MORRIS COUNTY - 1992

WASTE TYPE / MUNICIPALITY	RESIDENTIAL (TONS/YEAR)	INDUSTRIAL/COMMERCIAL (TONS/YEAR)	TOTAL (TONS/YEAR)
BOONTON	4951	3612	8563
BOONTON TWP.	2190	2088	4278
BUTLER	5161	2088	7249
CHATHAM	4629	3235	7864
CHATHAM TWP.	6110	1260	7370
CHESTER	990	1223	2213
CHESTER TWP.	3903	1091	4994
DENVILLE	9235	6377	15612
DOVER	8969	9011	17980
EAST HANOVER	6936	9688	16624
FLORHAM PARK	5849	14090	19939
HANOVER	8212	15482	23694
HARDING	2018	922	2940
JEFFERSON	11868	941	12809
KINNELON	4981	1053	6034
LINCOLN PARK	5355	2521	7876
MADISON	8673	4740	13413
MENDHAM	3881	903	4784
MENDHAM TWP.	3358	263	3621
MINE HILL	1920	169	2089
MONTVILLE	10645	5963	16608
MORRIS PLAINS	3158	10308	13466
MORRISTOWN	9672	25508	35180
MORRIS TWP.	11816	5493	17309
MOUNTAIN LAKES	2193	941	3134
MT. ARLINGTON	3120	132	3252
MT. OLIVE	14888	2257	17145
NETCONG	2712	978	3690
PAR-TROY	30352	25414	55766
PASSAIC	4472	1768	6240
PEQUANNOCK	8226	3894	12120
RANDOLPH	14250	4176	18426
RIVERDALE	1446	1223	2669
ROCKAWAY	4615	3029	7644
ROCKAWAY TWP.	13048	8221	21269
ROXBURY	13989	5700	19689
VICTORY GARDENS	665	19	684
WASHINGTON	10163	1091	11254
WHARTON	3399	2822	6221
SUBTOTAL	272,018	189,694	461 ,712
GOVERNMENT	--	22,076	--
TOTAL	272,018	211,770	483,788

TABLE 2.A-12

SOLID WASTE GENERATION BY MUNICIPALITY
MORRIS COUNTY - 1980[1]
(Tons/Year)

MUNICIPALITY \ WASTE TYPE	10	13	18	23	25	27	Total
BOONTON	12202	1	--	--	--	2452	14,65
BOONTON TWP.	545	--	--	--	--		54
BUTLER	8084	--	--	--	--	--	8,08
CHATHAM	7257	--	--	--	--	--	7,25
CHATHAM TWP.	3150	--	--	--	--	--	3,15
CHESTER	2307	182	--	--	--	--	2,48
CHESTER TWP.	94	10	--	--	--	9	11
DENVILLE	14115	6	--	1	--	2178	16,30
DOVER	2799	166	--	40	--	1225	4,23
EAST HANOVER	30582	--	--	--	--	8722	39,30
FLORHAM PARK	6243	2	--	--	--	--	6,24
HANOVER	25245	342	2420	1	--	7913	35,92
HARDING	114	4				1593	1,71
JEFFERSON	--	2		--	--	--	
KINNELON	5014	303	--	243	61	--	5,62
LINCOLN PARK	4878	303	--	243	61	--	5,48
MADISON	11398	1	--	--	--	1593	12,99
MENDHAM	53	7	--	--	--	--	6
MENDHAM TWP.	61	5	--	--	--	--	6
MINE HILL	--	--	--	--	--	--	--
MONTVILLE	12292	2261	--	24	--	3007	17,58
MORRIS PLAINS	4398	35	--	--	--	2251	6,68
MORRISTOWN	13462	1124	100	--	--	1509	16,19
MORRIS TWP.	7486	68	--	--	--	210	7,76
MOUNTAIN LAKES	2935	--	--	122	--	24	3,08
MT. ARLINGTON	--	30	--	--	--	--	3
MT. OLIVE	11862	4	192	--	--	656	12,71
NETCONG	5817	--	--	--	--	--	5,81
PAR-TROY	30589	4165	--	833	202	1166	36,95
PASSAIC	59487	--	--	--	--	--	59,48
PEQUANNOCK	1540	--	--	--	--	--	1,54
RANDOLPH	9057	52	--	--	--	1246	10,35
RIVERDALE	4514	--	72	--	--	4	4,59
ROCKAWAY	16885	4	--	--	--	1000	17,88
ROCKAWAY TWP.	630	8		--	--	210	84
ROXBURY	60862	7	--	--	--	1691	62,56
VICTORY GARDENS	471	--	--	--	--	1593	2,06
WASHINGTON	3279	1	--	--	--	1	3,28
WHARTON	5465	321	40	--	--	229	6,05
VARIOUS	5084	7287	120,144	26	--	1373	133,91
TOTAL	390,256	16,701	122,968	1,533	324	41,855	573,63

[1]Source: N.J.D.E.P. Records as Reported by Collector-Haulers. Printout # DP. No. VSWWDMUN 02/12/82

2.B Existing Collection Systems

There are three types of collection systems which are being practiced in Morris County. First is the municipal collection system whereby solid waste is collected by municipal employees and hauled in municipal vehicles. This system is usually operated through the municipal Department of Public Works. Second is the municipal contract collection system whereby waste is collected and hauled by one or more private contractors who are awarded the contract through public bidding. Third is the private collection system whereby waste is collected and hauled by private contractors who deal directly with the household, business, or other waste generator. The cost of collection in municipal collection and municipal contract systems is through general tax revenues, whereas in the private collection system, individuals pay for their own waste disposal.

Table 2.B-1 summarizes the existing solid waste collection practices in Morris County. Seven municipalities utilize municipal collection for residential solid waste. The remaining 32 municipalities are divided evenly, 16 utilizing municipal contract and 16 utilizing private collection. The majority of the commercial and industrial waste in Morris County is collected and hauled by private contractors. Special disposal services provided within each municipality are listed in Table 2.B-2.

Table 2.B-3 lists contract information, including contractor, contract period and cost, for those municipalities with municipal contracts for residential waste collection. The list of contractors who provide service to those municipalities which have private collection is shown in Table 2.B-4.

The sources for the above information included the State Board of Public Utilities, municipal interviews, N.J.D.E.P. collector/hauler reports, and the Morris County Industrial Waste Survey.

TABLE 2.B-1

SOLID WASTE COLLECTION PRACTICES

Municipality	Type of Collection Service: (Residential)	Approximate % of Municipality Served	Type of Collection Service: (Industrial)	Approximate % of Municipality Served	Type of Collection Service: (Commercial)	Approximate % of Municipality Served
Boonton Town	C	100%	C P	50% 50%	C P	75% 25%
Boonton Twp.	P	100%	P	100%	P	100%
Butler Boro	C	100%	P	100%	P	100%
Chatham Boro	P	100%	P	100%	P	100%
Chatham Twp.	P	100%	P	100%	P	100%
Chester Boro	P	100%	P	100%	P	100%
Chester Twp.	P	100%	P	100%	P	100%
Denville Twp.	P	100%	P	100%	P	100%
Dover Town	C	100%	P	100%	C P	75% 25%
East Hanover Twp.	P	100%	P	100%	P	100%
Florham Park Boro	P	100%	P	100%	P	100%
Hanover Twp.	M	100%	M/P	50%/50%	M/P	50%/50%
Harding Twp.	P	100%	P	100%	P	100%
Jefferson Twp.	C	100%	C	100%	C	100%

Key to Collection Types:

M: Municipal Collection; municipal trucks and crews

C: Municipal Contract; private trucks and crews, paid by municipality pursuant to contract

P: Private Collection; private trucks and crews, paid by individuals for their own waste disposal

SOLID WASTE COLLECTION PRACTICES

Municipality	Type of Collection Service: (Residential)	Approximate % of Municipality Served	Type of Collection Service: (Industrial)	Approximate % of Municipality Served	Type of Collection Service: (Commercial)	Approximate % of Municipality Served
Kinnelon Boro	C	100%	C	100%	C	100%
Lincoln Park Boro	C	100%	P	100%	C	100%
Madison Boro	C	100%	P	100%	C P	50% 50%
Mendham Boro	P	100%	P	100%	P	100%
Mendham Twp.	P	100%	P	100%	P	100%
Mine Hill Twp.	C	100%	C	100%	C	100%
Montville Twp.	P	100%	P	100%	P	100%
Morris Twp.	M	100%	P	100%	P	100%
Morris Plains	C	100%	P	100%	C	100%
Morristown	M	100%	P	100%	P	100%
Mt. Arlington Boro	M	100%	P	100%	P	100%
Mt. Olive Twp.	M	100%	M P	50% 50%	M P	50% 50%
Mountain Lakes	P	100%	P	100%	P	100%
Netcong Boro	C	100%	P	100%	P	100%

Key to Collection Types:

M: Municipal Collection; municipal trucks and crews

C: Municipal Contract; private trucks and crews, paid by municipality pursuant to contract

P: Private Collection; private trucks and crews, paid by individuals for their own waste disposal

I: Individual Removal; individuals must haul waste to disposal facility

TABLE 2.B-1 (cont)

SOLID WASTE COLLECTION PRACTICES

Municipality	Type of Collection Service: (Residential)	Approximate % of Municipality Served	Type of Collection Service: (Industrial)	Approximate % of Municipality Served	Type of Collection Service: (Commercial)	Approximate % of Municipality Served
Parsippany-Troy Hills Twp.	C	100%	P	100%	P	100%
Passaic Twp.	C	100%	P	100%	P	100%
Pequannock Twp.	P	100%	P	100%	P	100%
Randolph Twp.	C	100%	C	100%	C	100%
Riverdale Boro	C	100%	P	100%	P	100%
Rockaway Boro	C	100%	P	100%	P	100%
Rockaway Twp.	P/ / M	100%	P	100%	P	100%
Roxbury Twp.		100%	M P	50% 50%	M P	50% 50%
Victory Gardens	C	100%	C	100%	C	100%
Washington Twp.	P	100%	P	100%	P	100%
Wharton Boro	M	100%	P	100%	M	100%

Key to Collection Types:

M: Municipal Collection; municipal trucks and crews

C: Municipal Contract; private trucks and crews, paid by municipality pursuant to contract

P: Private Collection; private trucks and crews, paid by individuals for their own waste disposal

TABLE 2.B-2
SOLID WASTE DISPOSAL SERVICES IN MORRIS COUNTY

Municipality	Collection System	Frequency of Residential Service (# Weekly)	Special Disposal Service by Municipality or Municipal Contract	Special Disposal Service By Private Collector/ Hauler
Boonton	Contract	2	Two bulky item limit per collection, curbside recycling	NA
Boonton Twp.	Private	2	NA	Bulky waste by arrangement
Butler	Contract	2	Leaf collection, cleanup once a month Apr.-Oct.	NA
Chatham	Private	2	NA	Bulky waste by arrangement
Chatham Twp.	Private	2	Compost facility	Bulky waste and cleanup by arrangement
Chester	Private	2	Cleanup once yearly	NA
Chester Twp.	Private	2	Non-permanent recycling depot, 1st Sat. each month	NA
Denville	Private	BA	Leaf collection and yearly cleanup by municipality, recycling depot	NA
Dover	Contract	2	Bulky waste once monthly, compost facility, curbside recycling	NA
East Hanover	Private	2	Bulky waste by municipality, compost facility, recycling depot	NA

TABLE 2.B-2 (cont)
SOLID WASTE DISPOSAL SERVICES IN MORRIS COUNTY

Municipality	Collection System	Frequency of Residential Service (#Weekly)	Special Disposal Service by Municipality or Municipal Contract	Special Disposal Service By Private Collector/ Hauler
Florham Park	Private	2	Compost facility, recycling depot	NA
Hanover	Municipal	2	Bulky waste once per month and fall leaf collection by municipality, recycling depot	NA
Harding	Private	2	Spring and fall cleanup weeks	NA
Jefferson	Contract	2	Once yearly provide bulky waste disposal at a centrally located container	NA
Kinnelon	Contract	2	Two containers provided for cleanup week at central location, compost facility, recycling depot	NA
Lincoln Park	Contract	2	Cleanup week, municipal leaf collection, curbside recycling	NA
Madison	Contract	2	Leaf collection by municipality	
Mendham	Private	2	Spring cleanup, fall leaf collection, bulky/vegetative waste landfill	NA
Mendham Twp.	Private	1 or 2	Bulky waste twice yearly, brush collection twice yearly by municipality	NA
Mine Hill	Contract	1	Bulky waste, leaf and brush collection at municipal building	NA

TABLE 2.B-2 (cont)

SOLID WASTE DISPOSAL SERVICES IN MORRIS COUNTY

Municipality	Collection System	Frequency of Residential Service (#Weekly)	Special Disposal Service by Municipality or Municipal Contract	Special Disposal Service By Private Collector/ Hauler
Montville	Private	2	Container provided for bulky and vegetative waste, recycling depot	NA
Morris Plains	Contract	2	Bulky waste, fall leaf collection and monthly brush collection (spring and summer) by municipality	NA
Morristown	Municipal	2	Bulky waste and fall leaf collection by municipality	NA
Morris Twp.	Municipal	2	Bulky waste and November leaf collection by municipality	NA
Mount Arlington	Municipal	2	Bulky waste in May, July, Sept., and leaf collection in the fall by municipality	NA
Mount Olive	Municipal	2	Bulky waste in April and October, and leaf/vegetative collection by municipality, curbside recycling	NA
Mountain Lakes	Private	BA	Cleanup once yearly, Fall and Spring leaf/vegetative collection	NA
Netcong	Contract	2	Spring and Fall cleanup	NA
Par-Troy	Contract	2	Bulky waste on second collection of each week, municipal leaf collection	NA
Passaic	Contract	2	Bulky waste on second collection of each week, recycling depot	NA
Pequannock	Private	2	Bulky waste through municipal contract, compost facility	NA

TABLE 2.B-2 (cont)
SOLID WASTE DISPOSAL SERVICES IN MORRIS COUNTY

Municipality	Collection System	Frequency of Residential Service (#Weekly)	Special Disposal Service by Municipality or Municipal Contract	Special Disposal Service By Private Collector/ Hauler
Randolph	Contract	2	Cleanup twice yearly, compost	NA
Riverdale	Contract	2	Bulky waste	NA
Rockaway	Contract	1	Bulky waste	NA
Rockaway Twp.	Private	BA	Monthly cleanup, curbside recycling	NA
Roxbury	Municipal	2	Bulky waste collected every Friday on call and leaf/ vegetative collection by municipality	NA
Victory Gardens	Contract	1	Cleanup twice yearly, municipal leaf collection, curbside recycling	NA
Washington	Private	BA	Yearly cleanup, recycling depot	NA
Wharton	Municipal	2	Spring and Fall cleanup and Fall leaf collection by municipality, curbside recycling	NA

BA - By arrangement
NA - Not applicable

TABLE 2.B-3

MUNICIPAL SOLID WASTE COLLECTION/DISPOSAL CONTRACTS

For those municipalities with Municipal Contracts for residential waste removal (category C on Table 2.B-1)

Municipality (or part thereof)	Contractor	Contract Period (day/month/year)	Cost Per Year	Does contract state that waste disposal must comply with District Plan waste flow?
Boonton, Town	Tri-County Disposal	1/1-83 - 12/31/83	$201,500	
Butler	Haul-Away Inc.	1/1/83 - 12/31/85	$212,333	
Dover	J. Filiberto	5/1/82 - 4/30/83	$341,000	
		5/1/83 - 4/30/84	$382,000	
		5/1/84 - 4/30/85	$432,000	
		5/1/85 - 4/30/86	$488,000	
Jefferson	F. Fenimore	1/1/83 - 12/30/83	$408,560	
Kinnelon	Marpal	11/1/82 - 12/31/83	$425,197	
Lincoln Park	B F I	6/1/82 - 5/31/84	$264,080	
Madison	West Essex Disposal	1/1/80 - 12/31/83	$300,000	
Mine Hill	F. Fenimore	2/1/83 - 12/31/83	$ 94,380	
Morris Plains	J. Filiberto	1/1/82 - 12/31/85	$527,292	
Netcong	F. Fenimore	2/15/82 - 2/15/83	$ 61,368	
Par-Troy	BFI/Miele & Sons	1/1/81 - 12/31/85	$1,260,000	
Passaic	Statewide Environmental Service	1/1/83 - 12/31/86	$211,687	
Randolph	Hamm's	6/1/82 - 12/31/82	$201,500	
		1/1/83 - 12/31/83	$345,000	
		1/1/84 - 12/31/84	$379,500	

TABLE 2.B-3 (cont)

MUNICIPAL SOLID WASTE COLLECTION/DISPOSAL CONTRACTS

For those municipalities with Municipal Contracts for residential waste removal (category C on Table 2.B-1)

Municipality (or part thereof)	Contractor	Contract Period (day/month/year)	Cost Per Year	Does contract state that waste disposal must comply with District Plan waste flow?
Riverdale	Frank Stamato	8/7/80 - 8/7/83	$154,000	
Rockaway, Boro	F. Fenimore	1/1/83 - 12/31/83	$132,550	
Victory Gardens	T. Luciano	3/1/83 - 3/1/84	$ 24,000	

TABLE 2.B-4

MUNICIPAL SOLID WASTE COLLECTORS

For those municipalities (or portions thereof) which have private collection (category P on Table 2.B-1)

Municipality (or part thereof)	Contractor(s)
Boonton Twp.	Mt. Lakes Disposal James Valvano Disposal Union Hill Disposal Rajioppi Tri-County Disposal
Butler Borough	J. Filiberto BFI Laurel Disposal Jersey Carting
Chatham Borough	Model Disposal Michael Schettino Town and Country Disposal
Chatham Township	Model Disposal
Chester Borough	J. Filiberto
Chester Township	J. Filiberto
Denville Township	Union Hill Disposal M & H Carting
Dover Town	Morris County Disposal
East Hanover Township	Morris County Sanitation Town & Country Disposal
Florham Park Borough	William Pryer Frank Bace Pucillo Sanitation C. Egan & Son J. Filiberto Morris County Sanitation Town & Country Disposal

TABLE 2.B-4 (cont)

MUNICIPAL SOLID WASTE COLLECTORS

For those municipalities (or portions thereof) which have private collection (category P on Table 2.B-1)

Municipality (or part thereof)	Contractor(s)
Harding Township	Luciano Rubienetti
Lincoln Park Borough	BFI
Madison Borough	Frank M. Bace Pucillo Sanitation, Inc. Frank V. Bace J. Filiberto A-1 Reliable Disposal
Mendham Borough	J. Filiberto Rizzo
Mendham Township	J. Filiberto
Montville Township	Louis Pinto & Sons Tri-County Disposal Valvano
Morris Plains Borough	Policastro Services Morris County Sanitation
Morristown	J. Filiberto Phoenix
Morris Township	J. Filiberto Policastro Morris County Disposal Wilfong Industrial Great Northern
Mt. Arlington Boro	Policastro

TABLE 2.B-4 (cont)

MUNICIPAL SOLID WASTE COLLECTORS

For those municipalities (or portions thereof) which have private collection (category P on Table 2.B-1)

Municipality (or part thereof)	Contractor(s)
Mt. Olive Township	BFI Hamm's Sanitation Luciano
Mountain Lakes Borough	Valvano Mt. Lakes Disposal Morris County Sanitation
Netcong Borough	Fenimore
Parsippany-Troy Hills Twp.	Louis Pinto & Sons Metropolitan Disposal SCA Services Policastro Advanced Environmental Technology Corp. Morris County Sanitation S&H Trucking Union Hill Disposal Modern Transportation Co. Filiberto
Passaic Township	Murray Hill Disposal Co. R&R Environmental Services Importico's Inc.
Pequannock Twp.	Frank's Sanitation
Randolph Twp.	J. Filiberto Morristown Disposal
Riverdale Borough	Frank's Sanitation
Rockaway Borough	M&H Carting Hamm's Sanitation
Rockaway Township	Palumbo Carting Hamm's Sanitation Pissi

TABLE 2.B-4 (cont)

MUNICIPAL SOLID WASTE COLLECTORS

For those municipalities (or portions thereof) which have private collection (category P on Table 2.B-1)

Municipality (or part thereof)	Contractor(s)
Roxbury Twp.	Frank Fenimore Policastro Hamm's Sanitation
Washington Township	J. Filiberto Hamm's Sanitation High Point Sanitation Kasper Pinky's Inter-County Sanico
Wharton Borough	J. Filiberto Fenimore Hamm's Sanitation

2.C Existing Solid Waste Facilities

This chapter provides an inventory of all solid waste facilities registered in Morris County including landfills, compost facilities, and transfer stations. Existing recycling activities operating in Morris County are also presented in this chapter. In addition, existing waste flow information and a collection/haul analysis are provided.

Landfills

Table 2.C-1 presents a listing of landfills in Morris County. Locations of these facilities are shown in Figure 2-1. Three of these landfills, 1412A, 1428A, and 1436B, are sole source facilities which are owned and operated by private industries. One of these, Whippany Paper Board (1412A), is presently inoperative.

Three additional facilities, 1418A, 1426A, and 1435A, are operated by municipalities for their own use. Facilities in Mendham Boro and Rockaway Township are approved for bulky and vegetative waste only. Rockaway Township, however, has presently closed their landfill and is seeking approval of a closure plan. The remaining facility located in Mount Arlington, accepts municipal waste in addition to bulky and vegetative waste which is generated within the Borough. It should be noted that there are no other landfills within Morris County which presently accept municipal waste.

The last remaining regional landfill in Morris County (Combe Fill South, located in Chester/Washington Twps.) closed on November 10, 1981. All Morris County municipal and industrial waste, except for Mount Arlington Borough, was redirected to other district landfills by the State Department of Environmental Protection. Twenty municipalities are presently directed to Hamm's Landfill in Sussex County, 17 to Edgeboro Landfill in Middlesex County, and 1 to High Point Landfill in Warren County (See Figure 2-2). A full description of the existing waste flows is presented in Table 2.C-2. Table 2.C-3 presents a collection/haul analysis based on the existing waste flows.

Landfills (cont)

Morris County was directed by the Department to explore new landfill disposal options both within and outside of the County. An extensive study was performed cooperatively by County staff and qualified consultants to locate a landfill within Morris County. After nearly two years of study, the Board of Chosen Freeholders determined that a suitable landfill site did not exist in Morris County.

Compost Facilities

Table 2.C-4 lists the existing registered compost facilities within Morris County. Their locations are also shown in Figure 2-1. In addition to those registered facilities, one additional compost facility is listed in Table 2.C-4 which is presently applying for an operating permit. Other facilities are also listed which have not yet applied for an operating permit.

Three of the registered facilities are operated by State parks, five by municipalities, and one by a private business. All of the facilities which are presently awaiting operating permits, or which have not as yet applied for a permit, are municipal sponsored facilities. These compost facilities are being included in the Solid Waste Management Plan to help expedite the approval of their operations when applications are made to the Department.

All of these compost facilities are limited to vegetative materials, including leaves, brush, grass clippings, and wood chips, which are deposited by residents, municipal operations, or local commercial operations.

Transfer Stations

There is only one registered transfer station in Morris County as listed in Table 2.C-5 and located in Figure 2-1. This facility is a septic transfer station which handles septic tank clean-out wastes and liquid sewage sludge. This is not presently under the domain of district solid waste management planning.

Complete One Table for each Facility Type:
- Landfills
- Resource Recovery Facilities
- Composting Facilities
- Incinerators
- Others: Specify

EXISTING SOLID WASTE FACILITIES
PROPOSED WASTE FLOWS

Facility Type LANDFILL

Facility	DEP #	Location (Municipality/County)	Status: See Below	Waste Flow: a) by waste type and municipality b) if sole source: indicate same	Is waste flow consistent with Approved Plan yes/no	Planned/ Approximate Closure Date	Capacity: Landfills: (Remaining Capacity in tons) Others: (Tons per day)
Whippany Paper Board	1412A	Hanover Twp/Morris Co.	4	Waste type 13,23,27 Generated on site	Yes	NA	None
Mendham Boro	1418A	Mendham Boro/Morris Co	1	Waste type 13,23 Sole source	Yes	NA	8 years
Mt. Arlington Boro	1426A	Mt. Arlington Boro/ Morris County	1	Waste types 10,13,23 Sole source	Yes	NA	10 years
U.S. Mineral Products	1428A	Netcong Boro/Morris Co	1	Waste type 27 Generated on site	Yes	NA	5 years
Rockaway Township	1435A	Rockaway Twp/Morris Co	4 *	Waste type 13,23 Sole source	Yes	1983	None
Hercules Inc.	1436B	Roxbury Twp/Morris Co.	1	Waste type 13,23,27 Generated on site	Yes	NA	10 years

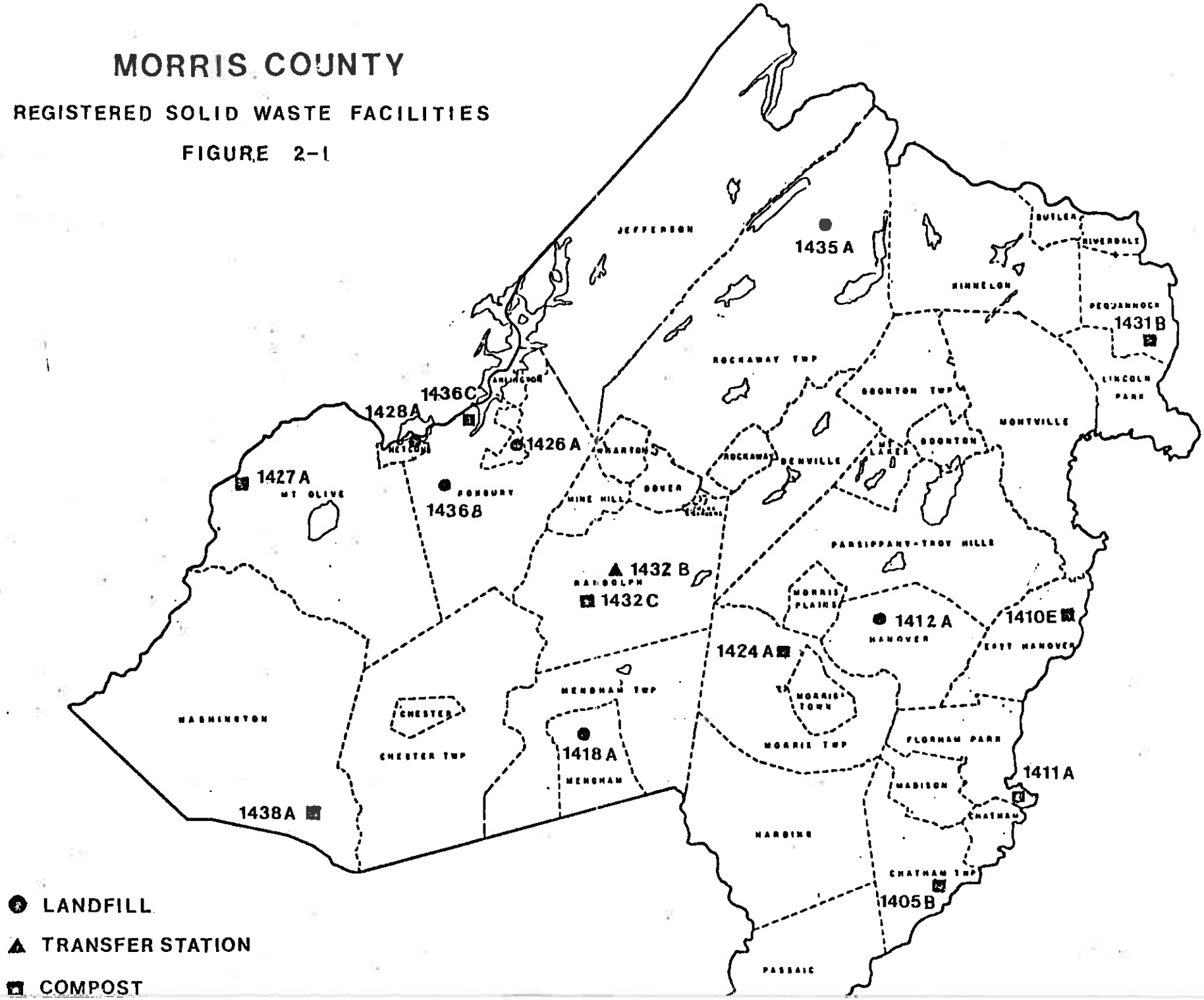
Facility Status Categories
1) Operating - With Approved Engineering Plans
2) Operating - No Approved Engineering Plans
3) Closed - With Approved Closure Plan
4) Closed - No Approved Closure Plan
5) Terminated According to Approved Closure Plan

* presently seeking approval of closure plan

MORRIS COUNTY

REGISTERED SOLID WASTE FACILITIES

FIGURE 2-1



- LANDFILL
- TRANSFER STATION
- COMPOST

MORRIS COUNTY

EXISTING DISPOSAL LOCATIONS

FIGURE 2–2

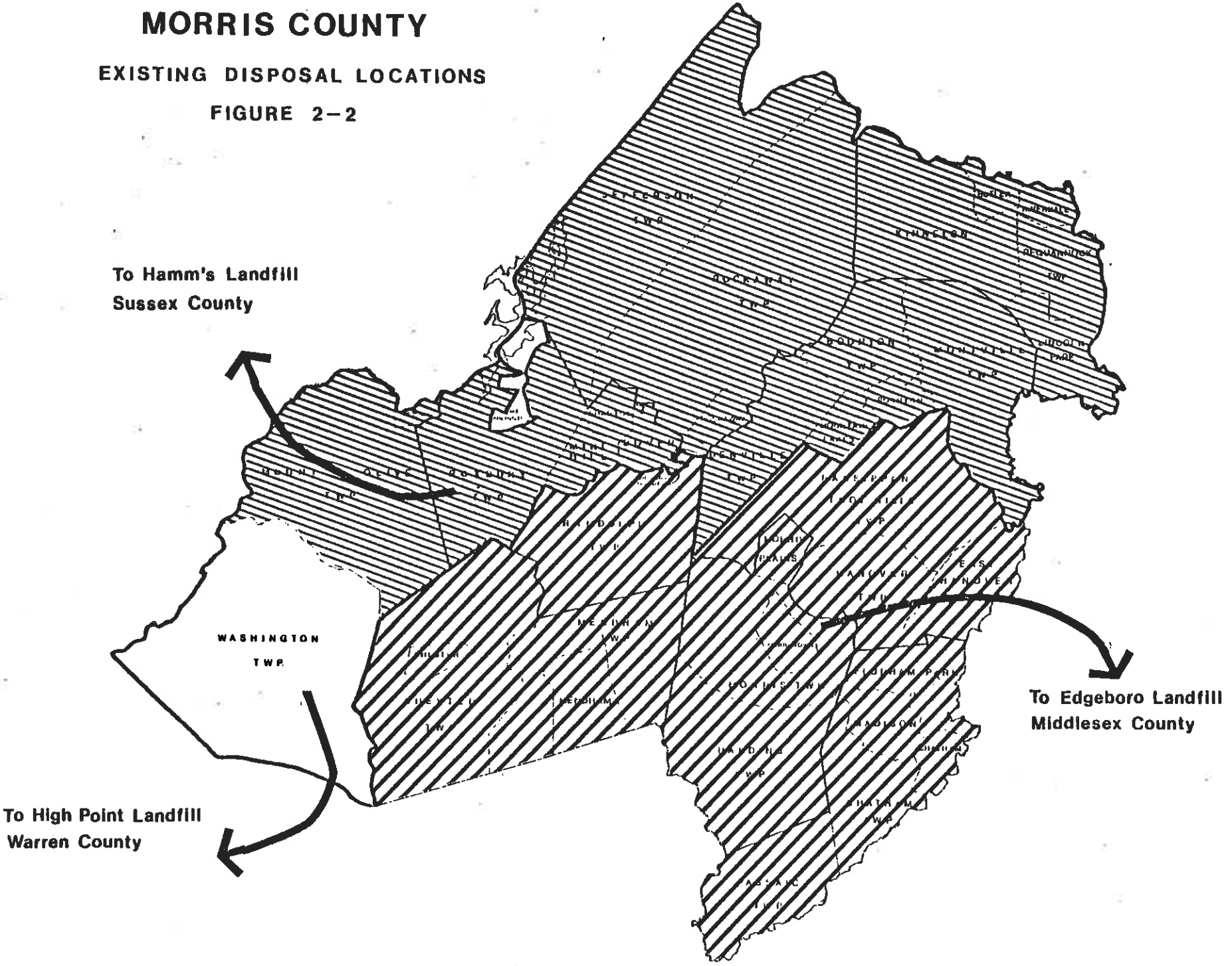


TABLE 2.C-2

EXISTING INTERDISTRICT WASTE FLOWS AND AGREEMENTS
Waste Exported to Other Districts

Sending District/ Municipality	Receiving Facility	Facility Location	DEP #	Waste Types	Approximate Annual Waste Flow (1982) (tons)	Covered by Interdistrict Agreement*	Agreement Period Expiration Date (day/mo./yr.)
Morris County	Hamm's Sanitation	Lafayette Twp. Sussex Co.	1913A	10,13,23,27	7189	No	
Boonton Town	"	"	"	10,13,23.27	3362	"	
Boonton Twp.	"	"	"	10,13,23,27	5552	"	
Butler Boro	"	"	"	10,13,23,27	12415	"	
Denville Twp.	"	"	"	10,13,23,27	14670	"	
Dover Town	"	"	"	10,13,23,27	9137	"	
Jefferson Twp.	"	"	"	10,13,23,27	4739	"	
Kinnelon Boro	"	"	"	10,13,23,27	6423	"	
Lincoln Park Boro	"	"	"	10,12,23,27	1768	"	
Nine Hill Twp.	"	"	"	10,13,23,27	12229	"	
Montville Twp.	"	"	"	10,13,23,27	11590	"	
Mt. Olive Twp.	"	"	"	10,13,23,27	2780	"	
Mountain Lakes Boro	"	"	"	10,13,23,27	2636	"	
Netcong Boro	"	"	"	10,13,23,27	9987	"	
Pequannock Twp.	"	"	"	10,13,23,27	2243	"	
Riverdale Boro	"	"	"	10,13,23,27	5937	"	
Rockaway Boro	"	"	"	10,27	16985	"	
Rockaway Twp.	"	"	"	10,13,23,27	14354	"	
Roxbury Twp.	"	"	"	10,13,23,27	534	"	
Victory Gardens Boro	"	"	"	10,13,23,27	5039	"	
Wharton Boro	"	"	"	10,13,23,27	6967	"	
Washington Twp.	High Point Sanitation	Warren Co.	2105A				

*A narrative describing any relevant aspects of these agreements should be provided.

EXISTING INTERDISTRICT WASTE FLOWS AND AGREEMENTS
Waste Exported to Other Districts

Sending District/ Municipality	Receiving Facility	Facility Location	DEP #	Waste Types	Approximate Annual Waste Flow (1982) (tons)	Covered by Interdistrict Agreement*	Agreement Period Expiration Date (day/mo./yr.)
Morris County	Edgeboro	East Brunswick					
Chatham Boro	Disposal	Middlesex Co.	1204A	10,13,23,27	6802	No	
Chatham Twp.	"	"	"	10,13,23,27	5522	"	
Chester Boro	"	"	"	10,13,23,27	1730	"	
Chester Twp.	"	"	"	10,13,23,27	3565	"	
East Hanover Twp.	"	"	"	10,13,27	12744	"	
Florham Park Boro	"	"	"	10,13,23,27	16234	"	
Hanover Twp.	"	"	"	10,13,23,27	18724	"	
Harding Twp.	"	"	"	10,13,23,27	2363	"	
Madison Boro	"	"	"	10,13,23,27	11395	"	
Mendham Boro	"	"	"	10,27	3285	"	
Mendham Twp.	"	"	"	10,13,23,27	2519	"	
Morris Twp.	"	"	"	10,13,23,27	13727	"	
Morris Plains Boro	"	"	"	10,13,23,27	11092	"	
Morristown	"	"	"	10,13,27	29131	"	
Par-Troy Twp.	"	"	"	10,13,23,27	45542	"	
Passaic Twp.	"	"	"	10,13,23,27	5055	"	
Randolph Twp.	"	"	"	10,13,23,27	12703	"	

*A narrative describing any relevant aspects of these agreements should be provided.

TABLE 2.C-3

COLLECTION/HAUL ANALYSIS

(Based on Existing Waste Flows)

Municipality	Disposal Facility	Distance (one way) (miles)	Primary Route(s)	Utilization of Transfer Station (No) or (Name of Facility)
Boonton Town	Hamm's Sanitation Facility #1913A	24 miles	I-287, I-80, NJ 15	No
Boonton Twp.	"	25	I-287, I-80, NJ 15	"
Butler Boro	"	27	NJ 23, NJ 94	"
Denville Twp.	"	19	I-80, NJ 15	"
Dover Town	"	16	NJ 15	"
Jefferson Twp.	"	10	NJ 15	"
Kinnelon Boro	"	26	NJ 23, NJ 94	"
Lincoln Park Boro	"	32	US 202, I-287, I-80, NJ 15	"
Mine Hill Twp.	"	21	NJ 15	"
Montville Twp.	"	27	US 202, I-287-I-80, NJ 15	"
Mount Olive Twp.	"	24	US 46, US 206, NJ 94	"
Mountain Lakes Boro	"	20	US 46, I-80, NJ 15	"
Netcong Boro	"	19	US 206, NJ 94	"
Pequannock Twp.	"	31	NJ 23, NJ 94	"
Riverdale Boro	"	28	NJ 23, NJ 94	"
Rockaway Boro	"	18	I-80, NJ 15	"
Rockaway Twp.	"	17	I-80, NJ 15	"
Roxbury Twp.	"	25	US 46, US 206, NJ 94	"
Victory Gardens Boro	"	20	NJ 15	"
Wharton Boro	"	21	NJ 15	"
Washington Twp.	High Point Sanitation Facility #2105A	28	NJ 24, NJ 57	"
Mount Arlington Boro	Mt. Arlington SLF Facility # 1426A	1	Local roads	"

COLLECTION/HAUL ANALYSIS

(Based on Existing Waste Flows)

Municipality	Disposal Facility	Distance (one way) (miles)	Primary Route(s)	Utilization of Transfer Station (No) or (Name of Facility)
Chatham Boro	Edgeboro Disposal Facility #1204A	35 miles	NJ 24, I-78, NJ TPK, NJ 18	No
Chatham Twp.	"	37	NJ 24, I-78, NJ TPK, NJ 18	"
Chester Boro	"	31	US 206, I-287, NJ 18	"
Chester Twp.	"	31	US 206, I-287, NJ 18	"
East Hanover Twp.	"	42	NJ 10, I-287, NJ 18	"
Florham Park Boro	"	39	NJ 24, I-78, NJ TPK, NJ 18	"
Hanover Twp.	"	38	NJ 10, I-287, NJ 18	"
Harding Twp.	"	32	US 202, I-287, NJ 18	"
Madison Boro	"	37	NJ 24, I-78, NJ TPK, NJ 18	"
Mendham Boro	"	34	MC 646, US 202, I-287, NJ 18	"
Mendham Twp.	"	34	MC 646, US 202, I-287, NJ 18	"
Morris Twp.	"	32	I-287, NJ 18	"
Morris Plains Boro	"	41	NJ 10, I-287, NJ 18	"
Morristown Town	"	32	I-287, NJ 18	"
Par-Troy Twp.	"	40	I-287, NJ 18	"
Passaic Twp.	"	29	I-78, I-287, NJ 18	"
Randolph Twp.	"	46	NJ 10, I-287, NJ 18	"

NOTE:

Complete One Table for each Facility Type:
- Landfills
- Resource Recovery Facilities
- Composting Facilities
- Incinerators
- Others: Specify

TABLE 2.C-4
EXISTING SOLID WASTE FACILITIES
PROPOSED WASTE FLOWS

Facility Type COMPOST FACILITY

Facility	DEP #	Location (Municipality/County)	Status: See Below	Waste Flow: a) by waste type and municipality b) if sole source: indicate same	Is waste flow consistent with Approved Plan yes/no	Planned/ Approximate Closure Date	Capacity: Landfills: (Remaining Capacity in tons) Others: (Tons per day)
Green Valley Tree Service	1411A	Florham Pk Boro/Morris County	1	Type 23 Sole Source	Yes	NA	NA
Town of Morristown	1424A	Town of Morristorn/ Morris County	1	Type 23 Sole source	Yes	NA	NA
Stephens State Park	1427A	Mt. Olive Twp/Morris Morris County	1	Type 23 Sole Source	Yes	NA	NA
Hopatcong State Park	1436C	Roxbury Twp/Morris Co.	1	Type 23 Sole Source	Yes	NA	NA
Hacklebarney State Park	1438A	Washington Twp/Morris County	1	Type 23 Sole Source	Yes	NA	NA
Lurker Park	1410E	East Hanover Twp/ Morris County	1	Type 23 Sole Source	Yes	NA	NA

Facility Status Categories
1) Operating - With Approved Engineering Plans
2) Operating - No Approved Engineering Plans
3) Closed - With Approved Closure Plan

Complete one table for each Facility Type:
- Landfills
- Resource Recovery Facilities
- Composting Facilities
- Incinerators
- Others: Specify

EXISTING SOLID WASTE FACILITIES
PROPOSED WASTE FLOWS

Facility Type COMPOST FACILITY

Facility	DEP #	Location (Municipality/County)	Status: See Below	Waste Flow: a) by waste type and municipality b) if sole source: indicate same	Is waste flow consistent with Approved Plan yes/no	Planned/ Approximate Closure Date	Capacity: Landfills: (Remaining Capacity in tons) Others: (Tons per day)
Chatham Township	1405B	Chatham Twp./Morris County	1	Type 23 Sole Source	Yes	NA	NA
Pequannock Township	1431B	Pequannock Twp/Morris County	1	Type 23 Sole Source	Yes	NA	NA
Randolph Township	1432C	Randolph Twp./Morric County		Type 23 Sole Source	Yes	NA	NA
Kinnelon Township	*	Kinnelon Twp./ / Morris County	2	Type 23 Sole Source	Yes	NA	NA
Town of Dover	**	Dover/Morris County	2	Type 23 Sole Source	Yes	NA	NA
Florham Park Boro	**	Florham Park Boro/ Morris County	2	Type 23 Sole Source	Yes	NA	NA
Morris Township	**	Morris Twp./ Morris County	2	Type 23 Sole Source	Yes	NA	NA
Passaic Twp.	**	Passaic Twp./ Morris County	2	Type 23 Sole Source	Yes	NA	NA

Facility Status Categories
1) Operating - With Approved Engineering Plans
2) Operating - No Approved Engineering Plans
3) Closed - With Approved Closure Plan
4) Closed - No Approved Closure Plan
5) Terminated According to Approved Closure Plan

*have applied for operating permit
**have not applied for operating permit

TABLE 2.C-5

EXISTING SOLID WASTE FACILITIES
PROPOSED WASTE FLOWS

Facility Type: Transfer Stations

Facility	DEP #	Location (Municipality)	Municipalities Served Waste Types Collected	Final Disposal Facility (by Municipality)	Is waste flow consistent with Approved Plan? yes/no (See not to Table 2A)
R&R Sanitation	1432B	Randolph Twp/Morris Co	Waste Type 73,74	NA	NA

RECYCLING

Institutional Framework

New Jersey

On January 1, 1982, the New Jersey Recycling Act (P.L. 1981, c.278) was promulgated. The Act levied a 12¢ surcharge on every cubic yard of solid waste disposed of in New Jersey landfills. At the end of every monthly tax period, owners or operators of sanitary landfills pay in accordance with the number of tons of solid waste disposed of at their facility, into the New Jersey Recycling Fund.

The New Jersey Recycling Fund is administered jointly by the departments of Energy and Environmental Protection. Ten percent of the fund will be allocated for the administrative duties of the New Jersey State Office of Recycling. The remainder will be returned to municipalities through various grant programs.

The largest portion of the Recycling Fund, 45%, will be returned to municipalities in the form of Recycling Grants. These non-competitive grants present a sort of Recycling Tax rebate, and are available to all New Jersey municipalities which can justify annual tonnages of material recycled within municipal borders. At the end of 1982, all municipal recycling activities will be eligible. At the end of 1983 however, and in subsequent years until 1986 when the Recycling Tax is revoked, municipalities must show an increase in the number of tons recycled in the previous year in order to receive a refund, and the town must be recycling more than one material. For example, if a municipality recycles 50 tons of newsprint in 1982, it will receive credit for all 50 tons. In 1983, if the municipality recycles 65 tons of newsprint and 1 ton of aluminum, it will only receive credit for 15 tons of newsprint and 1 ton of aluminum. This feature of the Recycling Grant Program was built in to provide an incentive for municipalities to reinvest their rebated money into recycling efforts.

The size of the Recycling Grants, or tonnage rebates will depend each year on two factors: 1.) the total dollar amount in the Recycling Fund at the end of each year, and, 2.) the total number of tons of eligible material recycled by those municipalities which apply. The dollar-per-ton grant appropriations shall never exceed $25.00.

Twenty-five percent of the annual Recycling Fund will be returned to municipalities in the form of Implementation Grants. Ten percent of this portion, Program Planning Grants are available to all New Jersey counties and municipalities on a competitive basis, for planning, implementing and maintaining recycling programs. Educational Grants constitute the remaining 15% of the Implementation portion of the Fund, and are available to counties and municipalities as well as volunteer recycling groups, for educating the public on recycling and litter abatement.

The remaining 20% of the annual balance of the Fund shall be used to provide low-interest loans and loan guarantees to recycling businesses and industries located in New Jersey. The loan program is designed to encourage the creation and expansion of markets for recyclables throughout the state.

Morris County

As of May 3, 1982, Morris County has employed a full-time Recycling Coordinator. It is the sole responsibility of the Coordinator to increase materials recycling throughout Morris County.

Morris County, through the Recycling Coordinator, offers assistance to municipalities and volunteer groups in a variety of ways. The Coordinator acts as a liaison for the State Office of Recycling, disseminating information to all recycling interests. Open lines of communication are maintained to assist in the design and implementation of recycling programs. A quarterly newsletter, Morris County Resource Recovery Report, with a current circulation of 2,600 is a valuable medium for highlighting successful programs and offering important information. Finally, workshops are held throughout the year to assist in the completion of grant applications, to introduce new programs, and to share ideas.

Municipalities

The institutional framework of recycling activities on the municipal level varies in Morris County municipalities. While some communities have no recycling activities at all, others have full-scale mandatory curbside recycling collection services. The existing solid waste disposal situations, municipal agressiveness, and the degree of public concern, are all factors which will determine the extent of recycling on the municipal level.

Recycling Activities

Eight curbside recycling collections, and 34 depot centers are in operation throughout Morris County's 39 municipalities. Materials collected through these programs include aluminum, glass, leaves, newspaper, metal, oil, other paper and tires.

A complete description of each of these programs is provided in table 2.C-6.

Morris County's industries and commercial establishments are also becoming involved in internal recycling programs. Additional savings are realized when revenues from the sale of recyclable materials help to reduce overall operation costs. Industrial and commercial recycling programs range from the large industry with an office paper recovery program, to the neighborhood butcher who sells meat scraps to a live stock producer.

Documented Recovered Quantities

Documentation of the quantity of materials recovered during 1982 was further encompassing than ever before due to the required guidelines for municipal tonnage rebates. For the first time, many municipalities approached all local recyclers for documented weight forms necessary to make application to the State.

The County requested copies of all of the grant applications in order to conduct a county-wide analysis. Twenty-eight municipalities met the February 15, 1983 deadline for the Recycling Grants program, documenting a total of 27,724.82 tons of material recycled. Table 2.C-7 provides a breakdown by municipality and material types recovered. Note that the "Other" category designated in the State grant applications included the following:

Table 2.C-6

EXISTING RECYCLING/SOURCE SEPARATION ACTIVITIES

Municipality	Program Administered by	COLLECTION MODE (b) Program Collector (a)	Curbside Pickup, Depot, or Both	Schedule/ Location	Materials	Tons Per Year	Current Market(s) (a)	Markets Covered by Contract (Yes/No) (a)	Mandatory Ordinance (Yes/No) (a)	Applying for Recycling Grants? (Yes/No) (c)
Boonton Town	Town	Town	Curbside Pickup	1st Tues. of month	N/G	212.6	Garden State Paper (GSP) REI		Yes	T
Boonton Township	Rockaway Valley Methodist Church	Same	Depot	Varied	N		G.S.P.		No	No
Chatham Borough	Recycling Committee of Chathams	Same	Depot	2nd Sat. Chatham Bor. High School	N/G/A	513.42	GSP Polycastro Reynolds		No	ET
Chatham Township	Recycling Committee of Chathams	Same	Depot	4th Sat. Corpus Christi Church	N/G/A				No	ET
Chester Borough	Boy Scouts	Same	CP	Varied	N	106				T
Chester Township	Environmental Commission	Sort	Depot	1st Sat. 9 - noon	P/G/A	27.52			No	ET
Denville Township	Boy Scouts	Same	Depot	Union Hill Ch. 7 days	N					
	Township	Same	Depot	Public Wks/7 da.	N/G/O	274.82			No	T
Dover Town	Town	Town	CP	Every Wednesday	N	154.82	GSP		Yes	EPT
E. Hanover Township	American Legion	Same	Depot	7 days - Public Works Building	G/A				No	No
Florham Park Borough	Jaycees and Kiwanis	Same	Depot	2nd & 4th Sats. Environmental Center	N/G	343.73			No	T

G = Glass
A = Aluminum
L = Leaves/yard wastes
N = Newspaper
M = Metals
O = Oil
P = Paper misc.

E = Education Grant
P = Planning Grant
T = Tonnage Grant

Table 2-C-6

EXISTING RECYCLING/SOURCE SEPARATION ACTIVITIES

Municipality	Program Administered by	COLLECTION MODE (b) Program Collector (a)	Curbside Pickup, Depot, or Both	Schedule/ Location	Materials	Tons Per Year	Current Market(s) (a)	Markets Covered by Contract (Yes/No) (a)	Mandatory Ordinance (Yes/No) (a)	Applying for Recycling Grants? (Yes/No) (c)
Hanover Township	Township	Same	Both	DPW 7 days Leaves @ curbside 10/15 - 11/30	N/L	31.6			No	T
"	Whippany Fire Dept.	Same	Both	At F.D. 7 days or pickup on varied Sundays	N	195			No	No
Harding Township	Boy Scouts	Same	Depot	1st Sat. 9-noon @ school	A/G/N/P/M	150.4			No	T
Jefferson Township	Township	Same	Depot	7 days DPW or church	P N	60			No	EPT
Kinnelon Borough	Borough	Same	Depot	7 days DPW	L/M/O	49.96	United Metal S & M Waste Oil		No	T
"	Borough and Church	Misc. volunteers	Depot	DPW & 1st Sat. at church	A/G/N	247.08	Thatcher Glass GSP		No	No
Lincoln Park Borough	Borough	3 volunteer organizations	Both	Curbside schedule varies DPW - 6 days	L/N/P	996 News from 6-12/82	D'Amato paper stock		Yes	EPT
Madison Borough	Boy Scouts	Same	Depot	3rd Sat. DPW	N/G/O	135	GSP REI		No	T
Mendham Borough	Jr. Women's Club	Private	Depot	2nd Sat. 9-1 at Foodtown	A/G/N/P		Sort		No	T
Mendham Township	Jr. Women's League	Sort	Depot	2nd Sat. 9-1 behind Foodtown	A/G/N/P				No	No

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Mine Hill Township	Boy Scouts	Same	Depot	All Sat.'s 9-12 DPW	A/G/P/O	93.59	GSP Thatcher R. Moore		No	T
Montville Township	Township	Township & Volunteers	Depot	Municipal Building	A/G/N/O	325.38	D'Amato Thatcher Retrocon		No	ET
Morris Plains Borough	Morris Plains Fire Dept.	Same	Curbside	Varied	N				No	No
Morristown Town	Market Street Mission	Same	Depot	M-S 8-5 at Mission	N				No	EP (Town)
Morris Township	Township	Same	Curbside	In season	L	2440.4			No	PT (Township)
Mount Olive Township	Township	Same	Curbside	3rd. Monday	L/N/O	195 news from 9-12/82	N. Bruno & D'Elia		Yes	PT
"	Boy Scouts	Same	Both	1st Sat. at A&P depot or at curb	N				No	No
Mountain Lakes Borough	Borough Jr. Women's Club Boy Scouts	Same	Depot	Last Sat. 9-noon	A/G/N/O	113.2	GSP Thatcher		No	E (League) PT (Town)
Parsippany Troy-Hills Township	Boy Scouts Township	Same	Both	Last Sat. 10-noon Grafton Dr. or curbside	N	68.18	GSP		No	No
Passaic Township	Passaic Township Recycling	12 Service Organizations	Depot	All Sat.'s 9-noon Public Works	A/G/N/O	260.89	Spring waste Thatcher Sorrintino Edison Salvage		No	T

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EXISTING RECYCLING/SOURCE SEPARATION ACTIVITIES

Municipality	Program Administered by	Program Collector (a)	COLLECTION MODE (b) Curbside Pickup, Depot, or Both	Schedule/ Location	Materials	Tons Per Year	Current Market(s) (a)	Markets Covered by Contract (Yes/No) (a)	Mandatory Ordinance (Yes/No) (a)	Applying for Recycling Grants? (Yes/No) (c)
Pequannock Township	Township	Same	Both	Nov.-Dec. at curb. Anytime at leaf depository	L	1505.00	N/A		No	PT
Randolph Township	Township	Same	Curbside	In season	L	3509.50	GSP		No	PT (Township)
"	Volunteer Misc.	Same	Depot	7 days - trailer on Dover-Chester Road	A/N	123.95	GSP		No	No
Riverdale Borough	Boy Scouts	Same	Depot	1st Sunday Hamburg Tpk.	N				No	No
Rockaway Borough	Sacred Heart School	Same	Depot	7 days - school E. Main St.	A/N		GSP		No	No
Rockaway Township	Township	Hamns Sanitation	Curbside	With regular trash collection	N	89.17 from 9-12/82	GSP		Yes	ET
Roxbury Township	Township	Same	Depot	All times 72 Eyland Ave.	G/O	26.15			No	T
"	Volunteer groups	Same	Both	Various	N	242.57			No	No
Victory Gardens Bor.	Borough	Same	Curbside	Every Thurs.	G/N				Yes	No
Washington Township	Township	Same	Depot	Every Sat. Rock Road	A/G	212	Sort Thatcher		No	T

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EXISTING RECYCLING/SOURCE SEPARATION ACTIVITIES

Municipality	Program Administered by	Program Collector (a)	COLLECTION MODE (b) Curbside Pickup, Depot, or Both	Schedule/ Location	Materials	Tons Per Year	Current Market(s) (a)	Markets Covered by Contract (Yes/No) (a)	Mandatory Ordinance (Yes/No) (a)	Applying for Recycling Grants? (Yes/No) (c)
Washington Township (cont'd.)	Boy Scouts	Same	Depot	3rd Sunday 1:00 Insurance lot	N				No	No
Wharton Borough	Borough	Same	Curbside..... Depot.....	2nd Wed. 7 days Pine St. Depot	A/G/N A/G/N/Tires/O	177.50	Thatcher GSP		Yes	EPT

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A = Aluminum
L = Leaves/yard wastes
N = Newspaper
M = Metals
O = Oil
P = Paper misc.

E = Education Grant
P = Planning Grant
T = Tonnage Grant

DOCUMENTED MUNICIPAL RECYCLING
MORRIS COUNTY - 1982

Municipality	Program Sponsor	# of Programs	Tonnage Documented for 1982 (TPY) Paper	Glass	Other	Total
Boonton Town	M	1	107.23	105.37		212.6
	I	1	250.00			250.0
	C	1	227.00			227.0
Totals	3	3	584.23	105.37		689.6
Chatham Boro	V	2	227.04	28.34	1.35	256.
Totals	1	2	227.04	28.34	1.35	256.
Chatham Twp.	V	2	227.04	28.34	1.35	256.
	C	2	263.12		182.50	445.
Totals	2	4	490.16	28.34	183.85	702.
Chester Boro	V	1	106.00			106.
	C				18.60	18.
Totals			106.00		18.60	125.
Chester Twp.	M	1	12.99	13.80	.73	27.
	C	1			1.45	1.
Totals	2	2	12.99	13.80	2.18	28.
Denville Twp.	M	1	111.01	85.36	78.45	274.
	C	2			2.45	2.
Totals		3	111.01	85.36	80.90	277.
Dover	M	1	154.82			154.
	C	2			1.75	1.
Totals	2	3	154.82		1.75	156.
Florham Park	V	2	305.82	37.91		343.
					.98	.
Totals		2	305.82	37.91	.98	344.

Program Sponsor Code:

M - Municipality
V - Volunteer Organization
C - Commercial
I - Individual sales to market by residents

Table 2.C-7 (cont)

Municipality	Program Sponsor	# of Programs	Tonnage Documented for 1982 (TPY) Paper	Glass	Other	Total
anover Twp.	M	1		31.60		31.60
	V	2	277.50			277.50
	I	1	426.00			426.00
	C	2			2.97	2.97
Totals	4	6	703.50	31.60	2.97	738.07
arding Twp.	V	1	100.94	43.56	5.90	150.40
Totals		1	100.94	43.56	5.90	150.40
efferson Twp.	I		199.00			199.00
	V		60.00			60.00
Totals			259.00			259.00
nnelon	M	2			49.96	49.96
	V	4	201.50	45.00	.58	247.08
	C	1	319.00			319.00
Totals	3	7	520.50	45.00	50.54	616.04
ncoln Park	M	2	147.00		848.00	995.00
	I	1	113.00			113.00
	C	3	228.00	8.00	2.00	238.00
Totals	3	6	488.00	8.00	850.00	1346.00
dison	M	1			1.50	1.50
	V	1	108.00	25.50		133.50
	I	1	384.00			384.00
	C	5	.15		74.35	74.50
Totals	4	8	492.15	25.50	75.85	593.50
ndham Boro	V		263.00	17.00	1.00	280.00 1.00
Totals			263.00	17.00	1.00	281.00

gram Sponsor Code:

M - Municipality
V - Volunteer Organization
C - Commercial
I - Individual sales to market by residents

Table 2.6-7 (cont.)

Municipality	Program Sponsor	# of Programs	Tonnage Documented for 1982 (TPY) Paper	Glass	Other	Total
Mine Hill Twp.	V	1	74.47	18.74	.38	93.59
	C	1			2.10	2.10
Totals	2	2	74.47	18.74	2.48	95.69
Montville Twp.	M	2	151.38	25.00		176.38
	V	3	121.00	28.20		149.20
	I	1	56.00			56.00
	C	3			5994.62	5994.62
Totals	4	9	328.38	53.20	5994.62	6376.20
Morris Twp.	M	1			2440.40	2440.40
Totals	1	1			2440.40	2440.40
Mountain Lakes	M				28.20	28.20
	V		70.90	13.70	.40	85.00
Totals	2		70.90	13.70	28.60	113.20
Mount Olive Twp.	M	2	30.70		.90	31.60
	V	3	208.50			208.50
	C	6			166.40	166.40
Totals		11	239.20		167.30	406.50
Par-Troy Twp.	M	1	2.50			2.50
	V	1	65.48			65.48
	I	2	1123.00			1123.00
	C	9	1398.00	43.37	16.50	1458.87
Totals	4	13	2588.98	43.37	16.50	2649.85
Passaic Twp.	V	3	186.19	74.70		260.89
	C	3	338.20		14.68	352.88
Totals	2	6	524.39	74.70	14.68	613.77

Program Sponsor Code:

M - Municipality
V - Volunteer Organization
C - Commercial
I - Individual sales to market by residents

Table 2.C-7 (cont)

Municipality	Program Sponsor	# of Programs	Tonnage Documented for 1982 (TPY) Paper	Glass	Other	Total
Pequannock	M	1			1505.00	1505.00
Totals	1	1			1505.00	1505.00
Randolph Twp.	M	2			3509.50	3509.50
	V	3	122.80	1.05	.10	123.95
	I	2	634.00			634.00
	C	9	627.61	52.59	37.19	717.39
Totals	4	16	1384.41	53.64	3546.79	4984.84
Rockaway Twp.	M	1	89.17			89.17
	C	6	35.79		111.94	247.73
Totals		7	224.96		111.94	336.90
Roxbury Twp.	M	1		24.92	1.23	26.15
	V	5	242.57			242.57
	C	5	488.32		493.70	982.02
Totals	3	11	730.89	24.92	494.93	1250.74
Washington Twp.	V	1	212.00			212.00
	C	5	2.50		26.05	28.55
Totals	2	6	214.50		26.05	240.55
Wharton	M	3	77.50	100.60	1.40	179.50
Totals	1	3	77.50	100.60	1.40	179.50
MORRIS COUNTY - 28 municipal applicants, documenting:			11,245.53	852.65	15,626.66	27,724.84
Average municipal recycling rates:			401.66	30.45	558.10	990.17

Program Sponsor Code:

M - Municipality
V - Volunteer Organization
C - Commercial
I - Individual sales to market by residents

Aluminum Cans & Scrap	Plastic
Other Non-Ferrous Scrap	Textiles
Ferrous Cans	Yard Material
Ferrous Scrap/White Goods	Food Waste
Automobiles	Motor Oil
Tires	Asphalt
Other Rubber Products	Misc: _____

The variety of materials on this list offers insight to the numerous types of materials that currently are, and have the potential to be, recycled.

By using the 1982 municipal solid waste projections and the reported tonnage from the Recycling Grant applications, waste stream reduction rates were calculated (Table 2.C-8). Be reminded that since all existing recycling activities were not reported, the actual percentage rates are likely to be higher.

Table 2.C-8

Documented Solid Waste Reduction Rates For
Municipalities Submitting Recycling Grants

Municipality	Documented Waste Reduction
Boonton	5%
Chathams	6%
Chester Boro	15% [1]
Chester Twp.	1%
Denville	4%
Dover	2%
Florham Park	7%
Hanover	12%
Jefferson	3%
Kinnelon	8%
Lincoln Park	25% [2]
Madison	7%
Mendham Boro	11% [1]
Mine Hill Twp.	6%
Montville	5%
Morris Twp.	27% [2]
Mt. Lakes	6%
Mount Olive	3%
Par-Troy	5%
Passaic Twp.	7%
Pequannock	22% [2]
Randolph	46% [2]
Rockaway Twp.	.9%
Roxbury	3%
Washington Twp.	4%
Wharton	6%

[1] Chester and Mendham Boroughs also attract township residents to their programs, making Borough recycling figures higher.

[2] These figures partially reflect large composting operations which were reported.

Industrial/Commercial Recycling

Included on the August 1982 Industrial Waste Survey, was a question regarding recycling activities. Of the almost 200 responses, 66 (33% of respondents) indicated that they were currently involved in some type of recycling.

An Industrial Recycling Survey was sent to these recycling industries in December, 1982. The 34 respondents provided information on materials being recycled off-site (i.e. marketed) the name of their markets, annual quantities recycled, and any recycling taking place in-house.

The list below categorizes materials and tonnage recycled by the 34 industries in 1982.

PAPER

corrugated
computer
ledger
newspaper

Total Paper 7,276.51 tons

METALS

aluminum
brass
bronze
copper
gold
iron
nickel
silver
steel

Total Metals 246.58

OTHER

chemicals
films
oil
plastics
textiles
misc.

Total 132.91

Total Reported From Survey - 7656.00

The total number of responses is small in comparison with the total number of industries in Morris County (about 500). The actual figure for industrial recycling is likely to be considerably higher.

Another means of documenting industrial/commercial recycling tonnage is by reviewing Municipal Recycling Grant Applications.

For a municipality to document the greatest number of tons recycled within municipal borders, and as a result claim a larger rebate, they must solicit recycling tonnage receipts, or weight slips, from local businesses and industries. Although a few municipalities were able to acquire records from large industrial establishments, the great majority of municipal Recycling Grant Applicants turned to local service stations, grocery stores, and small business establishments for records. Indeed, many of the applicants did not enter the commerical sector at all for reporting purposes.

The commercial materials recycling tonnage documented on the Recycling Grant applications differed from the types of materials reported on the Industrial Recycling Survey. These materials included bar glass, tires, scrap metal, used motor oil, corrugated, and some computer paper. The total number of tons of recycled commercial and industrial material reported on the grant applications for 1982 was 10,428.64 tons. (Tonnage from industries which responded to the Industrial Recycling Survey was omitted from this total).

Total Reported Industrial/Commercial Recycling For 1982

Industrial Recycling Survey -	7,656.00 tons
Recycling Grant Applications	11,281.90 tons
Total	18,937.90 tons

The 1982 Morris County Industrial/Commercial Waste total was 178,958 tons. Therefore the documented 18,937.90 tons represents 11% of the projected industrial waste stream.

Other Recycling Documentation

During 1982, 3 of Garden State Paper's (GSP) Buy Back Centers in the Morris area purchased newspaper from Morris County residents. For Municipal Recycling Grant purposes, GSP completed reporting forms for individual sales to these markets from municipal residents. The forms were sent to each town for submittal with their Recycling Grant package.

Many of the forms, which would have added a substantial volume of tonnage to reported municipal totals, were not submitted. Likewise, some municipalities which were sent these forms, did not submit Recycling Grants at all. The total tonnage of newspaper, not reported in the municipal recycling figures for 1982 was 2097 tons.

Total Documented Recycling - 1982

Source	Total
Recycling Grant Applications	27,724.84
Individual Sales to GSP (unsubmitted)	2,097.00
Industrial Recycling Survey	7,656.00
	37,477.84

Total projected waste stream - 1982 = 383,583

TOTAL DOCUMENTED COUNTY WASTE STREAM REDUCTION = 10%

Chapter 3 - Description of Future Alternatives

The previous section identified the existing solid waste systems and facilities within Morris County. The existing disposal facilities now available to Morris County are severely inadequate for present and future disposal requirements. Composting and recycling has reduced the waste flow to a limited extent, however, the remaining solid waste, with the exception of Mount Arlington's municipal waste, is landfilled out-of-county. Dependence upon these out-of-county landfills as a long range disposal alternative cannot be assumed. They were assigned as interim recipients of waste from Morris County due to closure of landfills in the County by DEP. They also involve considerable haul distances and potential closings, or repeated diversions, resulting from environmental concerns or capacity levels being reached.

The primary goal in Morris County's solid waste management planning is for the maximum practical use of energy and materials recovery from this county's solid waste. This will include development of a waste-to-energy facility located within the County which will accommodate all processable waste generated in the County. Depending upon the success of the County in this effort, and upon developments in surrounding districts, Morris County may wish to pursue a regional resource recovery program involving other districts. The ash residue from a waste-to-energy facility and all non-processable waste will require a sanitary landfill. Depending upon locations of those facilities, transfer stations may be feasible and will be further investigated. Recycling activities will continue to be encouraged and assistance given to those municipalities who are developing new programs or improving old ones.

This chapter will discuss future alternatives for Morris County's solid waste management pertaining to landfills, waste transport, resource recovery, and recycling.

3.A Landfills

Landfills will play a major role in Morris County's future solid waste management strategy. In conjunction with resource recovery facilities, landfills perform an important and necessary function by providing disposal capacity for ash residue, for non-processable waste including construction and demolition waste, and for by-pass periods when the resource recovery facility is down or being serviced. The capacity requirements for the landfill could be significantly minimized by the development and utilization of a proven and reliable resource recovery technology.

To satisfy this requirement in Morris County's solid waste planning, the County should seek long-term disposal capacity either within or outside of the County. Morris County should also seek short-term disposal capacity to provide for the County's needs until resource recovery is developed.

Since the Board of Chosen Freeholders determined that a suitable site for a regional landfill did not exist in Morris County, the County should seek short-term disposal capacity in other solid waste districts and/or in other states. The County should not, however, preclude any public or private proposal for an in-county landfill solely for demolition, bulky, or vegetative wastes. Any proposal for such would be subject to review and approval from the District and the State Department of Environmental Protection.

.B Waste Transport

Most solid waste collected in Morris County is presently being hauled to out-of-county disposal facilities in the collection vehicles. Collection vehicles for residential waste are generally packer trucks with capacity ranging for 20 to 31 cubic yards. Industrial and commercial waste generally is collected either in packer trucks or roll-off containers of varying size, depending on the needs of the establishment.

Transfer stations might provide economies over the direct haul method presently utilized. Characteristics exhibited by Morris County which make a transfer operation appear attractive include:

1) The location of disposal sites at relatively long distances from the collection area.

2) The existence of low density residential areas.

There are two basic options for Morris County regarding waste transport. The first option, the no action alternative, represents a continuation of present transport practices. This option is described in previous sections documenting existing conditions. The second alternative involves the use of one or more transfer stations. A general description of transfer stations is presented below. Both alternatives are evaluated, and the preferred option is recommended, in Chapter 4.

A transfer station is a facility where refuse from collection vehicles is off-loaded and placed in larger trailers for transport to a disposal location. One transfer trailer is often capable of accepting the waste from three to four collection vehicles (RAS 1979).

The feasibility and scale of a transfer station system depend to a large extent on the distance to the disposal location and the volume of solid waste requiring transport. The economic incentive of transfer station utilization will increase as the distance to the disposal site increases (RAS, 1979). These cost incentives will be estimated in Chapter 4.

Another important benefit derived from the use of a transfer station system is the mitigation of adverse traffic related impacts at the disposal site. This benefit is rarely noted in the literature, and is difficult to quantify for analytical purposes. It is nonetheless an important positive impact which affects land users near the disposal site rather than the users of the transfer station.

3.C Alternative Resource Recovery Technologies

Several alternative technologies can be employed to recover materials, energy, or both from solid waste. These technologies can be broadly classified within two major groups, material recovery and energy recovery.

Material recovery systems include facilities which process waste to remove glass, ferrous and other metals, and facilities which compost solid waste. Other material recovery systems are capable of extracting an energy product from the waste stream but do not directly use that energy product. These would include the production of refuse derived fuel (RDF), methane gas, and the production of a gas, oil, or char through the use of pyrolysis.

Energy recovery systems are those which result in the production of steam through a combustion process. The steam can be used for heating, cooling, industrial purposes, and for the generation of electricity. Within this broad category are three technological types. These are:

- RDF production w/dedicated boiler(s)
- Waterwall incineration
- Modular combustion

In order for a resource recovery facility to be implemented in Morris County several characteristics must be exhibited. First, and perhaps most important, is that the technology be sufficiently time proven as effective and reliable. Secondly, the technology must be cost effective, in terms of capital, operating, and maintenance cost. Impacting strongly on this characteristic is the ability of the technology to produce a consistently marketable product.

Because of these characteristics, only the energy recovery technologies will be considered here. Neither pyrolysis nor methane production through waste digestion represent time proven full-scale technologies. RDF facilities which produce fuel for use by others have been only marginally successful, primarily due to problems encountered in marketing the fuel and firing the fuel in other than dedicated boilers.

Presented below is a review of the three energy recovery technologies which would be most suitable as a long term waste management strategy for Morris County.

RDF Production with Dedicated Boiler

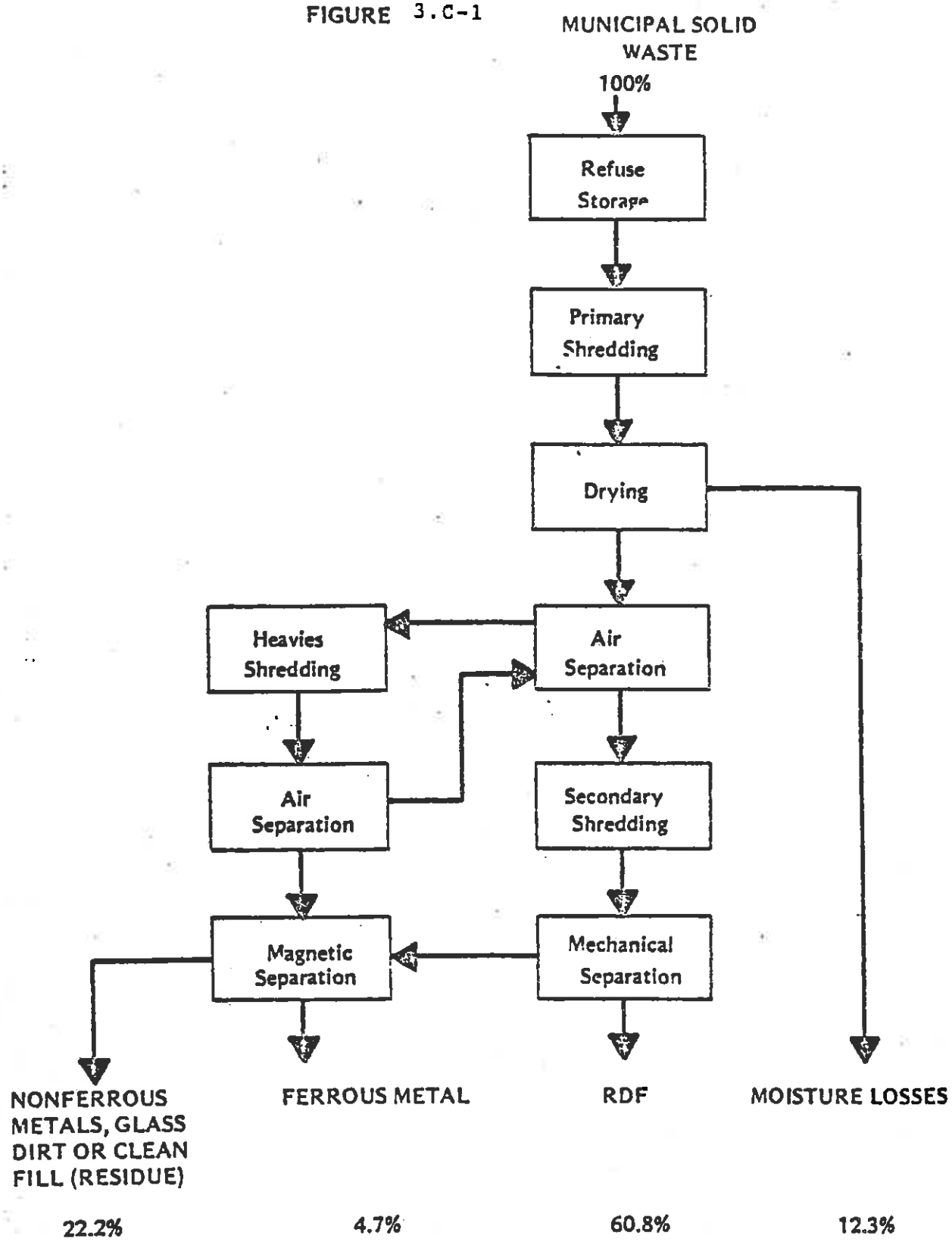
The 1979 Morris County Solid Waste Management Plan provides a good description of the RDF technology, and is exerpted below.

"An RDF plant is a processing facility where municipal solid waste is shredded and sorted. Several types of RDF can be produced: fluff RDF, pelletized RDF and powder RDF. The RDF must have the physical and combustion properties necessary to make it compatible with the specific boiler-furnace firing and ash handling system being considered. Figure 3.C-1 is a schematic representation of a typical process train showing approximate quantities of RDF, ferrous metals and other non-combustibles."

"Fluff RDF burns efficiently in suspension as it falls down through the turbulent flame zone of a boiler. It can be burned in both suspension-fired and cyclone fired boilers, and in certain stoker and spreader-stoker fired boilers. It is most applicable to large utility-class boilers, however, new combustion systems such as fluidized-bed furnaces may also be amenable, as they become available for commercial use. Particle sizes generally range from 1/4 inch to 2 inch for co-firing with pulverized coal, however, particle sizes of less than 4 inches have provided efficient burnout for dedicated boilers."

RDF PROCESS SCHEMATIC DIAGRAM

FIGURE 3.C-1



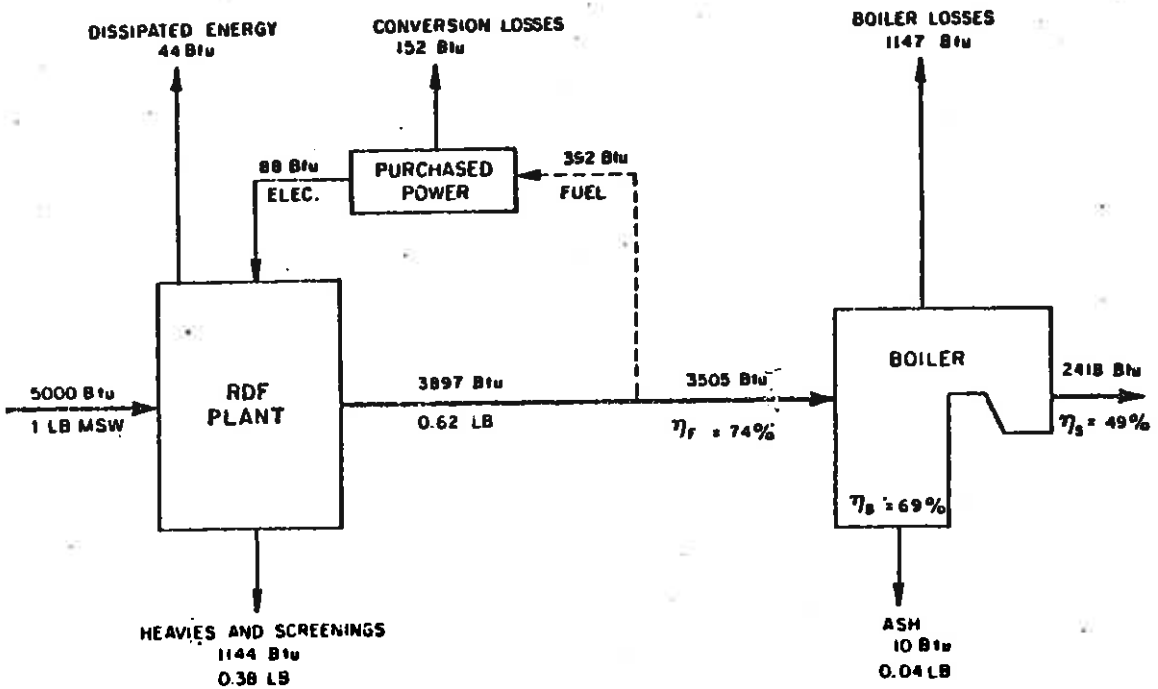


FIGURE 3.C-2 FLUFF RDF ENERGY BALANCE

Source: USEPA, Resource Recovery Plant Implementation, Technologies

"Upon delivery to the site, the solid waste is dumped on a concrete pad sufficient in size to store an adequate supply of waste. Specially equipped front end loaders pick up the refuse and deposit it on a conveyor belt for feeding the primary shredder. After size reduction, the waste moves to an air dryer, where moisture is removed. The drying process facilitates further processing and permits the production of a fuel with a uniform moisture content. After drying, the shredded refuse is air classified to separate the light combustible fraction from the heavier non-combustible fraction containing ferrous and non-ferrous metals, glass and miscellaneous materials. The light fraction undergoes further size reduction and mechanical separation to remove most of the remaining fine non-combustibles. The RDF product would then be conveyed to delivery vehicles or stored in silos on-site."

"The heavy fraction is further shredded and classified to separate any remaining combustibles which are recycled to the first air separator. The heavies are then combined with non-combustibles rejected from the mechanical separator and fed to a magnetic separator where the ferrous metals are recovered for sale. The remaining non-combustibles, consisting principally of glass, dirt and non-ferrous metals such as aluminum, zinc, lead and copper, could be further processed for materials recovery or placed in a landfill."

"Fuel can be reclaimed from storage at the fuel processing plant and delivered to packer trucks or rail cars for shipment to a dedicated boiler or co-fired boiler. Alternatively, it can be moved pneumatically if the steam plant is located near the fuel preparation plant. When the fuel is delivered via truck or rail, it is transferred pneumatically to storage bins at the steam plant. The air used to transport the fuel is exhaused to the atmosphere, after passing through a bag filter to remove particulates, or can be used as combustion air."

"The transport of RDF can be costly when the product must be hauled from the refuse processing plant to the boiler site. This entails surge storage after processing, transportation, and re-storage at the boiler plant. Significant savings and system simplicity can be accomplished when the RDF plant is within conveyor (pneumatic, mechanical) distance of the boiler plant."

"The recovered ferrous is prepared for market by several stages of shredding, classification and magnetic separation, using equipment presently employed by the auto shredding industry. The ferrous fraction generally consists of flat chips of metal, nominally two inches (2") in size with traces of organics. Market studies indicate that ferrous scrap is acceptable for detinning, or can be sold directly to the steel industry."

"The non-ferrous metals, glass, dirt, and other dense components of the municipal solid waste stream can be further processed to recover marketable items. One process train involves the use of a trommel (inclined rotating circular screen) a rising current separator, shear shredder, rod mill, and screens to produce a 30 percent enriched non-ferrous mix. The economic feasibility is marginal, but increasing with time, as unit processes are refined and arranged to accommodate market requirements. The non-ferrous, non-combustible stream can also be heat-treat to burn off the contained organics and sterilize the residue, or it can be landfill without further processing."

"An energy balance for a typical fluff RDF plant is offered as Figure 3.C-2. I is based on a system having two-stage shredding, a trommel screen, air classification, and truck transport to a user 15 miles away. Sixty-two (62) percent of the refuse received is assumed recovered as RDF. The process illustrated previousl in Figure 3.C-I included drying and classification of non-combustibles. The energy expended for drying and non-combustible separation would be offset by the increased recovery yield. Therefore, Figure 3.C-2 provides a reasonable estimate of energy inputs and outputs."

"RDF can have a nominal particle size of twenty to thirty mesh (screen sizing) up to four inches. Densified and powder RDF forms are available commercially. RDF can be densified into a briquette or pelletized form to stimulate that of solid

coal or coke. The densified forms are more convenient to handle than fluff-RDF and more compatible with stoker-type furnaces. A pulverized powder-like RDF has, perhaps, the greatest overall applicability to existing combustion systems. Powder RDF requires significantly greater levels of investment for processing than fluff, and would inevitably have to be offered at a higher cost than fluff."

Since the completion of the 1979 Plan, several RDF facilities with dedicated boilers have come on line. Others are in the planning stages. Tables 3.C-1 and 3.C-2 present information on each of these facilities.

Table 3.C-1

Existing RDF Facilities with Dedicated Boilers

Location	Capacity (TPD) Design	Capacity (TPD) Actual	Years Operating	Status	1981 Capital Cost ($Million)	Tipping Fee ($/Ton)
Dade Co.,Fla.	3000	3000	0	Operational	$150	NA
Lakeland, Fla.	300	NA	0	Construction	$ 5.0	NA
Albany, N.Y.	750	750	1	Operational	$15.7	$2.50
Hempstead, N.Y.	2000	1900	3	Shutdown	$135.7	$18.30
Niagra Falls,NY	2200	1100	0	Operational	$107.9	$12.00
Akron, Ohio	1000	600	2	Shakedown	64.6	6.50
Columbus, Ohio	2000	NA	0	Construction	$166.4	NA

Source: Gould, 1982

Table 3.C-2

Planned/Proposed RDF Facilities with Dedicated Boilers

Location	Capacity (TPD)	Energy Product	1981 Capital Cost ($Millions)
Los Angeles, Cal.	900	Electricity	$80
Haverhill, MA.	1300	Steam & Electric*	$85
Detroit, Mich.	3000	Steam & Electric	$150
Cincinnati, Ohio	2000	Electricity	$100
Weber Co., UT.	450	Electricity	$20
Appleton, WI	2400	Steam	$26

Sources: Gould, 1982
* Baldwin, 1983

Mass Burning

Waterwall Furnace

This technology was effectively described in the Morris County Solid Waste Management Plan document prepared by Ruetter, Anderson, Schoor Associates in 1979. As there have been no basic changes in this technology since that time, the majority of the information here has been extracted from that report.

The most common type of mass-burning resource recovery facility currently proposed for waste disposal is waterwall incineration. The generation of steam from burning unprocessed refuse in waterwall boilers has been practiced for more than 20 years in Europe. Its rapid acceptance has lead to the construction of several hundred units in Europe and Japan ranging in size from less than 100 tons per day to more than 2,000 tons per day in an Amsterdam facility. In the United States, there are presently at least nine operating waterwall combustion units (rangin in size from 160 TPD-1600 TPD) with 20 more facilities in construction or planning phases. Tables 3.C-3 and 3.C-4 present a summary of information regarding these facilities.

Steam is produced at a rate of from one to three pounds per pound of solid waste, depending on design, operating conditions and the heat value of the solid waste. The steam can be used directly in turbines to drive major industrial process equipment or it can be used in a turbo-generator to produce electricity. An additional application is co-generation or feeding the steam to an extracting steam turbine to generate electricity with a portion of the steam extracted for use as process steam. Technically, mass burning refuse boilers have demonstrated good and reliable performance and have received national acceptance.

Table 3.C-3

Existing Mass Burning Waterwall Incinerators

Location	Capacity (TPD) Design	Capacity (TPD) Actual	Years Operating	Status	1981 Capital Cost ($million)	Tipping Fee ($ton)
Pinellas Co., FL	2000	NA	0	Construction	$172.7	$ 6.50
Chicago, IL	1600	1200	11	Operational	57.7	0.00
Braintree, MA	384	250	10	Operational	6.3	8.00
Saugus, MA	1500	1200	6	Operational	66.6	15.00
Oceanside, NY	750	450	16	Operational	27.4	20.00
Harrisburg, PA	720	550	9	Operational	18.4	12.80
Gallatin, TN	200	NA	0	Construction	9.7	NA
Nashville, TN	720	400	7	Operational	23.0	9.00
Hampton VA	200	200	1	Operational	11.2	4.70
Norfolk, VA	360	140	15	Operational	6.9	0.00
Portsmouth, VA	160	60	5	Operational	5.8	3.54

SOURCE: Gould, 1982

Table 3.C-4

Planned/Proposed Mass Burning Waterwall Incinerators

Location	Capacity (TPD)	Energy Product	1981 Capital Cost ($Million)
Alameda, CA	1700	Electricity	$150.0
San Francisco, CA	2000	Electricity	150.0
San Diego, CA	1200	Electricity	200.0
Honolulu, HI	1800	Electricity	107.9
Champaign-Urbana, IL	260	Steam	NA
Chicago, IL	600	Steam	43.0
Boston, MA	1800	Steam	130.0
North Andover, MA	1500	Electricity	74.0
Plainville, MA	1500	Electricity	100.0
Springfield, MA	1000	Steam	60.0
Camden County, NJ	600	Steam	55.0
Kings County, NY	3000	Steam	185.0
Onandaga County, NY	2000	Steam	133.0
Cuyahoga, County, OH	1400	Steam	120.0
Tulsa, OK	500	Steam	40.0
Philadelphia, PA	2400	Electricity	85.0
Johnston, RI	1500	Electricity	100.0
Westchester County, NY	2170	Electricity	165.0

SOURCE: Gould, 1982

In the mass burning system, unprocessed municipal solid waste is deposited on a tipping floor, or into a large storage pit. A loading crane mixes the refuse before transferring it to the furnace feed hopper, as shown in Figure 3.C-3. From the feed hopper, the waste is fed onto mechanical grates* where continuous combustion occurs as it travels through the furnace. Non-combustibles fall off the end of the grate, are quenched with water and then conveyed to trucks for transport to a residue disposal site. Ferrous metal is generally recovered from the residue conveyor.

As the waste travels on the grate, the combustion reduces the volume by as much as 95% and the heat energy is conveyed to the water-filled boiler tubes in the upper section of the furnace. Generated steam is used to drive a turbo-generator to produce electricity and/or is piped to the steam user. The flue gases, after transferring their heat, pass through pollution control devices for cleaning prior to stack discharge. While most existing facilities employ electrostatic precipatators for emission controls, it is of interest to note that the mass-burning facility planned by Wheelabrator Frye for East Brunswick, N.J. proposes to utilize a baghouse and dry scrubbers for flue gas emission control.

A number of different vendors are offering mass burn systems under full service contracts. The basic difference between the available commercial system lies in the boiler tube configuration, type of grate and excess air requirements. Boiler tubes are arranged to maximize the efficiency of heat transfer without causing excessive tube failure through corrosion. The three

*There is a notable exception to the moving grate method that employs rotary drums or kilns instead of grates. This is the only basic difference between these systems. The rotary drum method should be subject to engineering comparison with the grate system, if mass burning were selected as the preferred technology.

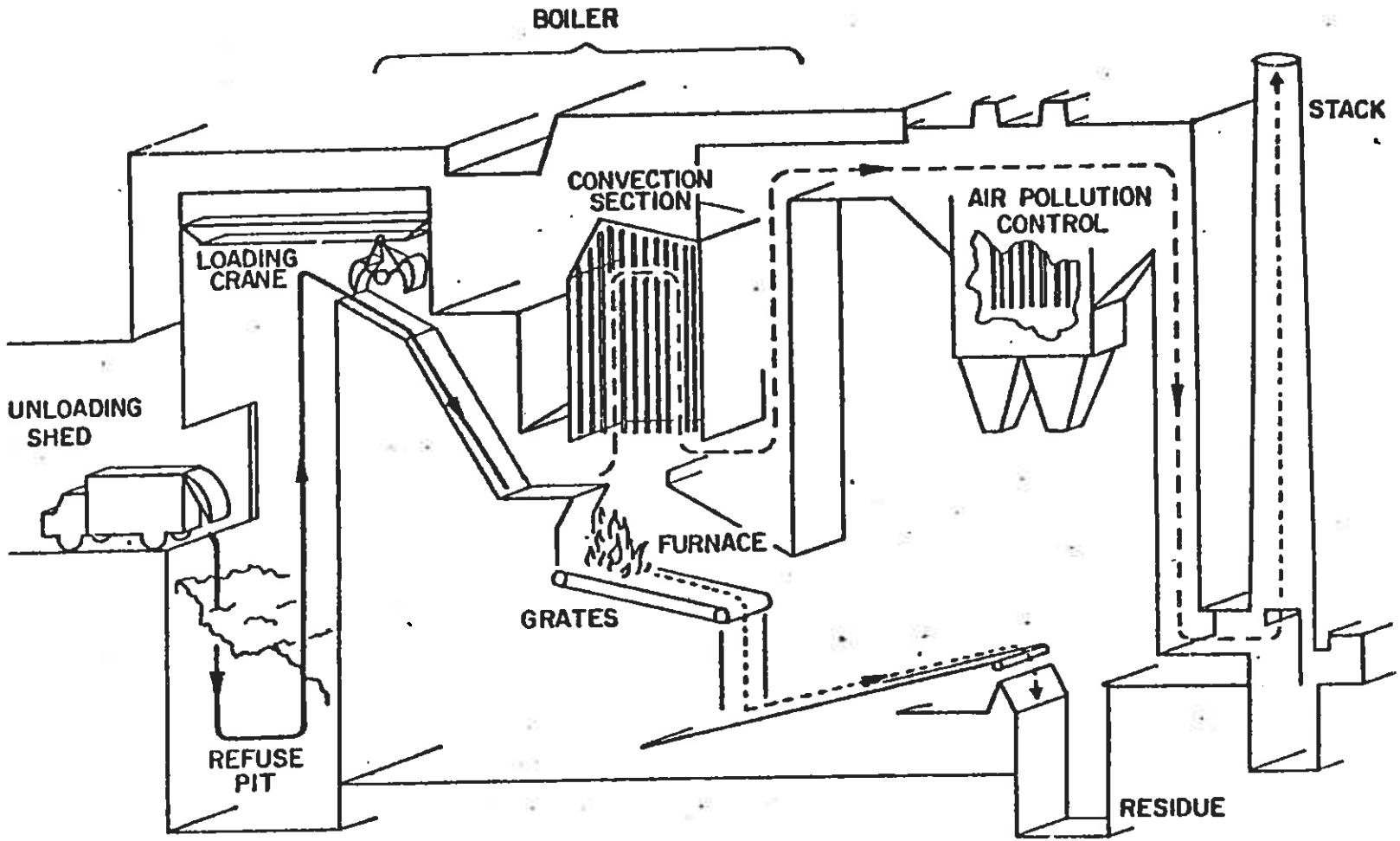


FIGURE 3.C-3 TYPICAL WATERWALL FURNACE

Source: USEPA, Resource Recovery Plant Implementation, Technologies

types of grates used are the reciprocating (back and forth), rocking and traveling grate. Each differ in the manner in which they agitate and turn the refuse over to facilitate burn out and maximize heat release. Air is introduced in the furnace beneath the grates (underfire air) to aid in combustion and to keep the grates cool. Air is also introduced above the refuse bed (overfire air) to promote mixing of the gases (turbulence) and to aid in combustion. These variables and the resident time and temperature combine to offer different processing methods.

Figure 3.C-4 illustrates an energy balance for a typical mass burning refuse boiler. In a well designed and operated unit, energy conversion efficiencies could exceed the 62% shown. Design changes in boiler tubes, for example, can allow the furnace to operate at lower excess air levels. This will result in reducing flue gas losses and accordingly raise the availability of BTU sold per BTU input. A 1000 ton per day plant can market approximately 190,000 lbs. of saturated steam per hour.

Economic transport of high temperature high pressure steam dictates that the market be located no more than two miles from the facility. However, low pressure steam and/or hot water can be conveyed much longer distances (Smith, Personal Communications, 1983). These locational constraints obviously do not apply in the case of a facility which is generating electricity. Finally, since refuse is a heterogeneous material, it is important that the crane operator properly mix the feed before charging. Insufficient mixing not only reduces the stability of steam produced but also can cause damage to the grates.

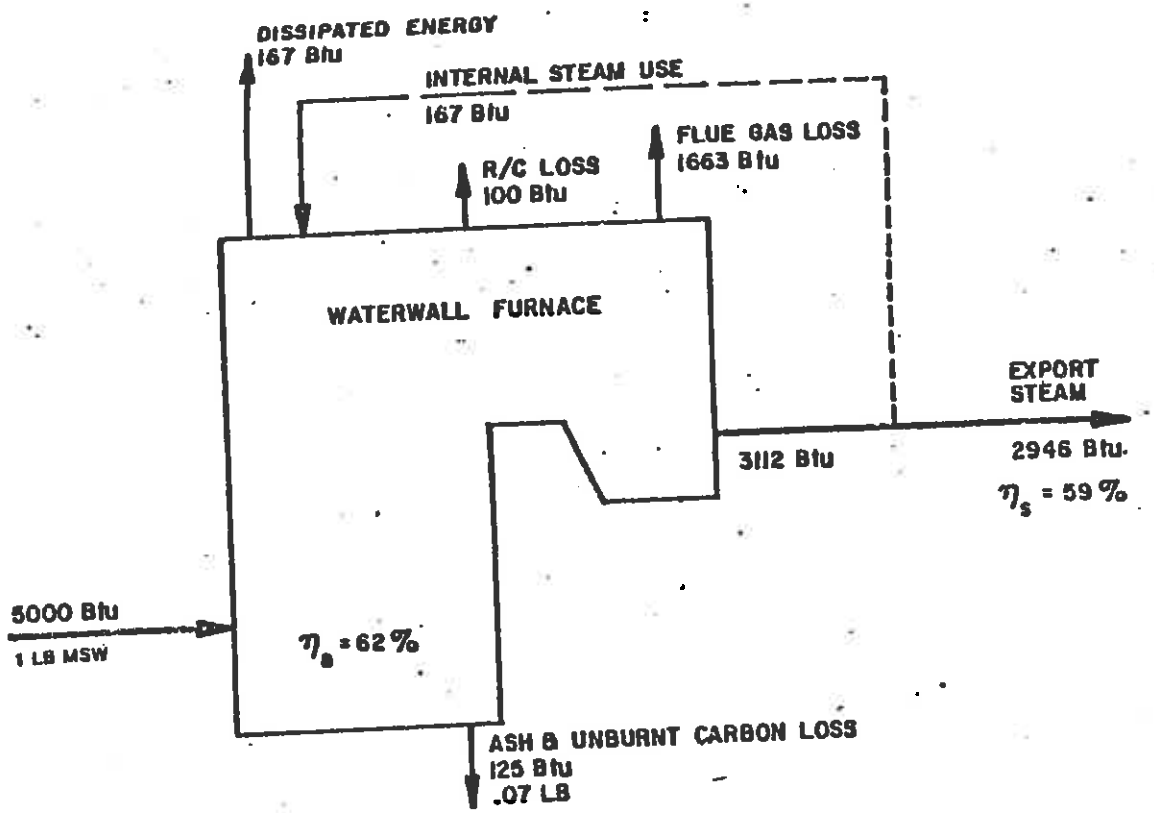


FIGURE 3.C-4 TYPICAL WATERWALL FURNACE ENERGY BALANCE

Source: USEPA, Resource Recovery Plant Implementation, Technologies

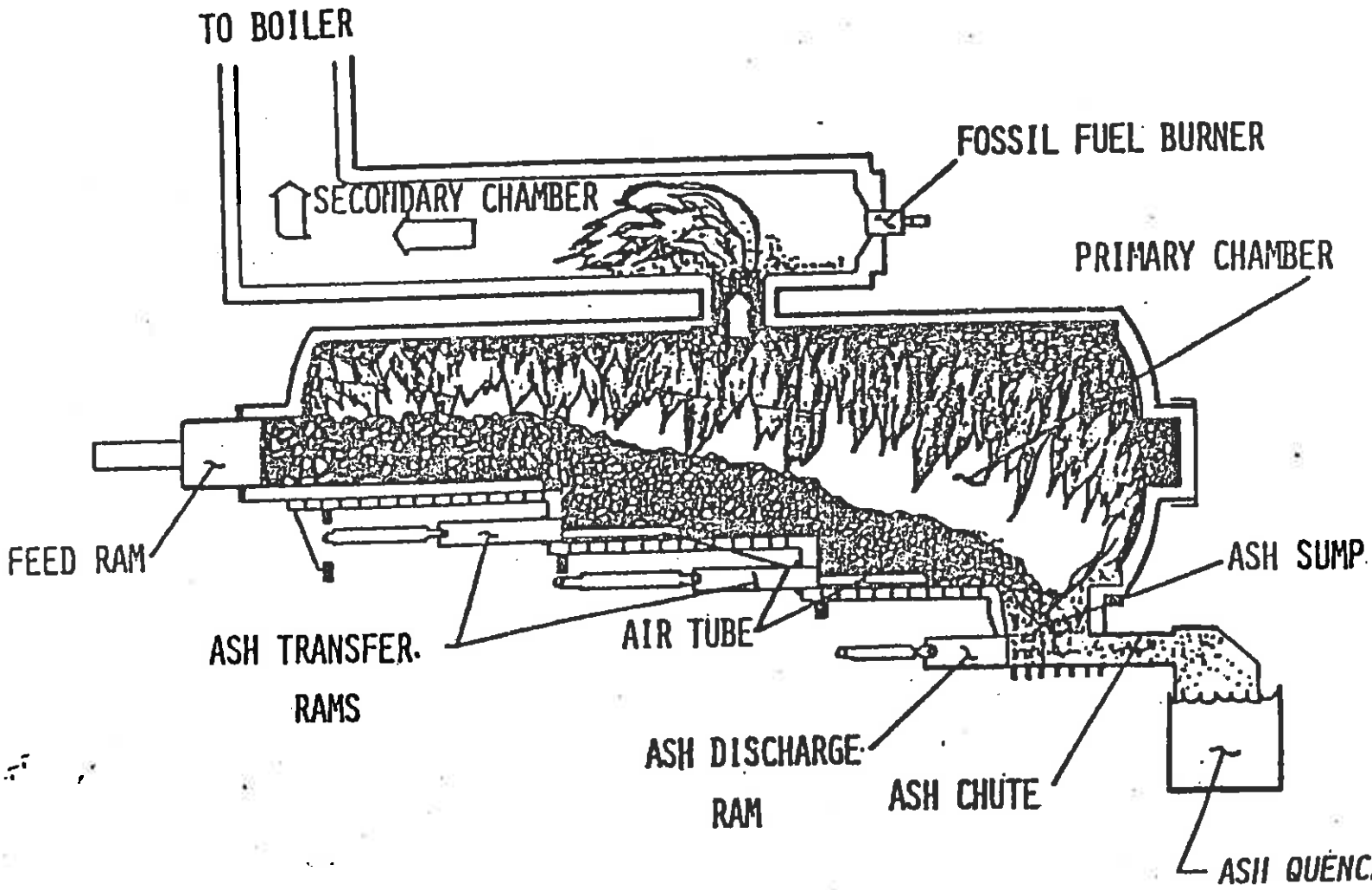
Modular Combustion Units

Modular Combustion Units (MCU) are small sized incinerator "modules" which can be utilized for burning municipal solid waste. These facilities are being constructed with increasing frequency, usually by small communities, institutions and military bases. These users do not generally generate municipal solid waste in large enough quantity to make other mass burning options competitive.

An MCU facility can consist of one or more factory assembled units ranging in size from 25TPD to 150 TPD. Thus, for example, three 150 TPD modules could provide disposal capacity for 450 TPD of waste. Facilities are typcially sized to meet the steam needs of the energy customer, rather than the waste disposal requirements of the community. However, these two considerations will often dovetail for the small community and the energy needs of the consumer will match the waste disposal needs of the community.

The majority of the modular combustion units presently in use utilize a starved air combustion process as depicted in Figure 3.C-5. Use of this process results in significant reduction in air pollution emissions when compared with more conventional incineration methods, and the need for expensive emission control equipment can sometimes be avoided. In the starved air combustion technique two combustion chambers are used. The primary incineration chamber is used to volatilize the waste material in an oxygen deficient atmosphere. The volatilized material moves into the secondary chamber where it is ignited, using fossil fuel, in the presence of oxygen, to complete the combustion process. Heat is recovered from the hot flue gases.

FIGURE 3.C-5



Cross section through a typical CS 1200 MSW continuous starved air incinerator.

The 1982-83 Resource Recovery Yearbook (Gould, 1982) notes 27 facilities in the U.S. using modular combustion units with steam generation. Of these facilities 14 were operational, 5 were shut down, 4 were in shakedown, 2 were under construction, and 2 were in the planning stages when the data were compiled in June 1982. Tables 3.C-5 and 3.C-6 present data compiled within each operational status. Note that the 14 operational facilities have a total design capacity of just over 1100 tons per day, with an average capacity of about 80 TPD.

Table 3.C-5

Existing Modular Combustion Units

Location	Capacity (TPD) Design	Actual	Years Operating	Status	1981 Capital Cost ($Millions)	Tipping Fee ($ Tor
Batesville, AR	50	40	1	Operational	$1.15	$10.00
Blytheville, AR	50	50	6	Shutdown	1.4	NA
N. Little Rock, AR	100	100	4	Operational	2.25	$ 1.25
Osceola, AR	50	40	1	Operational	1.3	$ 5.00
Siloam Sp, AR	19	NA (19)	6	Shutdown	0.7	$15.00
Windham, CT	108	135	1	Operational	4.5	$ 7.50
Jacksonville, FL	350	NA	2	Shutdown	NA	$ 0
Jacksonville, FL	40	20	1	Shakedown	2.7	$ 0
Casia Co., ID	50	NA	0	Shakedown	1.5	NA
Auburn, ME	200	170	1	Shakedown	4.6	$ 8.00
Pittsfield, MA	240	200	1	Operational	10.5	$11.50
Genesee, MI	100	100	1	Shutdown	2.2	$20.75
Collegeville, MN	65	55	0	Shakedown	2.4	$ 6.00
Ft. Leonard Wood, MO	400	50	0	Construction	2.9	NA
Durham, NH	75	NA	1	Operational	3.8	$13.00
Groveton, NH	25	12	6	Operational	0.35	NA
Oneida, NY	200	NA	0	Construction	11.1	$11.17
Crossville, TN	60	60	3	Shutdown	1.4	0
Dyersburg, TN	100	70	1	Operational	2.2	0
Lewisburg, TN	60	60	2	Operational	2.2	0
Gatesville, TX	7	NA	0	Operational	0.2	NA
Palestine, TX	28	NA	0	Operational	0.3	NA
Newport News, VA	40	40	1	Operational	1.5	0
Salem, VA	100	70	3	Operational	2.6	$4.75
Waukesha, WI	175	140	10	Operational	4.3	$7.00

Table 3.C-6

Planned/Proposed Modular Combustion Units

Location	Capacity	Energy Product	1981 Capital Cost (Million
Oswego Co., NY	400	Steam	$14.0
Burlington, VT	120	Hot Water	$10.8

Source: Gould, 1982

3.D Recycling Alternatives

Because every municipality and county is unique to itself, a number of methodologies for implementing recycling programs have been developed.

Morris County municipalities have developed customized recycling for each individual municipal need. Following are four major recycling alternatives available to municipalities which can be implemented alone or in a systematic combination.

1. Recycling depots are operated in a number of ways. These drop-off centers are organized and operated by a municipality, one or more volunteer groups or by a cooperative municipal-volunteer arrangement.

2. Curbside collections are, for the most part, organized and operated by a municipality and are accompanied by mandatory source separation ordinances. Curbside collections can also be run by a joint effort between a municipality and volunteers. Finally, curbside operation can be sponsored entirely by volunteers, but usually are most successful on the neighborhood scale.

3. Recycling depots and curbside collections can also be developed through the formation of a Regional Recycling Coalition. Through the development of a joint municipal services agreement, several municipalities can share the expenses of the recycling program, collect greater quantities of materials, and service a larger population.

4. Although implementation of the fourth alternative only reclaims one component of the waste stream, a municipal composting operation alone can reduce refuse generation by 12% - 14% by weight. (Wilson, 1977). Again, a regional composting facility can service more municipalities at a potentially reduced cost.

Options for county involvement in recycling are usually more complex, due to the larger population that must be serviced.

Counties can provide technical assistance to municipalities to create new programs and enhance the success of existing programs. This assistance can prove even further-reaching with the accompaniment of a county-wide educational program.

Direct financial assistance can be provided to municipalities through the county government. Such programs include provision of curbside source separation services, development of a brokerage center operation, or implementation of an intermediate processing facility.

By thorough investigation and evaluation of recycling alternatives, any county and municipality can work toward increased recycling. Following are descriptions of these alternatives, and evaluations of how each alternative will affect the level of recycling in Morris County.

Municipal

Depot Recycling Centers

Many depot operations are sponsored jointly by municipalities and volunteer groups. Usually, co-sponsorship is arranged whereby the municipality provides land and sometimes collection bins, and local volunteer groups provide labor. This type of mutual effort benefits all involved.

Depot operations can also run entirely by the municipality. The depot is usually located at the public works yard, and will accept anywhere from 1 to 5 different recyclable materials. The municipality operates and maintains the depot and uses income from material sales to run the center and to publicize the program.

The last type of depot operation is the temporary drop-off center. These are run by volunteer groups and usually operate on a monthly basis at the same location. For example, one or more groups of volunteers make arrangements for materials markets (usually newspaper and glass) to leave large containers at the recycling location. These temporary centers are located at shopping centers, churches, cul-de-sacs, or any available location. Following the collection, the market will return to the center, remove the containers, and pay the volunteers a predetermined price per ton collected.

Curbside Source Separation

Existing resources and existing solid waste management systems are usually the determining factors in curbside recycling program design. Municipalities with municipal solid waste collection can utilize existing equipment and manpower to operate their programs. Municipalities having a municipal solid waste contract with a private hauler can utilize DPW equipment and either municipal or volunteer labor. Finally, in municipalities where the private hauler operating on household contract has vehicles retrofitted for separation, the hauler can provide the service.

Regional Recycling Coalitions

Through the development of a joint municipal services agreement, a Regional Recycling Coalition can be established.

There are two major avenues for reaching a joint municipal service agreement. The more appropriate means is through an Interlocal Services Agreement. The Interlocal Services Act (N.J.S.A. 40:8A et seq.) permits municipalities to enter into a single service contract covering all of them. For municipalities to partake in an interlocal services agreement, all parties must be authorized to do so through the passage of identically worded ordinances. The terms of the service contract must include the type of service, criteria for evaluating performance, a cost and payment schedule, and the duration of the contract. The service designated by the contract can be provided by one or all parties involved, or by a private contractor.

An alternative means of obtaining a joint municipal service agreement is through a joint purchasing agreement (N.J.S.A. 40:11-10 of Local Public Contracts Law). Under this provision, municipalities may agree to share the costs of labor and supplies for a recycling service.

Either the interlocal service agreement or the joint purchasing agreement can be used to develop a regional recycling coalition. Legal consultation will help municipalities determine the more appropriate route.

Composting

Just like all other recycling activities, composting on the municipal level varies from one operation to another. Collection is always conducted at the curb during yard-waste "seasons," either by leaf vacuum or regular trash compactor vehicle.

The collected vegetation is then transferred to a municipal or regional composting facility, or to a private farm or nursery. Where the yard waste collection includes twigs and branches, the composting facility must be equipped with a wood chipper.

Municipal compost facilities must be certified by the State DEP, and maintained by their standards. The volume of material at these facilities is continually maintained by allowing residents to come and take processed compost and wood chips for use in home gardening.

County

Curbside Collection Services

Although the most effective means of extracting recyclable materials from the municipal waste stream is by a mandatory curbside collection service, not all municipalities have the resources necessary to implement such a program. The 7 municipalities in Morris County which operate municipal trash collection already have the equipment, and quite often all the labor, necessary for a curbside program. However, the remaining 32 municipalities have waste collection done either by municipal or homeowner contract with a hauler. For some of these municipalities, a County-sponsored curbside service could provide the critical elements for implementation of a curbside program.

Brokerage Center

The intent of brokerage center development is to improve market conditions in a given area, and thereby increase recycling. The brokerage operation acts as a collection center for recyclable goods, where materials are sometimes sorted and stored until an economically sufficient quantity exists for either the operator to make a trip to market, or for the market to travel to the center to remove the load. Without a nearby brokerage facility, individual municipalities distantly located from markets would find it economically forbidding to undertake either a curbside source separation program, or a drop-off center operation.

Intermediate Processing Facility

The objective of intermediate processing facility (IPF) implementation is to recover the greatest volume of household recyclables by simplifying separation standards.

In areas serviced by an IPF, mixed recyclables are picked up at the curb and delivered to the IPF for separation and marketing. The mixed recyclables usually include aluminum, glass, newsprint, plastics and other metal containers. These are separated by the homeowner from other household wastes, and collected at the curb in one container. Once delivered to the IPF, the materials are either mechanically or hand-sorted, and prepared for market delivery.

Chapter 4 - Evaluation and Selection of Preferred Alternatives

Chapter 3 described the future alternatives for Morris County's solid waste management strategy. This chapter is an evaluation of those alternatives and includes a selection of the preferred alternatives as they pertain to landfills, waste transport, resource recovery, and recycling.

4.A Preferred Landfill Alternatives

As discussed in the previous chapter, Morris County's future landfill alternatives include the investigation of both long-term and short-term disposal capacity. Morris County took an extensive study to determine whether there was a suitable site within the County for a long-term sanitary landfill. Those sites found to meet basic criteria were eventually eliminated due to the considered risk of pollution to the County's ground water. In absence of an existing in-county regional landfill, Morris County must secure a short-term disposal capacity to provide for waste disposal until implementation of resource recovery. In this effort, an interdistrict agreement is presently being sought with other New Jersey solid waste districts and adjoining states.

In conjunction with the development of a resource recovery facility, Morris County must secure long-term disposal capacity for ash residue, non-processable waste, and for by-pass periods. It is conceivable that the facility(s) secured for short-term disposal can also be utilized for long-term disposal. If this alternative is not secured, than the County must again seek long-term disposal capacity in other solid waste districts or other states. Due to the economic considerations resulting from hauling waste long distances to out-of-county landfills, Morris County may also wish to seek an in-county landfill to provide for the long-term disposal of ash residue and non-processable waste.

4.B Evaluation of Waste Transport Alternatives

Until the implementation of an energy recovery facility in the late 1980's, most waste generated within Morris County is expected to be exported to disposal facilities outside of the District. As a result, most municipalities within the county will be in excess of 30 miles (one-way) from their designated disposal sites.

Figure 4.B-1 presents a general comparison of haul cost in a 25 $yd.^3$ packer truck with that for transfer haul, as they vary with distance to disposal site (Rount trip mileage), based on the following assumptions:

Vehicle & Payload	Transport Cost
25 $yd.^3$ packer @ 8.9 tons/packer	$2.50/mile $0.24/ton-mile
Transfer Trailer @ 20 tons/trailer	$2.73/mile $0.14/ton-mile

Non transport related operating cost for transfer station equals $5.11/ton. (Preliminary Evaluation of the Economic Feasibility of a Transfer Station in Morris County", 3/83)

As Figure 4.B-1 indicates, the average break even point at which transfer stations become more economical than direct haul occurs when round trip mileage to the disposal site is approximately 50 miles, or 25 miles one-way. Table 2.3-C in Chapter (2) shows that all 17 communities presently directed to Edgeboro are more than 25 miles away from the facility. Of the 20 municiaplities directed to Hamm's, 8 are 25 miles or more away from the facility. In addition, if the operation of Hamm's Landfill is terminated or unavailable for Morris County waste, refuse from those 20 municipalities will require transport to more distant disposal facilities, making the transfer station concept economical for all of those communities.

In addition, benefits of reduced traffic near the disposal facilities will accrue to districts accepting Morris County waste and may increase their willingness to accept Morris County waste until energy recovery alternatives can be implemented. Over the long term this would also benefit Morris County by mitigating traffic impacts at the energy recovery facility, regardless of its location.

Therefore, the following waste transport strategy is recommended:

> Implementation of three transfer stations in Morris County. One transfer station to be located in and servicing the waste stream from the following geographical areas:
>
> 1) Northeast Morris County
>
> 2) Southeast Morris County
>
> 3) Western Morris County

A northeast facility is cost effective under present circumstances involving disposal at Hamm's Landfill and if waste is redirected to more remote locations.

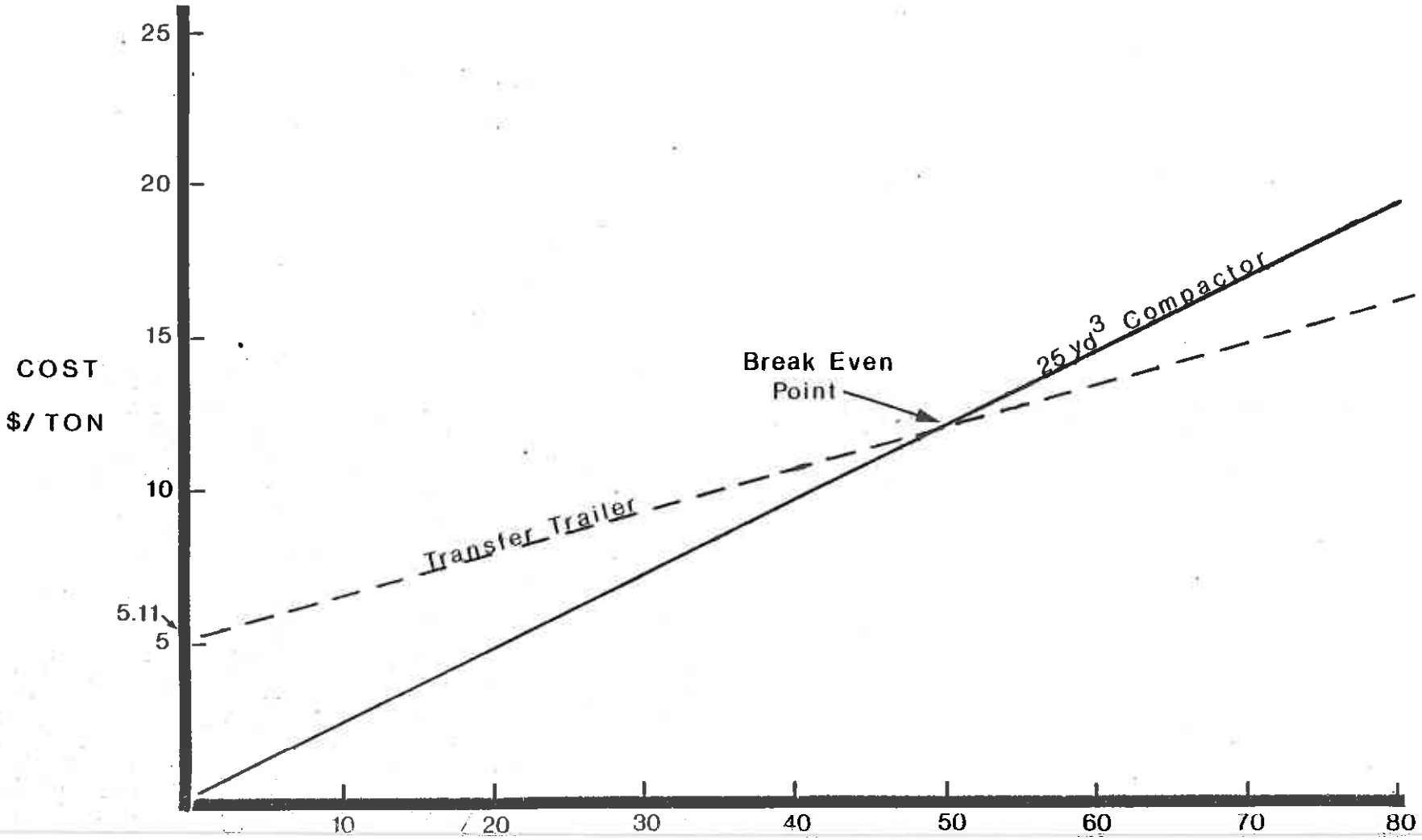
A southeast facility is cost effective under present disposal conditions (Edgeboro Landfill). This disposal arrangement is expected to continue.

A western facility would not be presently cost effective. Should Hamm's Landfill be terminated, however, the transfer station servicing western municipalities would be cost effective since the nearest alternative disposal facility is over 30 miles away to the west.

No facility site suitability analyses have been performed, and no definitive boundaries to separate the northeast, southeast, and western areas have been delineated. It is recommended that private industry be enlisted to implement the transfer station system. In order to solicit proposals for this purpose, it will be necessary to devise general criteria for the design, location, and throughput for these proposed facilities. This activity should be undertaken as soon as possible.

FIGURE 4.B-1

COMPARISON OF HAUL COST FOR TRANSPORT ALTERNATIVES



4.C Evaluation of Alternative Resource Recovery Technology

Operating History

Mass burning via waterwall incineration has the most impressive operating history when compared with either RDF or modular combustion facilities. The nine waterwall incinerators presently operating in the United States have processed nearly 15 million tons of waste. Comparable figures for RDF and MCU facilities are 2.2 million and 1.6 million tons processed, respectively. Table 4.C-1 presents these figures, by facility type, for each resource recovery system operating in 1982.

Resource recovery technology reliability can also be measured by the occurrences of long term plant shutdowns. While 5 of the 9 waterwall facilities have experienced major shutdowns, they are all presently operational. In addition the facilities in Chicago, Saugus, and Harrisburg, each of which utilize a European waterwall system have never experienced major downtime in their combined 26 years of operation.

The RDF facilities with dedicated boilers cannot be readily compared to waterwall incinerators on this count, due to the limited operating history of these facilities. Of the 5 facilities that have been built, one is presently shut down, in Hempstead, N.Y., due to environmental problems. It is not known when this facility will be reactivated. If one evaluates all RDF facilities, including those without dedicated boilers, to assess historic reliability a poor picture emerges, with 6 of 13 RDF facilities presently shut down. However since many of the shutdown RDF facilities were due to lack of fuel customer, their inclusion in this comparison with RDF facilities equipped with dedicated boilers may not be entirely reasonable.

Table 4.C-1

OPERATING HISTORY BY TYPE

RESOURCE RECOVERY FACILITIES

Waterwall Incineration

Location	Actual Capacity (TPD)	Years Operating	Waste Processed (TON)
Chicago, IL	1200 TPD	11 years	4,818,000 tons
Braintree, MA	250	10	912,500
Saugus, MA	1200	6	2,628,000
Oceanside, NY	450	16	2,628,000
Harrisburg, PA	550	9	1,806,750
Nashville, TN	400	7	1,022,000
Hampton, VA	200	1	73,000
Norfolk, VA	140	15	766,500
Portsmouth, VA	60	5	109,500
TOTAL	4,450 TPD		14,764,250 tons

RDF w/Dedicated Boilers

Location	Actual Capacity (TPD)	Years Operating	Waste Processed (TON)
Dade County, FL	3,000 TPD	0	1,095,000 tons
Albany, NY	750	0	273,750
Niagara Falls, NY	1,100	0	401,500
Akron, OH	600	2	438,000
TOTAL	5,450 TPD		2,208,250 tons

Table 4.C-1 (Cont'd)

OPERATING HISTORY BY TYPE

RESOURCE RECOVERY FACILITIES

Modular Combustion Units

Location	Actual Capacity (TPD)	Years Operating	Waste Processed (TONS)
Batesville, AR	40	1	14,600 tons
Blytheville, AR	50	6	109,500
N. Little Rock, AR	100	4	146,000
Osceola, AR	40	1	14,600
Siloam Sp., AR	19	6	41,610
Windham, CT	135	1	49,275
Jacksonville, FL	350 (est.)	2	255,500
Jacksonville FL	20	1	7,300
Auburn, ME	170	1	62,050
Pittsfield, MA	200	1	73,000
Genesee, MI	100	1	36,500
Collegeville, MN	55	0	20,000
Durham, NH	75 (est.)	1	27,375
Groveton, NH	12	6	26,280
Crossville, TN	60	3	65,700
Dyersburg, TN	70	1	25,550
Lewisburg, TN	60	2	43,800
Gatesville, TX	7 (est.)	0	2,555
Palestine, TX	28 (est.)	0	10,220
Newport News, VA	40	1	14,600
Salem, VA	70	3	76,650
Waukesha, WI	140	10	511,000
TOTAL	1,841 TPD		1,633,665 tons

Over one quarter of all the modular combustion units constructed were shut-down at the time of the Gould survey in 1982. Of those five facilities which are presently shut down, three were due to equipment problems, one was unable to contract a steam user, and one was a demonstration project which had been discontinued.

Operational status of the facilities is summarized in Table 4.C-2.

Cost Evaluation

Only limited data are available to evaluate true cost differential between varying facility types. Reviewing capital costs of existing facilities provides little insight into this issue since their construction occurred at different time or base years. A comparison of projected capital cost for planned facilities provides more standardization for the evaluation of the capital cost associated with different types of facilities. This comparison is presented in Table 4.C-3.

Waterwall incinerators exhibit the highest capital cost per ton of design capacity, at $70,275/ton and $71,775/ton for steam generating and electric generating facilities, respectively. Proposed RDF facilities which dedicated boilers exhibit an average cost of $56,865 per ton of daily design capacity. Modular combustion units have the lowest average capital cost at $47,690 per ton of design capacity.

Resource recovery facilities rarely operate at design capacity for extended periods of time, so a comparison of actual average waste processing capacity with design capacity for different facility types is of interest. Table 4.C-4 presents that comparison. The 9 operating waterwall incinerators, on the average, process waste at about 70 percent of design capacity. Modular combustion units exhibit an average processed capacity in excess of 87 percent of design capacity. The 4 RDF facilities with dedicated boilers report average operation at over 78 percent of design capacity. Since these facilities are new, and appear to have over reported their average actual thruput, the average operating capacity of all RDF facilities was also determined. This was found to be just over 68 percent, or nearly equivalent as the ratio exhibited by waterwall furnaces.

Table 4.C-2

Number of Facilities by Technology and Status

Status	Type of Facility		
	Waterwall	All RDF	MCU
Operational	9 (100%)	7 (54%)	14 (74%)
Shutdown	0	6 (46%)	5 (26%)
Total	9 (100%)	13 (100%)	19 (100%)

SOURCE: Gould, 1982

Table 4.C-3

Average Cost Per Daily Processed Ton

Planned/Proposed Resource Recovery Facilities

Plant Type	# of Proposed Plants	Total Capital Cost (1981) ($Million)	Total Daily Tonnage	Average Cost/Ton
Waterwall				
Steam	8*	$766.0	10,900	$70,275/ton
Electric	9	$1,131.9	15,770	$71,775/ton
Modular	2	$ 24.8	520	$47,690/ton
RDF w/Boiler	5**	$435.0	7,650	$56,865/ton

*Excluding Champaign-Urbana, IL

**Excluding Appleton, WI

SOURCE: Gould, 1982

Table 4.C-4

Comparison of Design and Actual Operating Capacity

For Resource Recovery Facilities

	Capacity		%	# of
Plant Type	Design	Actual	Actual/Design	Facilities
Waterwall	6,394	4,450	69.6%	9
MCU	1,563	1,362	87.1%	17
RDF w/Boiler	6,950	5,450	78.4%	4
All RDF	15,840	10,827	68.4%	13

SOURCE: Gould, 1982

A comparison of the tipping fees at the various facilities is not helpful, since this does not necessarily reflect true operating costs, particularly at publicly owned facilities. Likewise, a comparison of operating cost with debt service will provide an insufficient base to evaluate between facility types. This is due to the variety of debt instruments used to finance these facilities, and the different times in which the indebtedness occurred.

Operating cost per ton without debt service provides the most comparable measure of the variable costs associated with the operation of an energy recovery facility. Based on limited data, presented in Table 4.C-5, the average cost per ton by facility type is as follows:

Technology	Average Cost/Ton With Debt Service	# of Plants Providing Data	Average Cost/Ton Without Debt Service	# of Plants Providing Dat
Waterwall	$23.35	6	$20.28	3
RDF	$17.00	1	$19.50	2
MCU	$23.00	9	$11.83	4

There appears to be no significant difference between the Waterwall and RDF technologies in terms of Average Cost/Ton without debt service, while MCU exhibits significant lower cost in this category. It should be pointed out that the waterwall units providing data in that category have been operating for an average of 9 years as compared with 1.5 years and 3.5 years for RDF and MCU facilities respectively. Therefore operating cost without debt service may increase in the future for those RDF and MCU facilities, due to facility aging, while these 'aging' costs should already be reflected in the operating cost data for the older waterwall units.

Preferred Resource Recovery Technology

It is recommended that Morris County utilize the waterwall incinerator technology as a long term waste management strategy. This recommendation is based on the superiortiy of waterwall technology over RDF and MCU facilities

TABLE 4.C-5

Operating Cost Per Processed Ton
By Facility and Type

Waterwall Incinerators

Location	Cost/Ton w/Debt Service	Base Year	Cost/Ton w/o Debt Service	Base Year
Chicago, IL	NA	1979	$18.00	1980
Braintree, MA	$19.00	1980	NA	
Harrisburg, PA	$24.25	1979	$17.12	
Nashville, TN	$28.29	1979	$25.72	1980
Hampton, VA	$22.88	1980	NA	
Norfolk, VA	$29.63	1980	NA	
Portsmouth, VA	$16.03	1978	NA	

RDF w/Boilers

Location	Cost/Ton w/Debt Service	Base Year	Cost/Ton w/Debt Service	Base Year
Albany, NY	$17.00	1981	$15.00	1981
Akron, OH	NA		$24.00	1980

Modular Combustion Units

Location	Cost/Ton w/Debt Service	Base Year	Cost/Ton w/o Debt Service	Base Year
N. Little Rock, AR	$11.10	1980	NA	
Osceola, AR	$19.00	1980	NA	
Windham, CT	$ 7.50	1981	NA	
Jacksonville, FL	$50.00	1980	NA	
Genessee, MI	$18.00	1981	NA	
Durham, NH	NA		$16.00	1980
Groveton, NH	$28.54	1980	NA	
Oneida, NY	NA		$13.50	
Dyersburg, TN	$22.79	1981	NA	
Lewisburg, TN	$32.00	1980	NA	
Salem, VA	$18.18	1980	$ 7.45	1980
Waukesha, WI	NA		$10.37	1980

Source: Gould, 1982

in two essential respects:

Operational history and experience

Reliability

Waterwall technology also has an advantage over MCU in that the facility can market steam, electricity, or both. It is doubtful that electricity can be economically generated at small MCU facilities.

While modular combustion facilities and RDF facilities involve less capital expenditure than waterwall incinerator, the proven reliability of the waterwall technology is worth the additional cost. In addition, an RDF facility with boilers can expect higher later year operating costs which may offset any original capital cost savings. Modular combustion facilities, if implemented in Morris County, would require multiple sites, ancillary facilities, and multiple contracted steam users. And while this technology would be the least expensive to implement in terms of capital cost (33% less than waterwall), institutional problems with respect to multiple facilities, coupled with the relatively short operating history, make this system less preferable than the waterwall technology.

It is also recommended that the waterwall facility be owned and operated by a full service contractor to be selected by the County.

4.D Evaluation of Recycling Alternatives

Municipal

Depot Recycling Centers

Expanding the number of depot operations in a municipality can increase the amount of material recycled by improving accessability. Gregarious public education programs are essential for all recycling efforts, but even more so when the residents are required to travel to a center in order to recycle. A saturation point must also be considered in order to assure sustention of each program.

In 1982, 4 recycling depots operated in 29 municipalities throughout Morris County. Table 4.D-1 lists recycling depots which are the major recycling collection in the municipality. Participation rates were determined by 1982 population projections and weight of materials recovered as reported in municipal Recycling Grants. The figures presented in this table are accurate, but do not propose an analytical solution for ideal depot conditions. Only through a complete understanding of the conditions under which each is operated, can one understand the participation rate success of each program.

Depots which are co-sponsored by volunteer groups and a municipality are in a position to achieve the highest success rates.

When a municipality provides a permanent collection center, materials can be stored until quantities justify a market pickup. Larger volumes also will bring in higher prices paid for materials. Solid waste hauling costs will be directly avoided by municipalities with their own trash collection departments, and those on municipal contract with a private hauler may seek contract reductions as a function of the amount of recycled materials not disposed of.

TABLE 4.D-1

1982 RECYCLING DEPOT PARTICIPATION RATES

Chatham Boro: 8537
Chatham Twp.: 8883

17,375[1] residents V.S. [2]
Mobile depot - one day/mo.
newspaper - 454.08=4.36 lbs/cap/mo.
glass - .5 lbs/cap/mo.: alum-.03 lbs/cap/mo.

Chester Twp: 5375 residents V.S./M.S.
temporary depot - one day/mo.
newspaper - .40 lbs/cap/mo.
glass - .43 lbs/cap/mo.
other - .02 lbs/cap/mo.

Denville: 14,443 residents M.S.
Permanent depot - open 6 days/week
newspaper - 1.28 lbs/cap. mo.
glass - 1.0 lb/cap./mo.

Florham Park: 9356 residents V.S./M.S.
Permanent depot - open 2 days/mo.
newspaper - 5.45 lbs/cap./mo.
glass - .68 lbs/cap./mo.

Hanover: 11,846 residents M.S.
permanent depot - open 6 days/wk.
glass - .74 lbs/cap./mo.

Harding: 3234 residents V.S./M.S.
mobile depot - open 1 day/mo.
newspaper - 5.2 lbs./cap./mo.
glass - 2.24 lbs/cap./mo.
alum. - .03 lbs/cap/mo.

Kinnelon: 7,802 residents M.S./V.S.
permanent depot - open 6 days/wk.
newspaper - .44 lbs. cap/mo.
glass - .96 lbs/cap./mo.

Madison: 15,100 residents M.S./V.S.
permanent depot - open 1 day/mo.
newspaper - 1.19 lbs/cap./mo.
glass - .28 lbs./cap./mo.

Mine Hill: 3281 residents M.S./V.S.
Permanent depot - open 4 days/mo.
newspaper - 3.78/lbs./cap./mo.
glass - .95 lbs/cap./mo.
aluminum - .02 lbs/cap.

Montville: 14,754 residents MS/VS
permanent depot - 4 days/mo.
newspaper - 3.08 lbs/cap./mo.
glass - .60 lbs/cap./mo.

Mountain Lakes: 4,042 residents MS/VS
mobile depot - open 8 days/yr.
newspaper - 2.92 lbs/cap./mo.
glass - .57 lbs/cap./mo.
aluminum - .02 lbs/cap./mo.

Passaic: 7253 residents MS/VS
permanent depot - open 4 days/mo.
newspaper - 1.92 lbs/cap./mo.
glass - 1.72 lbs/cap./mo.

Average Depot Participation Rates:

Newspaper: 2.73 lbs/cap./mo.
Glass: .89 lbs/cap./mo.

[1] Recycling Committee of the Chathams operates one mobile depot in the Borough, and one in the Township each month.

[2] M.S. = Municipality sponsored program
V.S. = Volunteer sponsored program
M.S./V.S. = Jointly sponsored

Volunteer groups with access to a permanent location reap similar benefits. A regular collection schedule and location help to increase participation. The higher market rates achievable in this set-up mean a steady income for well managed volunteer programs.

Depots operated entirely by a municipality can increase accessability by having the center open during regular DPW hours. Paid labor to maintain the center may, however, ameliorate the financial benefits of increased volumes that improved access brings.

Temporary recycling depots have for years provided income to volunteer groups. However, lack of long-term storage and sometimes inconsistent scheduling and locations may prevent this type of depot from providing any significant reduction in municipal waste.

The depot participation rates on table 4.D-1 can be interpreted as a direct function of the following features:

1) public education efforts
2) duration of program
3) consistency in scheduling and location
4) number of groups or individuals directly involved in operations
5) competition with other smaller community programs

Curbside Source Separtion

1982 began with only 2 municipal curbside recycling collection programs and ended with 7. All but one of these programs remains unaccompanied by a mandatory recycling ordinance. Table 4.D-2 lists the participation rates of each of these programs on a per capita basis. The table clearly shows that program duration and mandated ordinances have a direct positive effect on recovery rates.

TABLE 4.D-2

1982 Curbside Collection Participation Rates

Municipality 1982 Population	Recovery Data	Mandatory	Duration
Boonton: 8,498	Newspaper - 2.10 lbs/cap./mo. Glass - 2.07 lbs./cap./mo.	Yes	1/82-12/82
Dover: 14,621	Newspaper - 1.76 lbs./cap./mo.	Yes	5/82-12/82
Lincoln Park: 8,763	Newspaper - 1.76 lbs./cap./mo.	Yes	6/82-12-82
Mount Olive: 19,608	Newspaper 1.05 lbs./cap./mo.	Yes	9/82-12/82
Rockaway Twp: 20,020	Newspaper - .74 lbs./cap./mo.	No	1/82-9/82
Victory Gardens 1,046	Newspaper - 1.20 lbs./cap./mo.	No	6/82-12/82
Wharton: 5,475	Newspaper - 2.36 lbs./cap./mo. Glass - 2.92 lbs./cap./mo.	Yes Yes	1/82-12-82 1/82-12/82

Municipalities with municipal collection systems have the greatest opportunity to engage in curbside collection. Enforced mandatory participation should yield enough income from sales of materials to cover collection expenses. The greatest savings in this system will be transportation and landfill disposal costs avoided through recovery.

Where a private hauler conducts solid waste collection on municipal contract, the municipality can utilize existing DPW equipment (standard dump trucks etc.) or contract the recycling collection to a private scavenger. In this case, the only savings potential lies in the municipality's ability to obtain a contract price reduction for the amount of materials being recycled and handled by the hauler.

Municipalities where each homeowner is responsible for contracting their own trash removal with a private hauler can not realize savings in a curbside collection program. High participation rates and low collection costs may yield a small profit in material sales, but no cost-avoidances are available to either the municipality or the homeowner in this situation.

Regional Recycling Coalitions

The creation of a regional recycling coalition may be the answer for municipalities which are eager to recycle yet lack adequate financial resources. Through the development of a joint municipal service agreement, several municipalities can share expenses for operating curbside recycling collections, or perhaps constructing a centralized recycling depot.

Through an interlocal services agreement, or a joint municipal service agreement, a regional program can be established. The costs for planning and implementing a recycling program are spread over a larger population. Because more people are served by a regional program, a greater volume of materials can be recovered, increasing marketability. Finally, more municipalities can realize waste stream reduction benefits.

Composting

As stated earlier, a municipal composting operation alone can reduce the solid waste stream by 12%-14% by weight. Yard wastes are the one component of municipal waste that can be collected and reused without marketing complications. While compost is valuable to the soil, unprocessed yard wastes are responsible for a substantial reduction in available landfill space.

Costs for processing and/or transporting yard wastes for composting will be directly off-set by avoided landfilling costs for municipalities with their own collection systems. But as with curbside programs, only negotiation with a contracted hauler will offset these costs in other municipalities.

County

Curbside Collection Services

One means which can be utilized to initiate a County sponsored collection program is through a joint purchasing arrangement. In a joint purchasing arrangement, two or more local government agencies agree that one of them will serve as purchasing agent for the group. In the case of a County sponsored collection, the County, as the purchasing agent, would do the buying for the involved municipalities, and perform all of the functions of preparing formal specifications, advertising for and receiving bids, and executing a contract with the lowest responsible bidder for the full amount of the commodities or services needed by all participants.

For a curbside collection program, the County may elect to either award a contract to a private hauler to conduct the recycling collection, or purchase equipment to conduct the service itself providing County labor. In either case, the participating municipalities should agree to pass mandatory source separation ordinances to insure program success. Without such success, the programs would become unfeasible to the agent providing the service.

The County sponsored collection concept is currently being executed in Burlington County, N. J. The program began with 4 densely populated municipalities involved in a joint purchasing arrangement where the County awarded the collection contract to a private hauler. Problems ensued when the contractor failed to provide adequate services. In response to this, the County arranged to purchase the necessary equipment and provide collection services through the Burlington County Occupational Training Center (OTC).

Although the OTC is not a County agency, it was able to acquire the necessary funds through grants. Two grants were awarded to the OTC from the County in the form of a County Bond Issue and from Community Development Funds. The third grant was a Resource Recovery Program Implementation Grant administered by the Department of Environmental Protection. With these financial resources, the OTC was able to

purchase the necessary equipment and provide wages (below minimum wage for OTC participants) for workers.

Burlington County reports the program a success, and added 3 municipalities with mandatory source separation ordinances to their program in February, 1983. The County expects the number of municipalities participating in the program to double by the end of 1983. The program will also be expanded when new trailers are attached to the 14' step vans used for the paper collection, for collection of color separated glass.

The availability of a large, inexpensive work force, and the acquisition of grants have both been instrumental in the initiation and continued expansion of Burlington County's program. Similarly, Morris County is the home of a large sheltered Occupational Training Center. The Center, located in Cedar Knolls (Hanover Township) is aimed at providing steady work for its 180 participants.

Of the 32 municipalities in the County without sufficient equipment or labor, approximately 15 municipalities have a high enough population density to render curbside collection feasible. They are:

Butler	Mendham Borough
Chatham Borough	Morris Plains
Chester Borough	Mountain Lakes
Denville	Netcong
East Hanover	Parsippany-Troy Hills
Florham Park	Pequannock
Madison	Riverdale
	Rockaway Borough

Of the above listed municipalities, 5 have no regularly scheduled newspaper, glass or aluminum programs, and 10 have permanent or temporary depot operations. As noted earlier, a curbside collection with a mandatory source separation ordinance increases recycling.

Brokerage Center

A brokerage facility is currently operating in Cape May County, N. J. The Cape May County Municipal Utilities Authority (CMCMUA), the County's solid waste agency, is the central receiving agency for recyclable materials. In accordance with the goals of their master plan, the CMCMUA opened the recycling facility in October, 1981. A monitoring program began on January 1, 1982. Quarterly reports throughout 1982 summarize the total quantities of material recycled, operation costs and revenues from the sales of materials, municipalities participating and their participating rates.

The first quarter began with 3 municipalities involved in curbside source separation for delivery to the center. The quarter closed with 5 participating municipalities. As the months passed, the participation rates for each municipality showed a strong upswing. Because markets for collected newspaper and aluminum had not been established during the first quarter, the facility's only income was from glass sales. Revenue in the first quarter therefore was only $419.50.

The CMCMUA Recycling Facility is operated by 1 manager and 2 laborers. The workers are employed at the center full time during the summer months, and 3 days per week during the winter months. The manager is paid $7.73 per hour, and the laborers each receive minimum wage plus fringe benefits and overhead. The total first quarter operating expenses, including wages, fuel, insurance, utilities, debt service and truck weights, was $11,382.00 Comparison of revenue to the operating expense yielded a net loss of $10,936.28 for the quarter.

By the end of the 2nd quarter, 6 municipalities were operating curbside source separation for newspaper and glass. A market for newspaper had also been established. Total revenues for the 2nd quarter were $6,024.80. Operating expenses were $17,381.94. The deficit for the 2nd quarter was $11,357.18.

Revenues from the sale of materials jumped to $14,748.08 in the 3rd quarter. By the end of this period 7 municipalities were conducting curbside separation

programs. However, with 3rd quarter operating expenses reaching $28,634.96, the deficit for the 3rd quarter was $13,886.88.

In the first month of the monitoring program, 22 tons of material from 3 municipalities were brought to the center. At the end of the 3rd quarter, 129 tons were recycled by 7 municipalities. The CMCMUA is, therefore, substantially increasing recycling in the County by implementing a brokerage operation. It is clear, however, that in order to achieve this goal, they have and will continue to undergo a tremendous expense.

Unlike Cape May County's remote location from recycling markets, Morris County houses 11 recycling companies. Table 4.D-3 offers a list of Morris County markets, as well as a breakdown by material types and company services. The following guide explains codes on the table:

CO-TYPE - (Company-type)

PRO=Processor, purchases, sorts and markets material

BRO=Broker, arranges for purchase, sale and delivery in bulk quantities

FIN=Final user, manufactures products from recyclable material

SOURCE - (From whom companies purchase materials)

B=Businesses M=Municipalities

I=Individuals V=Volunteer Groups

SERVICE - (Services which company will provide)

P=Pickups from a recycling program

E=Equipment provided for a recycling program

K=Contract provided upon request

In addition to the markets listed on the table there are well over 50 markets in nearby and neighboring counties which provide marketing services throughout Morris County.

CITY	COMPANY	CO-TYPE	SOURCE	SERVICE	MATERIALS	SUB-TYPE
BUTLER	Glass Cycle Systems	PRO	B	P E K	Glass	Color Mixed
CEDAR KNOLLS	Morris Co. Recycling Center	PRO	B I M V	P E	Paper	High-Grade Lo-Grade
DOVER	Conca & Mavigla	PRO	B I M V		Metal	Ferrous Scrap Non-Ferrous Scrap
HANOVER	American Paper Co.	PRO/BRO	B I M V	P E	Paper	High-Grade Lo-Grade Magazine
MONTVILLE	V & V Recycling	PRO	B I M V	P E K	Metal	Aluminum Cans Ferrous Scrap Non-Ferrous Scrap
MORRISTOWN	Jacob Wenarsky's Sons	PRO	B I M V		Metal	Ferrous Scrap Non-Ferrous Scrap
PINE BROOK	Pure Tech Industries	PRO	B M	P E	Plastic	
ROCKAWAY	Rockaway Recycling	PRO	B I M V		Metal	Non-Ferrous
WHARTON	Rockaway Valley Paper	PRO	B I M V	P E K	Metal Paper	Aluminum Cans Hi-Grade Lo-Grade
WHARTON	Thatcher Glass Mgr.	FIN	B I M V	K	Glass	Color Mixed Color Separated
WHIPPANY	O. Bernabe & Sons	PRO	B I M V	P	Metal	Ferrous Scrap Non-Ferrous Scrap

TABLE 4.D-3 RECYCLING MARKETS IN MORRIS COUNTY SOURCE: Directory of Markets For Recyclable Materials-May, 1982

Intermediate Processing Facility

One of very few Intermediate Processing Facilities (IPF) in operation in the United States services the town of Islip, Long Island. The "WRAP" Center (WRAP is Islip's term for mixed recyclables) has been in operation since October, 1982 and uses mainly a hand-sorting process.

The IPF accumulates income, in addition to material sales, through a $10.00/ton tipping fee, the same fee charged for waste disposal at the landfill. The municipal landfill is closed to all municipal waste traffic on Wednesdays when all haulers must dispose of the recyclables at the WRAP Center only.

In the first year of full scale operation, the WRAP Center recycled aluminum, corrugated, ferrous, glass, paper, P.E.T. plastic, and scrap at a rate of 43.10 lbs per person or 3.6 pounds per capita, per month. In 1982 the number increased to 57.66 pounds per capita, or 4.8 pounds per capita, per month.

For 1983, the town of Islip has budgeted $303,300 for operating the WRAP Center. Revenues from material sales and tipping fees is expected to be $420,000.

The labor-intensive system employed at the WRAP facility requires 15 laborers at $190,000 per year (includes fringe benefits) and 11 additional workers at $227,600 per year. This system entails hand separation of all materials except ferrous metals.

Islip houses 300,000 residents, and has a population density of 2,730 residents per square mile. A stringently enforced source separation ordinance enables haulers in this densly populated town to collect large quantities of WRAP while keeping transportation costs down.

The population density, the level of ordinance enforcement and residential participation have made Islip's IPF a feasible endeavor. In comparison with the geographical characteristics of Islip, the entire County of Morris has only 400,000 residents, and an overall population density of 835 people per square mile.

The costs of implementing an IPF to serve the entire County would be far more extreme than those incurred by the Town of Islip due to Morris County's smaller population density. It must be noted that Islip's IPF was established in the Town's incineration plant which had to cease operation. This negated a large share of capital expense which would have otherwise been required for facility construction.

Preferred Recycling Alternatives

Municipal

Every municipality is capable of waste stream reduction through recycling by implementing one or more of the alternatives available or improving existing practices. Table 4.D-3 lists the changes planned for recycling in 14 Morris County communities. This table is inconclusive, as progressive moves in recycling occur daily.

Any municipality can implement depot recycling operations. The most cost effective and beneficial method is to utilize both municipal and volunteer resources. Where long-term, successful volunteer recycling depots are already in operation, the municipalities should support the programs through community-wide educational efforts which will help to increase the volume of materials recovered. Municipal contribution of a permanent facility may also improve all-volunteer operations. Municipalities running their own depots should enlist volunteer support to embark on community-wide education projects. Even municipalities with curbside recycling collections can improve public support by offering residents a drop-off center for disposal of accumulated recyclables in between collection dates.

Municipalities with municipal collection systems should utilize those systems for implementation of mandatory, curbside, source separation programs. The material collected should always include newspaper. Glass, aluminum and other recyclables should be collected where cost effective. In municipalities with other collection systems, evaluation of available resources, and potential to reduce solid waste cost incurred by the municipality or individual homeowners will determine the cost effectiveness of a well organized curbside source separation program. Continuous education and enforcement is essential to success in all programs.

PLANNED CHANGES IN EXISTING RECYCLING/SOURCE SEPARATION ACTIVITIES

TABLE 4.D-4

Municipality	Program Administered by	COLLECTION MODE (b) Program Collector (a)	Curbside Pickup, Depot, or Both	Schedule/ Location	Materials	Tons Per Year	Current Market(s) (a)	Markets Covered by Contract (Yes/No) (a)	Mandatory Ordinance (Yes/No) (a)	Applying for Recycling Grants? (Yes/No) (c)
Chatham Borough Chatham Township	Municipal Assistance	Recycling Committee of the Chathams	Change to Permanent Depot	Undecided	N/G/A				No	Yes
Denville Townsip	Township	Same	Depot		Add Aluminum				No	Yes
Dover	Town	Same	Add Depot		Add Aluminum				Yes	Yes
Florham Park	Volunteers & Borough	Volunteer	Depot		Add Aluminum and Oil				No	Yes
Jefferson Township	Volunteer	Contractor	Curbside		Begin News				Yes	Yes
Lincoln Park	Borough	Volunteers & Borough	Depot - - - Curbside	- - - - - - - -	-Oil Add glass				Yes	Yes
Mount Olive	Township	Same	Curbside		Add glass				Yes	Yes
Mountain Lakes	Borough	Borough and Volunteers	Depot	Add 2 Collection Dates	Add oil				No	Yes
Netcong	Borough	Contractor & Borough	Curbside	1 day/mo. for A/G Regular for N	Begin A/G/N				Yes	Yes

G = Glass
A = Aluminum
L = Leaves/yard wastes
N = Newspaper
M = Metals
O = Oil
P = Paper misc.

E = Education Grant
P = Planning Grant
T = Tonnage Grant

PLANNED CHANGES IN EXISTING RECYCLING/SOURCE SEPARATION ACTIVITIES

TABLE 4.D-4

Municipality	Program Administered by	COLLECTION MODE (b) Program Collector (a)	Curbside Pickup, Depot, or Both	Schedule/ Location	Materials	Tons Per Year	Current Market(s) (a)	Markets Covered by Contract (Yes/No) (a)	Mandatory Ordinance (Yes/No) (a)	Applying for Recycling Grants? (Yes/No) (c)
Passaic Township	Volunteers	Same	Depot		Add Bi-metal cans				No	Yes
Rockaway Township	Township		Curbside		Add glass and Aluminum				Yes	Yes
Roxbury Township	Township	Same	Curbside	1/mo.	Begin N/G/A				Yes	Yes
Wharton	Borough	Same	Curbside		Add Bi-metal cans				Yes	Yes

G = Glass
A = Aluminum
L = Leaves/yard wastes
N = Newspaper
M = Metals
O = Oil
P = Paper misc.

E = Education Grant
P = Planning Grant
T = Tonnage Grant

For municipalities which determine that population and/or available resources will not sufficiently reduce municipal waste, regionalization of recycling efforts may offer the necessary solutions. Cooperative interest and inter-municipal willingness are essential for successful implementation of regional recycling coalitions.

Finally, municipal implementation of composting operations should be investigated in every municipality. Regionalization may offer a more cost effective solution for composting in some areas. Even public education toward backyard composting activities can help reduce the yard waste component of municipal waste streams.

County

In reviewing the County options for recycling, it becomes evident that a low-technology approach will be the most feasible and will best serve the residents of Morris County.

A county-level intermediate processing facility would be an economic strain for taxpayers and municipal and County governments. Because of Morris County's fortunate access to such a large number of markets, a county-wide brokerage facility is not necessary to reduce transportation costs. The greatest contribution to municipal waste stream reduction from the County level would be to offer curbside collection services to municipalities having limited existing resources.

Morris County's OTC has expressed enthusiastic interest in participating in a curbside source separation program. Finding daily work for the OTC's 180 participants, the Center reports, has always been a most difficult task. A curbside collection service would, therefore benefit residents, municipalities, the OTC and the County as a whole.

All potential avenues for implementing such a program (grants, purchasing agreements, etc.) should be investigated. Participating municipalities would

be required to ensure maximum program effectiveness through mandatory ordinance implementation and enforcement, and community-wide education programs.

Actions initiated on the municipal level will deliver the most immediate reduction in municipal solid waste. Maintenance of County assistance to municipalities, and implementation of curbside collection service will further County waste stream reduction efforts. Moreover, commitment to recycling on both the municipal and County levels will meet current waste stream reduction needs while enhancing conservation of resources for long-term solid waste management.

Chapter 5 - Public Participation Program

Morris County solid waste management has had, and will continue to have, an extremely active public participation program. The major vehicle of the program is the Morris County Solid Waste Advisory Council (SWAC) which was instituted by the Board of Freeholders and whose function is to advise the Board on all solid waste policies.

The SWAC presently consists of 15 members who are individually approved by the Board. The members are County citizens who bring expertise to the council as engineers, financeers, lawyers, businessmen, and people with direct involvement in the solid waste industry. A list of the current members is shown in Table 5-1.

The SWAC meets on a regular monthly basis and holds special meetings and public hearing as they become necessary. A list of regular SWAC meetings held during the preceding two years is shown in Table 5-2. Table 5-3 provides a list of special meetings and public hearings which were held by SWAC during the preceding two years. All SWAC meetings are advertized and open to the public. Each meeting contains a public comment portion which enables any member of the public to participate. There has been an overwhelming public interest in Morris County's solid waste management during the preceding two years as evidenced in public attendance and participation at the SWAC meetings and hearings. We expect this interest to remain at these levels in the future.

Minutes from the regular SWAC meetings provide an up-to-date account of the entire County program. Minutes and other pertinent information prepared by the County staff or their consultants are made available to any interested person, group or agency. Special presentations are also periodically conducted during regular SWAC meetings addressing solid waste issues and solutions.

County staff (see Table 5-4) also plays an active role in the public participation program. They are in continuing contact with SWAC and the Freeholder Board to exchange information and advice. In addition, the staff has periodically presented the program to interested groups and frequently responds to citizen inquiries, problems and complaints that are directed to the County. Action has been taken to prepare a formal presentation on the various aspects of solid waste management. This presentation package will be used in an expanded role to brief educators, citizen groups and public officials on major issues, technologies, public concerns and safety, and other pertinent factors of waste management. The news media has maintained a keen interest in the program and is in frequent contact with the County staff. News releases are also conducted as necessar

The staff meets and discusses issues with state and municipal officials. Municipal interaction is exercised predominantly in the County's recycling efforts whereby a full-time Recycling Coordinator provides technical assistance to municipalities and recycling groups.

Morris County staff prepares and distributes a quarterly newsletter, Morris County Resource Recovery Report, which contains articles pertaining to relevant solid waste issues, and information pertaining to available recycling services and programs throughout the County and the general area. The newsletter is distributed to municipalities, agencies, groups, businesses, and others who have expressed interest, and presently has a mailing list that exceeds 2500.

Finally, the Board of Freeholders plays an active role in the public participation program by involvement in discussions with municipal officials, interested groups and private citizens. Also, as required by statute, the Board will schedule and conduct a special public hearing to take public and expert testimony relative to any modification to the Morris County Solid Waste Management Plan.

Table 5-1

Morris County

Solid Waste Advisory Countil

Member	Municipality
Frank Schimmenti, Chairman	Boonton
Carl Erickson, Vice-Chairman	Dover
Stephen Batty	Mountain Lakes
Margit Brown	Morristown
Thomas Branch, Jr.	Mendham Township
John Dellicker	Roxbury Township
Augustus Knight, Jr.	Chester Township
William Mathews	Passaic Township
Brenda Payne	Washington Township
Robert Powell	Morris Township
Andrew Presing	Butler
R. Fenn Putman	Mendham Township
Kenneth Rogers	Parsippany
Carl Schellenberger	Rockaway Township
Joseph Simrany	Mount Olive Township
Ex-Officio	
Frederick Knox, Freeholder	East Hanover Township
Counsel	
Ronald Kevitz	Roxbury Township

Table 5-2

DISTRICT SOLID WASTE
ADVISORY COUNCIL:

SWAC Meeting Schedule

(for all meetings in preceding 2 calendar years)

Date and Time		Place
	P.M.	
1/21/81	8:00	County Courthouse, Morristown, Freeholders' Conference Room
2/18/81	"	" " "
3/18/81	7:30	" " "
4/15/81	"	" " "
5/20/81	"	" " "
6/24/81	"	" " Administrator's Conference Room
7/15/81	"	" " Freeholders' Conference Room
8/19/81	"	" " "
9/23/81	"	" " Engineer's Conference Room
10/21/81	"	" " Freeholders' Public Meeting Room
11/18/81	"	" " "
12/10/81	"	" " "
1/20/82	"	" " "
2/17/82	"	" " Jury Assembly Room
3/17/82	"	" " Freeholders' Public Meeting Room
4/21/82	"	" " Freeholders' Conference Room
5/19/82	"	" " "
6/16/82	"	" " "
7/21/82	"	" " "
8/18/82	"	" " "
9/15/82	"	" " "
10/20/82	"	" " Freeholders' Public Meeting Room
11/17/82	"	" " "
12/15/82	"	" " Freeholders' Conference Room
1/19/83	"	" " "
2/16/83	"	" " "
3/16/83	"	" " "
4/20/83	"	" " "

Table 5-3

Public Information and Public Hearing Schedule
(for preceding two full years)

Date	Place	Subject/Type of Meeting (Hearing, Information, Session, etc.)
6/17/81	Morris County Courthouse, Freeholders' Meeting Room	Public meeting w/League of Municipalities to present landfill siting methodology
12/16/81	Morris County Courthouse, Jury Assembly Room	Public meeting to present landfill site selection methodology and to accept public comment on same
2/11/82	County College of Morris, Gymnasium	SWAC public hearing on candidate landfill site in Rockaway Township
2/22/82	Roxbury High School	SWAC public hearing on candidate landfill site in Roxbury Township
3/22/82	Mt. Olive High School	SWAC public hearing on candidate landfill site in Mt. Olive Township

Table 5-4

DESIGNATED DISTRICT SOLID WASTE MANAGEMENT
IMPLEMENTING AGENCY
(Complete separate sheet for each agency which shares implementing authority)

Name of Agency: Morris County Board of Chosen Freeholders

Address: Courthouse
Morristown, NJ 07960

Phone number: 201-285-6212

Staff:

NAME	TITLE	SUMMARY OF DUTIES
Kenneth Gallagher	Solid Waste Coordinator	Staff supervision; liaison w/SWAC and Freeholders' management and implementation of solid waste systems in Morris County.
Glenn Schweizer	Principal Planner	Preparation of technical studies re: Solid Waste Management Plan, landfill site selection, resource recovery implementation.
Lauren Roman	Recycling Coordinator	Provision of technical assistance to municipalities and recycling groups; implementation of County Recycling Program.

- Please provide a summary or outline of public participation, education and outreach activities planned for the upcoming year. This description should include details of the public involvement phase of the adoption of this Plan Update. Please also describe any activities such as meetings, hearings, etc. not included in Table 12B.

Chapter 6 - Solid Waste Management Plan

This chapter will summarize the key components of the Morris County Solid Waste Management Plan Update including interim and long range strategies through the year 1992. The data utilized in the developing of this plan update, as well as certain individual components, may be subject to improvement and refinement as future needs and conditions require.

6.A General Policy

It is the general policy of the Morris County Solid Waste Management District to ensure that interim and long range disposal of solid waste generated in the County is done in the most cost effective, environmentally sound manner. Interim policy, which requires continued disposal of waste in out-of-county landfills, calls for the aggressive application of source separation efforts and the establishment of one or more transfer stations for the transport of waste to the disposal sites outside of the County. The long term strategy proposes the use of a single waterwall incineration facility for waste volume reduction and energy production for the total waste load of Morris County.

The short range, or interim, disposal of waste generated within Morris County has become a critical issue in recent years. This critical situation has resulted from the termination of two regional landfills in Morris County in 1981 coupled with the District's decision not to select and develop a new sanitary landfill site.

Morris County evaluated potential land disposal sites, in studies requiring nearly two years for completion, with no suitable sites being adopted. Topographic characteristics of Morris County (most importantly the fact that the County hosts the headwaters of three major drainage basins which provide potable water) precluded the rational selection of a large regional landfill site for unprocessed municipal waste. All surface water drainage in Morris County flows to potable surface water supply

systems including the City of Jersey City, the City of Newark, Elizabethtown Water Company, Passaic Valley Water Commission, and smaller purveyors providing potable water both within and outside of the County. In addition, most potable water supplied to County residents is derived from subsurface sources.

Morris County will therefore remain dependent on out-of-County land disposal facilities during the interim period. As of this writing the County has been unsuccessful in obtaining inter-district agreements from other counties, and is complying with emergency waste flow directions ordered by DEP. In order to reduce waste quantities exported outside of the district, source separation programs will be expanded wherever possible. Current estimates of material recycling represent about 10% of the County waste stream. It is unlikely that these low technology efforts will result in a waste stream reduction greater than 25%, and therefore more effective volume reduction and energy recovery through incineration is preferred for the long term.

Morris County's transfer station strategy will result in benefits within the district and to the waste receiving district. For most Morris County communities, transport costs to disposal sites can be minimized through the use of transfer stations. For the receiving districts, traffic related impacts at the disposal facity can be mitigated. Similar benefits can also be realized over the long range by minimizing traffic impacts at Morris County's energy recovery facility.

In order to reduce Morris County's reliance on out-of-County disposal facilities, this plan calls for the development of a waterwall incinerator and energy plant at an acceptable location within the County of Morris. The operation of such a facility will reduce, but not eliminate, the need for land disposal capacity. The final determination regarding the location of this future land disposal capacity has not been made. This issue will be addressed during preconstruction phases of the energy recovery projects.

The County does not wish to preclude the implementation of a regional waste-to-energy facility with one or more surrounding districts. However, since no such arrangements have been finalized, it is prudent for the County to pursue a sole source strategy at this time. Regionalization concepts can be incorporated by Plan amendment in the future.

6.B Procurement Strategy

The cornerstone of Morris County's long range plan for solid waste management is the implementation of an energy recovery facility. It is recommended that this facility be owned and operated by the private sector on a site to be selected by Morris County. If required, the County can purchase the site and lease it to the operator.

It is anticipated that the selection of a full service contractor to own and operate the facility can be made by July, 1984 after review of responses to a request for proposals. While it would be preferable for the facility site and energy customer(s) to be firmed up by the date of issuance of the RFP, it is not considered essential. Nonetheless, the County will pursue these issues in an attempt to hasten the implementation process.

The second key structural element of the solid waste management plan is the transfer station strategy. Procurement of these facilities will utilize a similar private sector approach. The County will issue a request for proposals based on general design, site, and operation criteria. Respondents who meet the County's general criteria can be selected according to public bidding procedures. The selected firm or firms can then have their facilities incorporated into the district plan by modification.

Table 6.B-1 presents a compilation of studies completed or to be undertaken as part of this long range planning and implementation process. Table 6.B-2 presents the schedule for the implementation of energy recovery.

6.C Proposed Facilities

Several facilities are proposed in this solid waste management plan. These include three transfer stations and one energy recovery facility. It is anticipated that each facility will be owned and operated by the private sector. Waste flow cannot be assigned to the proposed transfer station at this time due to uncertainty of the subdistrict boundaries and facility sites. Transfer station facility sites, designs, and the like will be approved, on a reactive basis, by the County if deemed in conformance with the District Plan.

Waste flow assignment to existing and proposed solid waste facilities is presented in Table 6.C-1.

The proposed waste flow assignments are developed into two scenarios. The first assumes Hamm's Landfill (HSL) to remain open and receive approval for expansion to accommodate those municipalities presently directed to HSL until the advent of resource recovery in 1989. The second scenario assumes the closure of HSL in December, 1984 then redirects that waste flow to Kinsley Landfill, Gloucester County to 1989.

The following waste flow assignments are involved in both scenarios. Waste from 8 municipalities will be directed to Carrino's Landfill for a two-year period. Capacity at this facility is assumed to be available January, 1984, however, if capacity becomes available prior to that time, then waste will be directed to this facility as soon as possible. Municipalities whose waste is presently directed to Edgeboro Landfill will continue to send their waste to that facility until 1989. Similarly, waste from Mt. Arlington Boro will continue to be disposed of in their municipal landfill, and Washington Township will continue to utilize High Point in Warren County until the development of Morris County's waste-to-energy facility projected to begin operation in 1989.

It should be noted that no waste has been directed to the facility proposed by the Lakeland Regional Solid Waste Management Authority from its Morris County communities of Butler, Kinnelon and Pequannock. There are several reasons for this. County staff believes that the 250 TPD design capacity (5 day/week) for the facility is much larger than necessary to accommodate waste from the six member municipalities. The Morris County share, using 1985 as a base year accounts for only 85 TPD on a 5 day/week basis.

Secondly, staff also believes that a small facility such as that proposed by the Lakeland Authority will exhibit diseconomies with respect to required air pollution control equipment and power generation devices when compared to a larger facility.

Finally, based on reports submitted to the County by the Authority, very little progress has been made toward the implementation of the facility originally scheduled to come on line in 1983. To date the County has no knowledge regarding site and energy market commitments necessary for implementation. Therefore waste from Butler, Kinnelon, and Pequannock will be assigned to the Morris County waste-to-energy facility when it comes on line.

Any new application for a compost facility or temporary facility for the disposal of on-site generated vegetative waste within Morris County will be considered consistent with the District Solid Waste Management Plan provided it meets existing environmental design and operation standards of the Department of Environmental Protection.

A compost facility is defined as any facility utilized for the natural conversion of organic materials to humus by micro-organism activity. A vegetative waste facility is any facility utilized for the disposal of vegetative waste (Type 23 including tree stumps) which are generated on site, with the facility being terminated upon completion of land clearance and disposal activities.

TABLE 6.B-1 COMPLETED AND PLANNED SOLID WASTE STUDIES
1979 to Present

Type of Study: (Feasibility, Engineering, Site Assessment; Preliminary or Final, etc.)	Completion Date (Actual or Expected)	Cost	Consultant/Contractor or (In-House)	Source of Funds	For Completed Studies: Brief Summary of Procedure & Findings
Solid Waste Management Plan	12/79	$60,000	RAS Associates	DEP Grant	County Solid Waste Data and Management Strategy
Sanitary Landfill Site Assessment (Preliminary	11/81	NA	In-House	NA	Identified 20 potential sites
Sanitary Landfill Site Selection (Final)	10/82	$200,000	Terraqua Resources Corp.	$20,000 DEP $180,000 County	Detailed evaluation of 4 potenti sites. Recommendation for final site selection.
Energy Market Evaluation (Preliminary)	11/82	NA	In-House	NA	Identified potential markets
Feasibility of a Transfer Station (Preliminary)	1/83	NA	In-House	NA	Evaluated the economic feasibility of utilizing a transfer station for eastern Morris County municipalities
Solid Waste Generation and Composition (Final)	2/83	NA	In-House	NA	Prepared new solid waste generation and composition projections
Resource Recovery Technology and Energy Market Feasibility Studies	9/83	NA	Consultant	$40,000 DEP Balance County	
Site Assessment/Selection Resource Recovery Facility	1/84	NA	Consultant In-House	County/NA	
Preparation of Procurement Documents for Resource Recovery Facility	1/84	NA	Consultant In-House	County/NA	

TABLE 6.B-1 (Cont) COMPLETED AND PLANNED SOLID WASTE STUDIES
1979 to Present

Type of Study: (Feasibility, Engineering, Site Assessment; Preliminary or Final, etc.)	Completion Date (Actual or Expected)	Cost	Consultant/Contractor or (In-House)	Source of Funds	For Completed Studies: Brief Summary of Procedure & Findings
Evaluation of Vendor Proposals/Selection of Vendor	7/84	NA	In-House/Consultant	County/NA	
Other Preconstruction Activities	7/86	NA	Vendor/In-House/Consultant	NA	

TABLE 6.B-2 PROPOSED SOLID WASTE FACILITY IMPLEMENTATION SCHEDULE /1983 PLAN UPDATE

Facility ENERGY RECOVERY FACILITY (complete one sheet for each new facility proposed or planned)

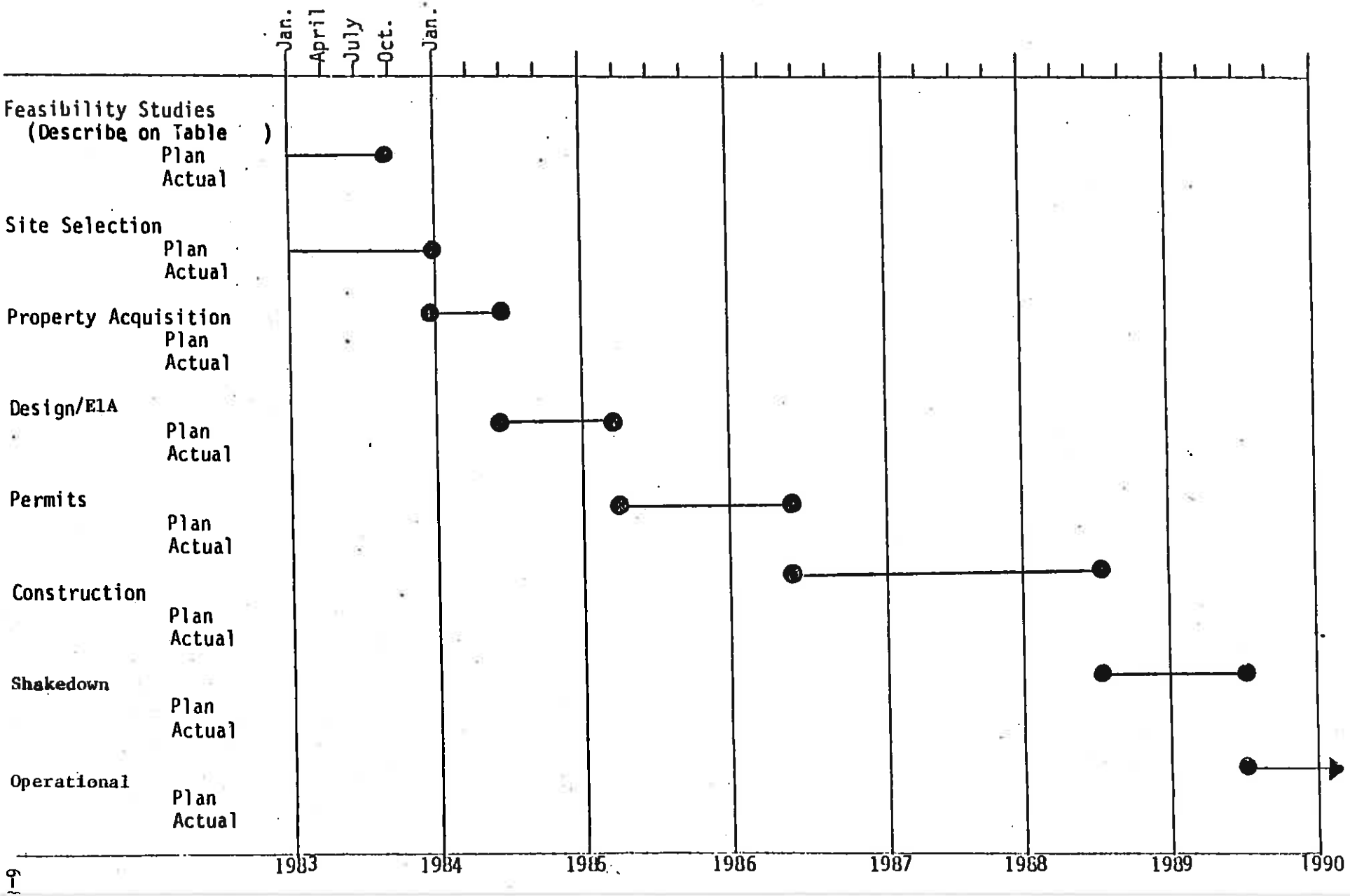


TABLE 6.B-2 (cont) PROPOSED SOLID WASTE FACILITY IMPLEMENTATION SCHEDULE /1983 PLAN UPDATE

Facility TRANSFER STATION (WEST) (complete one sheet for each new facility proposed or planned)

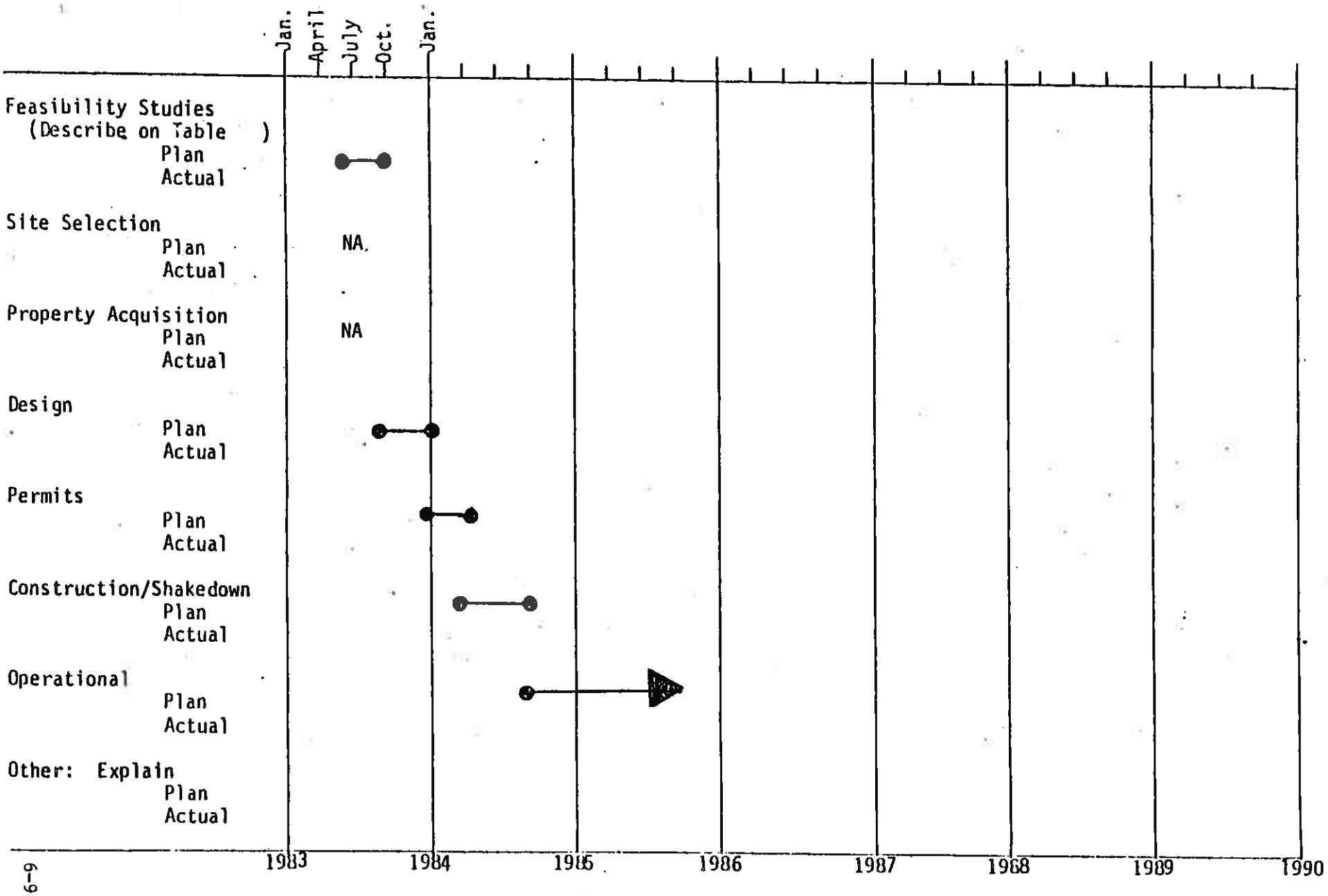


TABLE 6.B-2 (cont) PROPOSED SOLID WASTE FACILITY IMPLEMENTATION SCHEDULE /1983 PLAN UPDATE

Facility TRANSFER STATION (N.E.) (complete one sheet for each new facility proposed or planned)

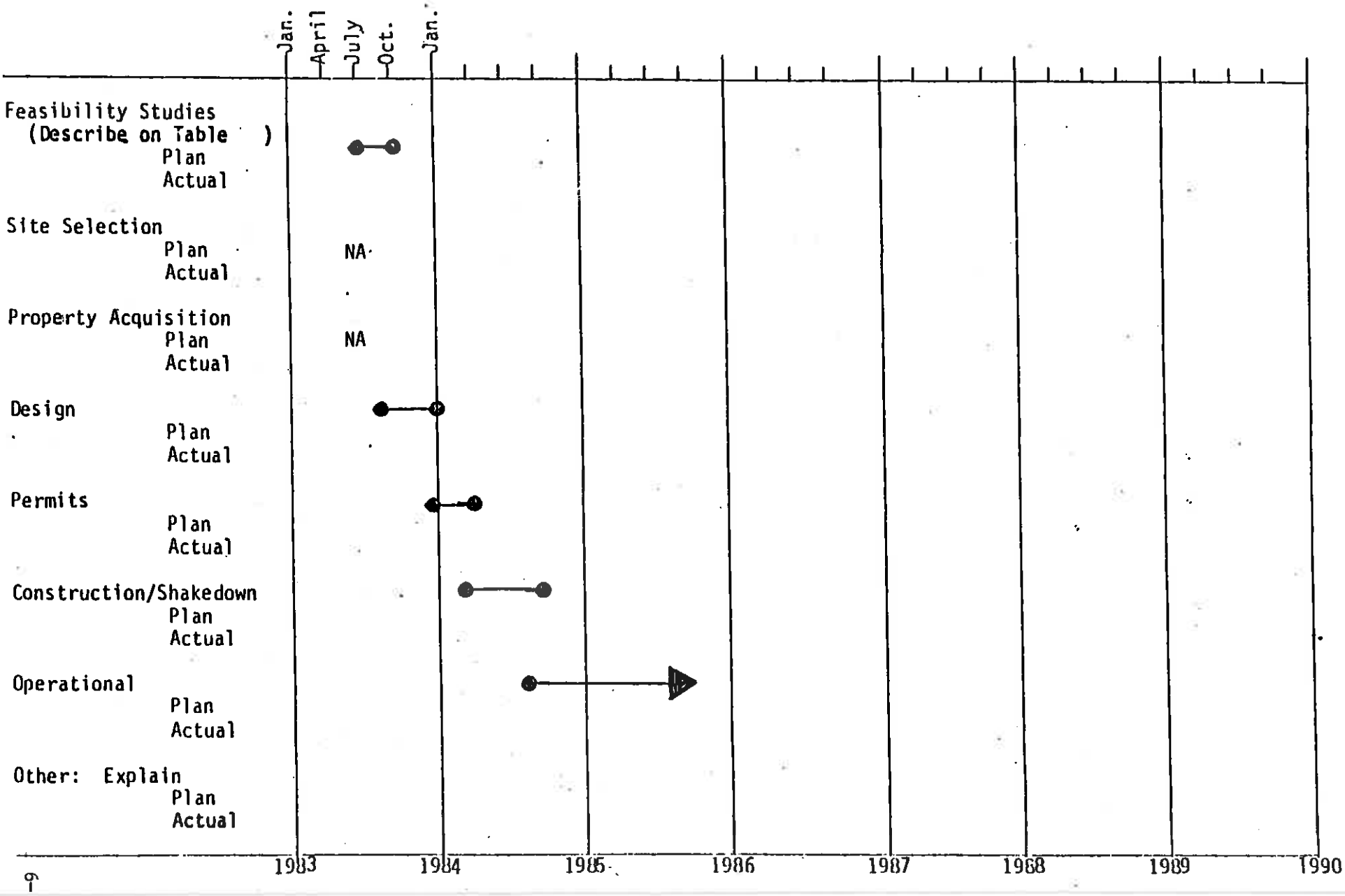


TABLE 6.B-2 (cont) PROPOSED SOLID WASTE FACILITY IMPLEMENTATION SCHEDULE /1983 PLAN UPDATE

Facility TRANSFER STATION (S.E.) (complete one sheet for each new facility proposed or planned)

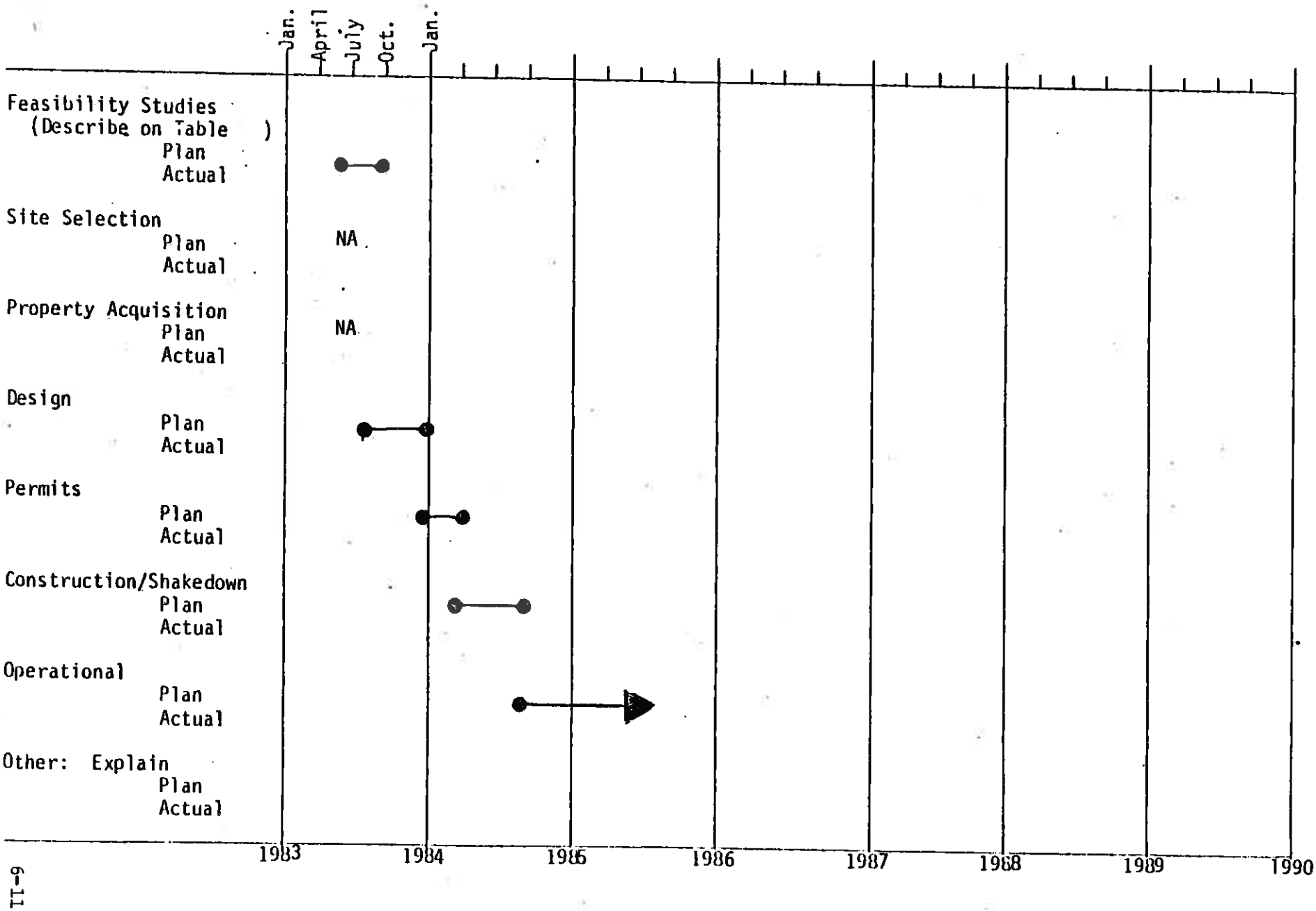


TABLE 6.C-1

MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY - SCENARIO 1

FACILITY HSL (#1913A)

Municipalities	Total Waste To Be Disposed Of In Tons/Year											
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Total
Boonton	7189	7392	*	*	7918	8044	8183					38726
Boonton Twp.	3362	3486	*	*	3818	3902	3992					18560
Butler	5552	5750	*	*	6308	6469	6644					30723
Denville	12415	12837	13259	13680	13975	14271	14594					95031
Dover	14670	15152	15634	16114	16414	16715	17039					111738
Jefferson	9137	9495	9861	10228	10580	10935	11329					71565
Kinnelon	4739	4884	5028	5173	5297	5421	5560					36102
Lincoln Park	6423	6611	*	*	7122	7258	7409					34823
Mine Hill	1768	1804	1841	1876	1908	1940	1976					13113
Montville	12229	12742	*	*	14188	14599	15044					68802
Mountain Lakes	2780	2836	*	*	2978	3010	3049					14653
Mount Olive	11590	12139	12698	13265	13789	14324	14909					92714
Netcong	2636	2751	2867	2985	3083	3183	3292					20797
Pequannock	9987	10269	*	*	11028	11228	11449					53961
Riverdale	2243	2308	*	*	2474	2513	2555					12093
Rockaway	5937	6153	6370	6587	6745	6904	7076					45772
Rockaway Twp.	16985	17512	18043	18537	18972	19374	19816					129239
Roxbury	14354	14950	15555	16164	16662	17167	17717					112569
Victory Gardens	534	550	565	579	595	609	625					4057
Wharton	5039	5204	5369	5533	5641	5750	5867					38403
TOTAL	149,569	154,825	107,090	110,721	169,495	173,616	178,125					1,043,441

*Waste Directed to Carrino's Landfill

TABLE 6.C-1 (cont)

MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY - SCENARIO 2

FACILITY HSL (#1913A) (Assumes HSL Closes December 1984)

Municipalities	Total Waste To Be Disposed Of In Tons/Year											
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Total
Boonton	7189	7392	*									14581
Boonton Twp.	3362	3486	*									6848
Butler	5552	5750	*									11302
Denville	12415	12837	13259									38511
Dover	14670	15152	15634									45456
Jefferson	9137	9495	9861									28493
Kinnelon	4739	4884	5028									14651
Lincoln Park	6423	6611	*									13034
Mine Hill	1768	1804	1841									5413
Montville	12229	12742	*									24971
Mountain Lakes	2780	2836	*									5616
Mount Olive	11590	12139	12698									36427
Netcong	2636	2751	2867									8254
Pequannock	9987	10269	*									20256
Riverdale	2243	2308	*									4551
Rockaway	5937	6153	6370									18460
Rockaway Twp.	16985	17512	18043									52540
Roxbury	14354	14950	15555									44859
Victory Gardens	534	550	565									1649
Wharton	5039	5204	5369									15612
TOTAL	149,569	154,825	107,090									411,484

* Waste Directed To Carrino's Landfill

TABLE 6.C-1 (cont)

MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY - SCENARIO 2

FACILITY Kinsley Landfill (#0802B)

Municipalities	Total Waste To Be Disposed Of In Tons/Year											
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Total
Boonton				*	7918	8044	8183					24145
Boonton Twp.				*	3818	3902	3992					11712
Butler				*	6308	6469	6644					19421
Denville				13680	13975	14271	14594					56520
Dover				16114	16414	16715	17039					66282
Jefferson				10228	10580	10935	11329					43072
Kinnelon				5173	5297	5421	5560					21451
Lincoln Park				*	7122	7258	7409					21789
Mine Hill				1876	1908	1940	1976					7700
Montville				*	14188	14599	15044					43831
Mountain Lakes				*	2978	3010	3049					9037
Mount Olive				13265	13789	14324	14909					56287
Netcong				2985	3083	3183	3292					12543
Pequannock				*	11028	11228	11449					33705
Riverdale				*	2474	2513	2555					7542
Rockaway				6587	6745	6904	7076					27312
Rockaway Twp.				18537	18972	19374	19816					76699
Roxbury				16164	16662	17167	17717					67710
Victory Gardens				579	595	609	625					2408
Wharton				5533	5641	5750	5867					22791
TOTAL				110,721	169,495	173,616	178,125					631,957

*Waste Directed To Carrino's Landfill

TABLE 6.C-1 (cont)

MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY - SCENARIO 1 and 2.

FACILITY Carrino's Landfill (#1605A)

Municipalities	Total Waste To Be Disposed Of In Tons/Year											
	1982	1983	1984*	1985	1986	1987	1988	1989	1990	1991	1992	TOTAL
Boonton			7592	7792								15384
Boonton Twp.			3610	3735								7345
Butler			5949	6150								12099
Lincoln Park			6799	6985								13784
Montville			13261	13783								27044
Mountain Lakes			2891	2943								5834
Pequannock			10549	10827								21376
Riverdale			2372	2435								4807
TOTAL			53,023	54,650								107,673

*Assumes Waste Flow Beginning January 1, 1984. Waste Will Be Directed To This Facility As Soon As Capacity Becomes Available.

TABLE 6.C-1 (cont)

MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY - SCENARIO 1 and 2

FACILITY Edgeboro Landfill (#1204A) In Place Capacity: 13,428,000 yd.^{3} @ 3/81

Total Waste To Be Disposed Of In Tons/Year

Municipalities	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	TOTAL
Chatham	6802	6971	7138	7300	7399	7496	7605					50,711
Chatham Twp.	5552	5718	5918	6117	6293	6471	6667					42,736
Chester	1730	1797	1864	1932	1976	2020	2066					13,385
Chester Twp.	3565	3717	3871	4026	4160	4297	4446					28,082
East Hanover	12744	13278	13816	14357	14704	15056	15429					99,384
Florham Park	16234	16840	17444	18049	18372	18696	19035					124,670
Hanover	18724	19467	20214	20962	21402	21844	22312					144,925
Harding	2363	2436	2509	2581	2635	2689	2749					17,962
Madison	11395	11664	11974	12258	12449	12635	12845					85,220
Mendham	3285	3438	3594	3752	3893	4036	4193					26,191
Mendham Twp.	2519	2626	2734	2844	2949	3055	3174					19,901
Morris Plains	11092	11502	11914	12324	12528	12732	12944					85,036
Morristown	29131	30171	31208	32241	32765	33286	33835					222,637
Morris Twp.	13727	14172	14616	15060	15195	15732	16104					104,806
Parsippany	45542	46994	48443	49884	50822	51756	52777					346,218
Passaic	5055	5203	5351	5498	5609	5722	5846					38,284
Randolph	12703	13301	13909	14527	15063	15607	16201					101,311
TOTAL	202,163	209,295	216,517	223,712	228,414	233,130	238,228					1,551,459

TABLE 6.C-1 (cont)

MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY - SCENARIO 1 and 2

FACILITY Mt. Arlington Boro SLF (#1426A)

	Total Waste to Be Disposed Of In Tons/Year											
Municipalities	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	TOTAL
Mt. Arlington	2280	2373	2467	2562	2656	2750	2855					17,943

TABLE 6.C-1 (cont)

MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY - SCENARIO 1 and 2

FACILITY Ocean County Landfill Corp. (#1518B)

Total Waste To Be Disposed Of In Tons/Year

Municipalities	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	TOTAL
Washington Twp.	6967	7372	7787	8211	8614	9027	9477					54,455

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May 1984

TABLE 6.C -1 (Cont)

MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY - SCENARIO 1 and 2

FACILITY Morris County Waste-to-Energy Facility

Design Capacity 1500 TPD
Average Thruput 1250 TPD

Municipalities	Total Waste To Be Disposed Of In Tons/Year											
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	TOTAL
								PROCESSABLE WASTE				
								FROM ALL 19				
								MUNICIPALITIES				
TOTAL								460,285	469,557	476,640	483,788	1,890,270

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Addendum to:

MORRIS COUNTY

SOLID WASTE MANAGEMENT PLAN UPDATE REPORT-1983

May 1985

Prepared for:

Morris County Board of Chosen Freeholders
Morris County Solid Waste Advisory Council

Prepared by:

Glenn W. Schweizer
Solid Waste Coordinator

Lauren S. Roman
Senior Planner

Addendum to:

Morris County Solid Waste Management Plan Update - 1983

May 1985

Pursuant to N.J.S.A. 13:1E-1 et seq., the Morris County Solid Waste Management Staff had prepared a report in conformance with the requirement that the Solid Waste Management Plan be reviewed at least every two years and updated if necessary. This report, Morris County Solid Waste Management Plan Update - 1983, was completed in June, 1983. No formal action has been taken on this report by the County.

The attached addendum provides updated information since the completion of the original update and modifies Morris County's waste disposal strategy pertaining to the closure of Hamm's Sanitary Landfill and the Administrative Consent Order entered into by Morris County and DEP. Proposed solid waste facility implementation schedules have also been adjusted to reflect current activities.

Chapter 1 - Introduction and Background

The Morris County Solid Waste Management Plan Report prepared in June, 1983 was based on several premises. First, the majority of solid waste generated within the County would be exported to other districts or states until the development of a waste-to-energy facility within Morris County. Second, it would be economically viable to create a system of transfer stations to ease the transportation and vehicle costs associated with long haul distances. Finally, the County would encourage material recovery programs at the municipal level.

Since the report was prepared in June, 1983, Hamm's Sanitary Landfill, which was accepting solid waste from twenty Morris County municipalities, was granted several extensions to remain open by the Superior Court of New Jersey. Finally, the court determined that the landfill had reached its design capacity and was in danger of collapsing and ordered the closure of the facility effective December 8, 1984.

The twenty Morris County municipalities which were utilizing the Hamm's facility had no legal in-state landfill to dispose of their waste. The majority of this waste remained uncollected until the DEP was ordered on December 19, 1984 by the Appellate Division of Superior Court to redirect this waste. Under an emergency redirection order, DEP directed the solid waste from those twenty municipalities to the Edgeboro Landfill in Middlesex County. This emergency re-direction was to remain in effect until Janaury 10, 1985. On January 9, 1985 DEP agreed, in accordance with the regulations promulgated pursuant to the Solid Waste Management Act, to redirect the solid waste flow from Morris County that had been disposed of at the Hamm's Landfill to the Edgeboro Landfill.

Morris County also entered into an Administrative Consent Order with DEP which required the county to propose an amendment to its Solid Waste Management Plan for the development of a sanitary landfill at Site 6-1B located in Rockaway Township. Site 6-1B was selected as the preferred site in Morris County by DEP and their consultants in the report entitled "Sanitary Landfill Siting Study, Morris County, New Jersey" prepared by Dresdner Associates, dated August, 1984. Morris County would be bound to adopt this Plan Amendment and other development stages as outlined in the Order, pending the completion by DEP of a favorable Environmental Impact Statement for Site 6-1B.

This requirement was fulfilled by DEP through their consultants, Woodward Clyde, and as required this Plan Update designates Site 6-1B as the landfill site for Morris County.

Also stipulated in the Administrative Consent Order is a development schedule for a resource recovery facility in Morris County. This complies to the long-term County strategy for develpment of an energy recovery facility.

Transfer stations will not be an integral part of the County's solid waste management system, however, proposals for these facilities will be reviewed and approved if deemed suitable.

Source separation activities have continued to increase dramatically in the past several years. In an effort to further increase material recovery programs, pursuant to the Administrative Consent Order, Morris County proposes mandatory County-wide recycling.

SOLID WASTE GENERATION BY MUNICIPALITY
MORRIS COUNTY - 1993

WASTE TYPE / MUNICIPALITY	RESIDENTIAL (TONS/YEAR)	INDUSTRIAL/COMMERCIAL (TONS/YEAR)	TOTAL (TONS/YEAR)
BOONTON	5,014	3,614	8,628
BOONTON TWP.	2,247	2,089	4,336
BUTLER	5,299	2,089	7,388
CHATHAM	4,663	3,238	7,901
CHATHAM TWP.	6,282	1,261	7,543
CHESTER	1,018	1,224	2,242
CHESTER TWP.	4,038	1,092	5,130
DENVILLE	9,444	6,381	15,825
DOVER	9,133	9,017	18,150
EAST HANOVER	7,172	9,695	16,867
FLORHAM PARK	5,968	14,100	20,068
HANOVER	8,449	15,493	23,942
HARDING	2,058	922	2,980
JEFFERSON	12,246	941	13,187
KINNELON	5,093	1,054	6,147
LINCOLN PARK	5,451	2,522	7,973
MADISON	8,770	4,744	13,514
MENDHAM	4,029	904	4,933
MENDHAM TWP.	3,474	263	3,737
MINE HILL	1,946	169	2,115
MONTVILLE	11,007	5,967	16,974
MORRIS PLAINS	3,209	10,316	13,525
MORRISTOWN	9,808	25,526	35,334
MORRIS TWP.	12,078	5,497	17,575
MOUNTAIN LAKES	2,203	941	3,144
MT. ARLINGTON	3,223	132	3,355
MT. OLIVE	15,461	2,259	17,720
NETCONG	2,809	979	3,788
PAR-TROY	30,899	25,432	56,331
PASSAIC	4,557	1,769	6,326
PEQUANNOCK	8,360	3,897	12,257
RANDOLPH	14,803	4,179	18,982
RIVERDALE	1,464	1,224	2,688
ROCKAWAY	4,737	3,031	7,768
ROCKAWAY TWP.	13,367	8,226	21,593
ROXBURY	14,460	5,704	20,164
VICTORY GARDENS	680	19	699
WASHINGTON	10,629	1,092	11,721
WHARTON	3,465	2,824	6,289
SUBTOTAL	279,013	189,826	468,839
GOVERNMENT	---	22,146	---
TOTAL	279,013	211,972	490,985

April 1985

TABLE 2.A-11b

SOLID WASTE GENERATION BY MUNICIPALITY
MORRIS COUNTY - 1994

WASTE TYPE / MUNICIPALITY	RESIDENTIAL (TONS/YEAR)	INDUSTRIAL/COMMERCIAL (TONS/YEAR)	TOTAL (TONS/YEAR)
BOONTON	5,074	3,617	8,691
BOONTON TWP.	2,304	2,091	4,395
BUTLER	5,439	2,091	7,530
CHATHAM	4,693	3,240	7,933
CHATHAM TWP.	6,454	1,262	7,716
CHESTER	1,046	1,224	2,270
CHESTER TWP.	4,175	1,093	5,268
DENVILLE	9,652	6,386	16,038
DOVER	9,296	9,024	18,320
EAST HANOVER	7,410	9,702	17,112
FLORHAM PARK	6,085	14,110	20,195
HANOVER	8,686	15,504	24,190
HARDING	2,098	923	3,021
JEFFERSON	12,628	942	13,570
KINNELON	5,204	1,055	6,259
LINCOLN PARK	5,546	2,524	8,070
MADISON	8,862	4,747	13,609
MENDHAM	4,180	904	5,084
MENDHAM TWP.	3,591	264	3,855
MINE HILL	1,970	169	2,139
MONTVILLE	11,374	5,972	17,346
MORRIS PLAINS	3,258	10,323	13,581
MORRISTOWN	9,940	25,544	35,484
MORRIS TWP.	12,339	5,501	17,840
MOUNTAIN LAKES	2,211	942	3,153
MT. ARLINGTON	3,327	132	3,459
MT. OLIVE	16,042	2,261	18,303
NETCONG	2,907	980	3,887
PAR-TROY	31,437	25,450	56,887
PASSAIC	4,640	1,771	6,411
PEQUANNOCK	8,492	3,899	12,391
RANDOLPH	15,366	4,182	19,548
RIVERDALE	1,481	1,224	2,705
ROCKAWAY	4,859	3,033	7,892
ROCKAWAY TWP.	13,687	8,231	21,918
ROXBURY	14,936	5,708	20,644
VICTORY GARDENS	694	19	713
WASHINGTON	11,103	1,093	12,196
WHARTON	3,531	2,826	6,357
SUBTOTAL	286,017	189,963	475,980
GOVERNMENT	---	22,215	---
TOTAL	286,017	212,178	498,195

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SOLID WASTE GENERATION BY MUNICIPALITY
MORRIS COUNTY - 1995

WASTE TYPE / MUNICIPALITY	RESIDENTIAL (TONS/YEAR)	INDUSTRIAL/COMMERCIAL (TONS/YEAR)	TOTAL (TONS/YEAR)
BOONTON	5,135	3,650	8,785
BOONTON TWP.	2,362	2,110	4,472
BUTLER	5,581	2,110	7,691
CHATHAM	4,722	3,270	7,992
CHATHAM TWP.	6,630	1,274	7,904
CHESTER	1,075	1,236	2,311
CHESTER TWP.	4,314	1,103	5,417
DENVILLE	9,862	6,445	16,307
DOVER	9,488	9,106	18,594
EAST HANOVER	7,653	9,791	17,444
FLORHAM PARK	6,204	14,239	20,443
HANOVER	8,927	15,646	24,573
HARDING	2,138	931	3,069
JEFFERSON	13,017	951	13,968
KINNELON	5,317	1,065	6,382
LINCOLN PARK	5,641	2,547	8,188
MADISON	8,953	4,791	13,744
MENDHAM	4,334	912	5,246
MENDHAM TWP.	3,710	266	3,976
MINE HILL	2,015	171	2,186
MONTVILLE	11,723	6,027	17,750
MORRIS PLAINS	3,307	10,418	13,725
MORRISTOWN	10,071	25,779	35,850
MORRIS TWP.	12,603	5,551	18,154
MOUNTAIN LAKES	2,225	951	3,176
MT. ARLINGTON	3,433	133	3,566
MT. OLIVE	16,636	2,281	18,917
NETCONG	3,007	989	3,996
PAR-TROY	31,979	25,684	57,663
PASSAIC	4,724	1,787	6,511
PEQUANNOCK	8,623	3,935	12,558
RANDOLPH	15,942	4,220	20,162
RIVERDALE	1,498	1,236	2,734
ROCKAWAY	4,984	3,061	8,045
ROCKAWAY TWP.	14,011	6,692	20,703
ROXBURY	15,422	5,760	21,182
VICTORY GARDENS	708	19	727
WASHINGTON	11,589	1,103	12,692
WHARTON	3,597	2,852	6,449
SUBTOTAL	293,160	190,092	483,252
GOVERNMENT	---	22,284	---
TOTAL	293,160	212,376	505,536

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TABLE 2.A-11d

ESTIMATED COMPOSITION OF

MORRIS COUNTY WASTESTREAM

1985

Refuse Category	Residential	Industrial/ Commercial	Total Tons	Total Percent
Paper	93,563	112,974	206,537	51.8
Plastics	7,731	12,208	19,939	5.0
Glass	22,074	4,709	26,783	6.7
Wood	4,930	8,451	13,381	3.4
Metals	19,609	10,047	29,656	7.4
Stone, Ceramic	--	4,421	4,421	1.1
Textiles	5,602	662	6,264	1.6
Rubber, Leather	2,689	1,447	4,136	1.0
Food waste	33,727	11,816	45,543	11.4
Yard waste	28,237	--	28,237	7.1
Miscellaneous	5,715	8,412	14,127	3.5
Total [1]	223,877	175,147	399,024	100.0

[1] Totals do not coincide with those shown on Table 2.A-4 due to rounding and/or missing data.

Note: This table does not include government waste due to unavailable data.

Source: Schweizer, Glenn, "Solid Waste Generation And Composition For Morris County, New Jersey", February, 1983.

MUNICIPAL SOLID WASTE COLLECTION/DISPOSAL CONTRACTS

For those municipalities with Municipal Contracts for residential waste removal (category C on Table 2.B-1

Municipality (or part thereof)	Contractor	Contract Period (day/month/year)	Cost Per Year	Does contract state that waste disposal must comply with District Plan waste flow?
Boonton Town	BFI	1/1/85 - 12/31/85 1/1/86 - 12/31/86 1/1/87 - 12/31/87 1/1/88 - 12/31/88	$302,401 $326,422 $354,106 $386,825	
Butler Boro	Haul-Away Inc.	1/1/83 - 12/31/85	$292,325	
Dover Town	J. Filiberto	5/1/84 - 4/30/85 5/1/85 - 4/30/86	$496,000 $681,000	
Jefferson Twp.	F. Fenimore	1/1/85 - 12/31/85	$720,000	
Kinnelon Boro	Frank Stammato	1/1/85 - 12/31/85	$301,057	
Lincoln Park Boro	Suburban Disposal Inc	7/1/84 - 6/30/86	$299,967*	
Madison Boro	West Essex Disposal	1/1/85 - 12/31/85	$524,500	
Mine Hill	F. Fenimore	3/1/85 - 12/31/85	No contract as of 3/15/85	
Morris Plains	J. Filiberto	1/1/85 - 12/31/85 1/1/86 - 12/31/86	$225,000 $236,000	
Netcong	F. Fenimore	2/15/84 - 2/15/87	Cost increase not negotiated as of 3/15/85	
Par-Troy	BFI-Miele & Sons	1/1/81 - 12/31/85	$1,260,000 plus increase not negotiated as of 3/15/85	

*Contract includes cost adjustment mechanism for disposal trips greater than 70 miles.

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TABLE 2.B-3 (cont'd)

MUNICIPAL SOLID WASTE COLLECTION/DISPOSAL CONTRACTS

For those municipalities with Municipal Contracts for residential waste removal (category C on Table 2.B-1)

Municipality (or part thereof)	Contractor	Contract Period (day/month/year)	Cost Per Year	Does contract state that waste disposal must comply with District Plan waste flow?
Passaic Twp.	Statewide Environmental Service	1/1/83 - 12/31/86	$211,687	
Randolph Twp.	Hamm's Sanitation	1/1/85 - 12/31/85 1/1/86 - 12/31/86 1/1/87 - 12/31/87	$423,282 $452,912 $484,616	
Riverdale Boro	Frank Stamato	1/1/85 - 12/31/85 1/1/86 - 12/31/88	$120,000 Not negotiated as of 3/15/85	
Rockaway Boro	Hamm's Sanitation	3/1/85 - 12/31/85	$127,033	
Victory Gardens Boro	T. Luciano	3/1/85 - 3/1/86	$ 28,200	

Chapter 2 - Existing Conditions

2.A Solid Waste Generation

Solid Waste Generation projections are expanded to include 1993 through 1995 (Tables 2.A-11a, 2.A-11b and 2.A-11c). In addition, Table 2.A-11d presents composition estimates of the Morris County wastestream for the year 1985.

(p.2-1)

2.B Existing Collection Systems

Table 2.B-3 lists an update for the municipal solid waste collection and disposal contracts.

(p.2-15)

2.C Existing Solid Waste Facilities

Landfills

There are no new existing landfills within Morris County since completion of the 1983 Report. However, the twenty municipalities which were utilizing the Hamm's Landfill in Sussex County were redirected to Edgeboro Landfill in Middlesex County. Morris County has adopted a Plan Amendment reflecting this waste-flow redirection and is awaiting final approval from DEP.

Presently, thirty seven (37) municipalities are directed by DEP and BPU to the Edgeboro Landfill. Washington Township is directed to the Ocean County Landfill as per the previous redirection resulting from the closure of High Point Landfill in Warren County. Mount Arlington continues to operate a municipal landfill for that municipality's waste (See Figures 2-2 and 2-2A).

A description of the existing waste flows, as per the Plan Amendment, is presented in Table 2.C-2. Table 2.C-3 presents a collection/haul analysis based on these waste flows. Estimated transportation and disposal costs for the existing waste flows is presented in Table 2.C-3A.

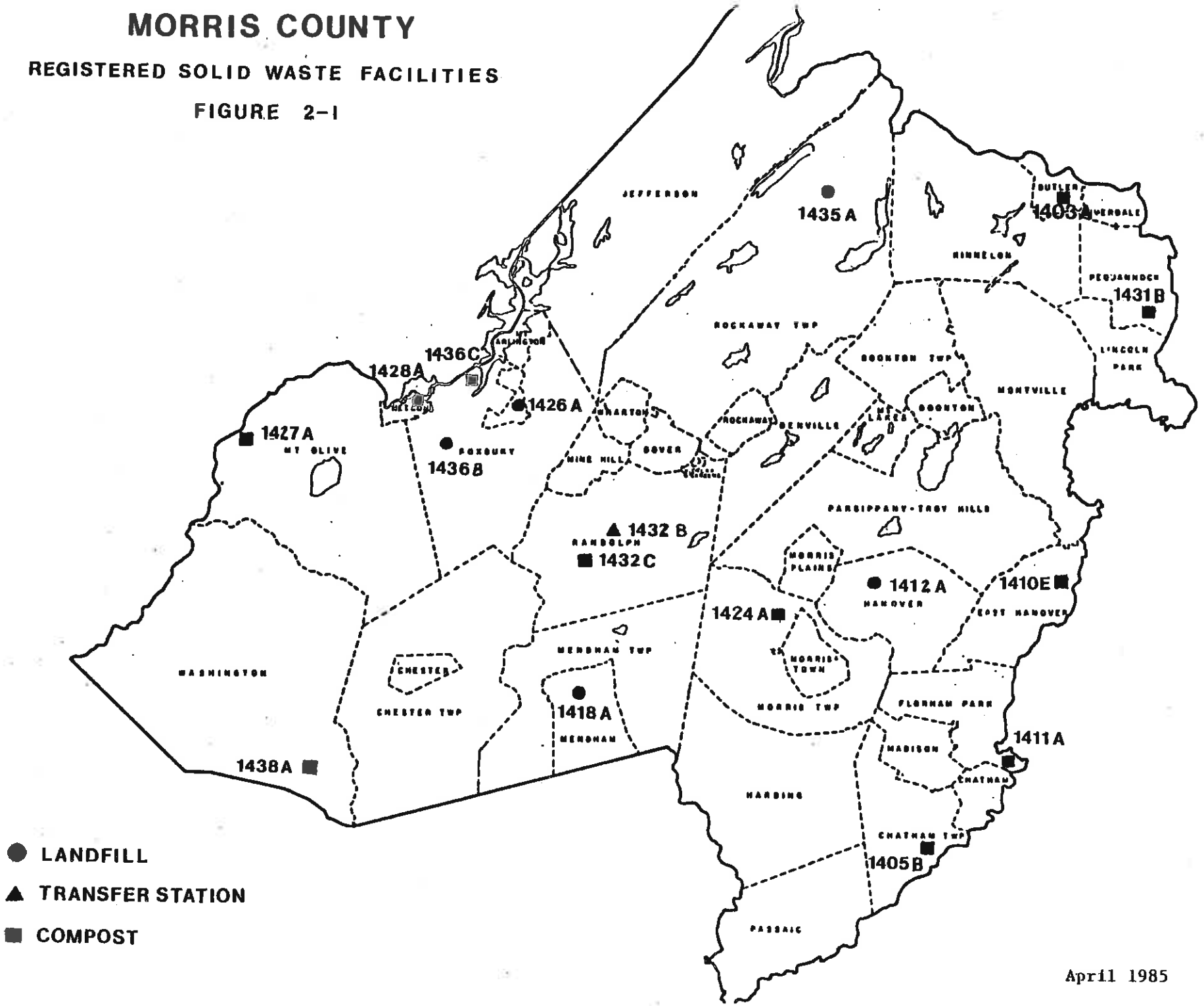
Compost Facilities

Table 2.C-4 updates the list of existing registered compost facilities within Morris County. Locations for these facilities are shown in Figure 2-1. In addition to those registered facilities, Table 2.C-4 lists the status and other pertinent information for those facilities which have not yet received an operating permit.

MORRIS COUNTY

REGISTERED SOLID WASTE FACILITIES

FIGURE 2-1



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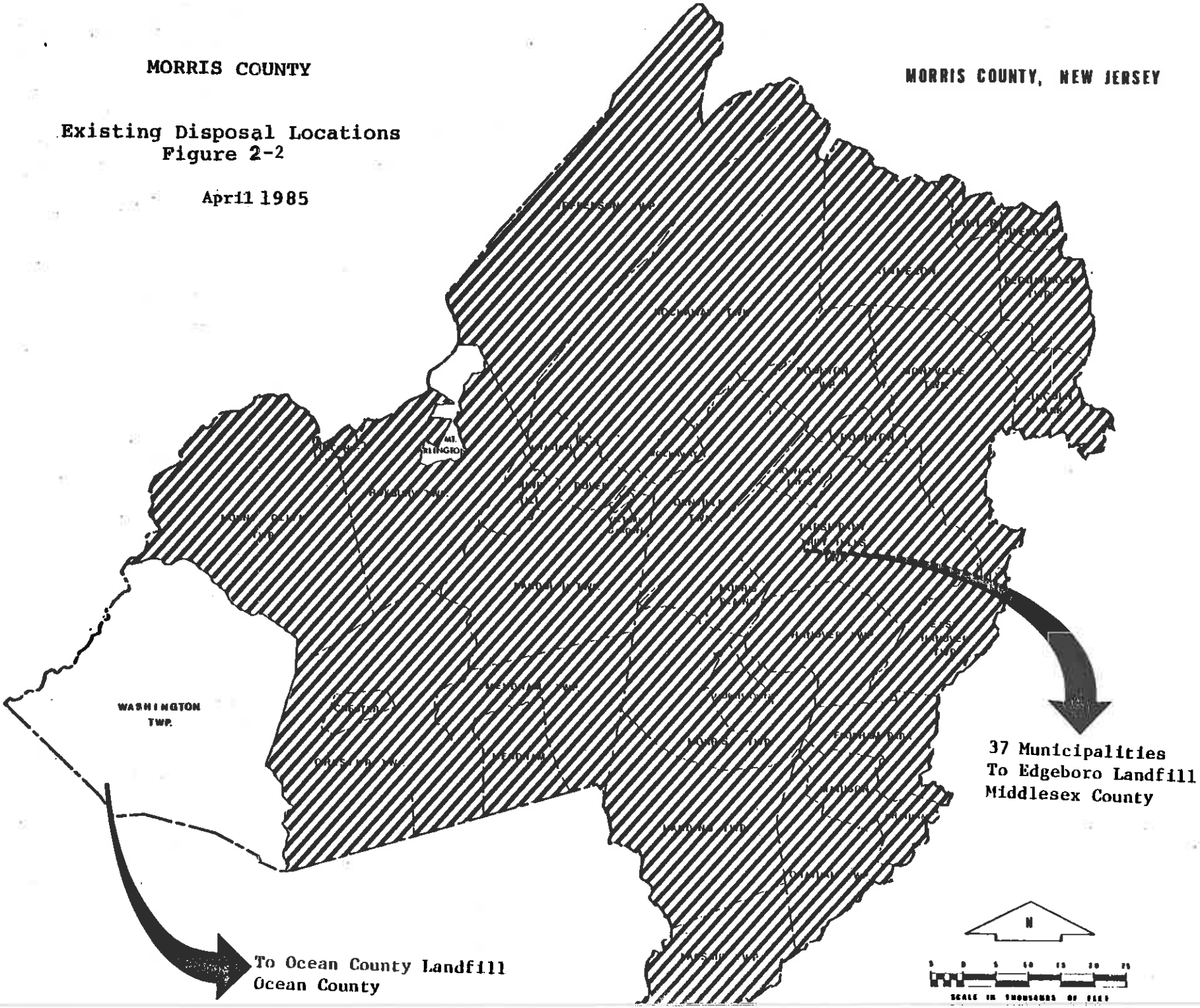
MORRIS COUNTY

Existing Disposal Locations
Figure 2-2

April 1985



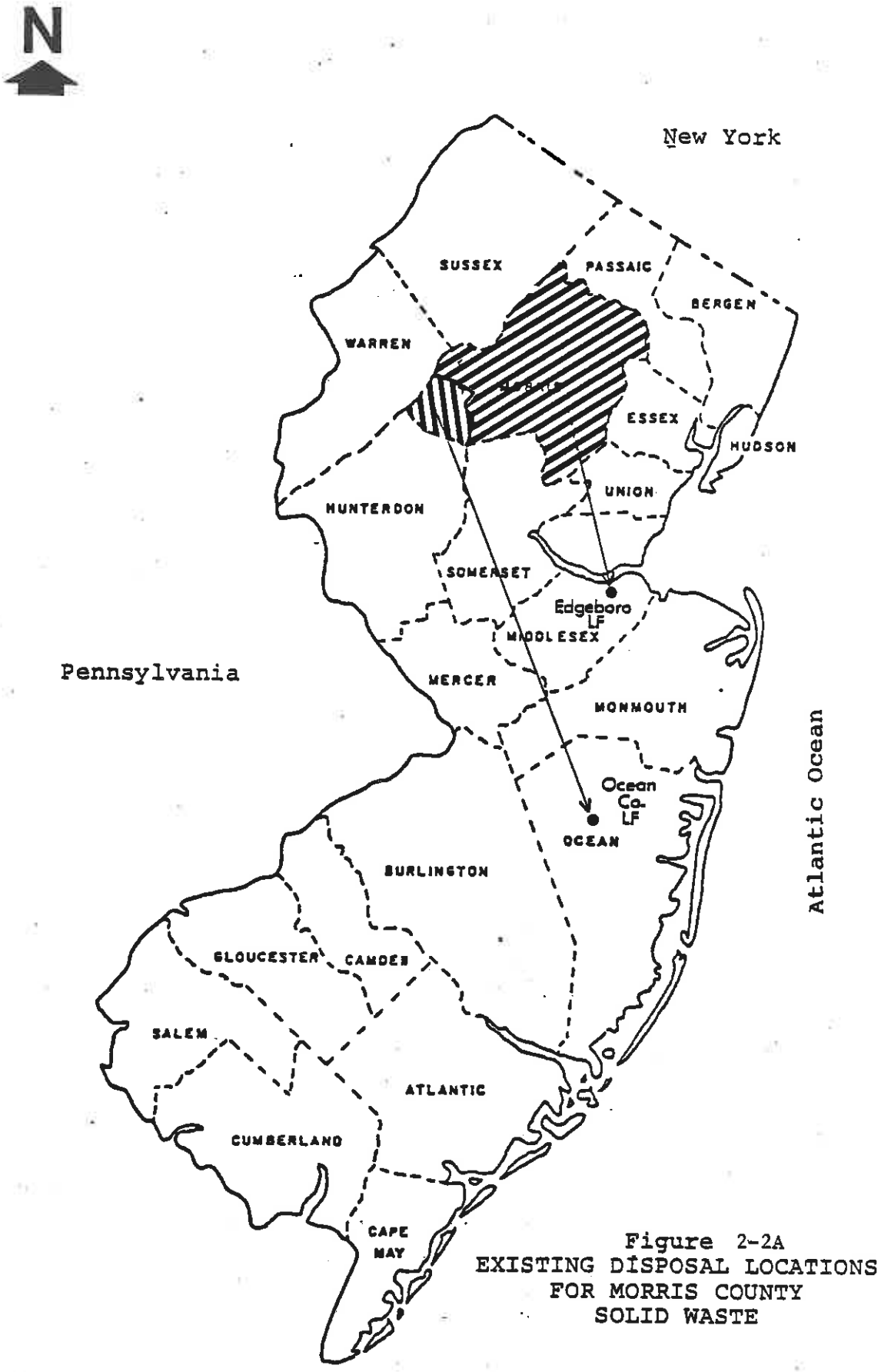


Figure 2-2A
EXISTING DISPOSAL LOCATIONS
FOR MORRIS COUNTY
SOLID WASTE

TABLE 2,C-2

INTERDISTRICT WASTE FLOWS AS PER RECENT REDIRECTION
Waste Exported to Other Districts

Sending District/ Municipality	Receiving Facility	Facility Location	DEP #	Waste Types	Approximate Annual Waste Flow (1985) (tons)
Morris County	Edgeboro	East Brunswick			
Boonton Town	Disposal	Middlesex Co.	1204A	10,13,23,27	7792
Boonton Twp.	"	"	"	10,13,23,27	3735
Butler Boro	"	"	"	10,13,23,27	6150
Denville Twp.	"	"	"	10,13,23,27	13680
Dover Town	"	"	"	10,13,23,27	16114
Jefferson Twp.	"	"	"	10,13,23,27	10228
Kinnelon Boro	"	"	"	10,13,23,27	5173
Lincoln Park Boro	"	"	"	10,13,23,27	6985
Mine Hill Twp.	"	"	"	10,13,23,27	1876
Montville Twp.	"	"	"	10,13,23,27	13783
Mt. Olive Twp.	"	"	"	10,13,23,27	13265
Mountain Lakes Boro	"	"	"	10,13,23,27	2943
Netcong Boro	"	"	"	10,13,23,27	2985
Pequannock Twp.	"	"	"	10,13,23,27	10827
Riverdale Boro	"	"	"	10,13,23,27	2435
Rockaway Boro	"	"	"	10,13,23,27	6587
Rockaway Twp.	"	"	"	10,13,23,27	18573
Roxbury Twp.	"	"	"	10,13,23,27	16164
Victory Gardens Boro	"	"	"	10,13,23,27	579
Wharton Boro	"	"	"	10,13,23,27	5533

TABLE 2.C-2 (cont'd)

EXISTING INTERDISTRICT WASTE FLOWS
Waste Exported to Other Districts

Sending District/ Municipality	Receiving Facility	Facility Location	DEP #	Waste Types	Approximate Annual Waste Flow (1985) (tons)
Morris County					
Chatham Boro	Edgeboro Disposal	East Brunswick Middlesex Co.	1204A	10,13,23,27	7300
Chatham Twp.	"	"	"	10,13,23,27	6117
Chester Boro	"	"	"	10,13,23,27	1932
Chester Twp.	"	"	"	10,13,23,27	4026
East Hanover Twp.	"	"	"	10,13,27	14357
Florham Park Boro	"	"	"	10,13,23,27	18049
Hanover Twp.	"	"	"	10,13,23,27	20962
Harding Twp.	"	"	"	10,13,23,27	2581
Madison Boro	"	"	"	10,13,23,27	12258
Mendham Boro	"	"	"	10,27	3752
Mendham Twp.	"	"	"	10,13,23,27	2844
Morris Twp.	"	"	"	10,13,23,27	15060
Morris Plains Boro	"	"	"	10,13,23,27	12324
Morristown	"	"	"	10,13,27	32241
Par-Troy Twp.	"	"	"	10,13,23,27	49884
Passaic Twp.	"	"	"	10,13,23,27	5498
Randolph Twp.	"	"	"	10,13,23,27	14527
Washington Twp.	Ocean County Landfill Corp. Landfill	Ocean County	1518B	10,13,23,27	8211

TABLE 2-C-3

COLLECTION/HAUL ANALYSIS
(Based on Existing Waste Flows)

Municipality	Disposal Facility	Distance (one way) (miles)	Primary Route(s)	Utilization Of Transfer Station (No) or (Name of Facility)
	Edgeboro Disposal			
Boonton Town	#1204A	44	I-287, NJ 18	No
Boonton Twp.	"	45	I-287, NJ 18	"
Butler Boro	"	60	NJ 23, I-80, I-287, NJ 18	"
Denville Twp.	"	43	I-80, I-287, NJ 18	"
Dover Town	"	48	US 46, I-287, NJ 18	"
Jefferson Twp.	"	60	MC 699, NJ 15, I-80, I-287,NJ18	"
Kinnelon Boro	"	50	MC 618, I-287, NJ 18	"
Lincoln Park Boro	"	51	US 202, I-287, NJ 18	"
Mine Hill Twp.	"	51	US 46, I-80, I-287, NJ 18	"
Montville Twp.	"	47	MC 621, I-80, I-287, NJ 18	"
Mt. Olive Twp.	"	60	US 46, I-80, I-287, NJ 18	"
Mt. Lakes Boro	"	45	MC 618, US 46, I-287, NJ 18	"
Netcong Boro	"	58	US 206, I-80, I-287, NJ 18	"
Pequannock Twp.	"	54	NJ 23, I-80, I-287, NJ 18	"
Riverdale Boro	"	57	NJ 23, I-80, I-287, NJ 18	"
Rockaway Boro	"	45	US 46, I-80, I-287, NJ 18	"
Rockaway Twp.	"	46	US 46, I-80, I-287, NJ 18	"
Roxbury Twp.	"	54	I-80, I-287, NJ 18	"
Victory Gardens	"	50	US 46, I-80, I-287, NJ 18	"
Wharton	"	50	I-80, I-287, NJ 18	"

TABLE 2.C-3 (cont'd)

COLLECTION/HAUL ANALYSIS
(Based on Existing Waste Flows)

Municipality	Disposal Facility	Distance (one way) (miles)	Primary Route(s)	Utilization of Transfer Station (No) or (Name of Facility)
Chatham Boro	Edgeboro Disposal Facility #1204A	35 miles	NJ 24, I-78, NJ TPK, NJ 18	No
Chatham Twp.	"	37	NJ 24, I-78, NJ TPK, NJ 18	"
Chester Boro	"	31	US 206, I-287, NJ 18	"
Chester Twp.	"	31	US 206, I-287, NJ 18	"
East Hanover Twp.	"	42	NJ 10, I-287, NJ 18	"
Florham Park Boro	"	39	NJ 24, I-78, NJ TPK, NJ 18	"
Hanover Twp.	"	38	NJ 10, I-287, NJ 18	"
Harding Twp.	"	32	US 202, I-287, NJ 18	"
Madison Boro	"	37	NJ 24, I-78, NJ TPK, NJ 18	"
Mendham Boro	"	34	MC 646, US 202, I-287, NJ 18	"
Mendham Twp.	"	34	MC 646, US 202, I-287, NJ 18	"
Morris Twp.	"	32	I-287, NJ 18	"
Morris Plains Boro	"	41	NJ 10, I-287, NJ 18	"
Morristown Town	"	32	I-287, NJ 18	"
Par-Troy Twp.	"	40	I-287, NJ 18	"
Passaic Twp.	"	29	I-78, I-287, NJ 18	"
Randolph Twp.	"	46	NJ 10, I-287, NJ 18	"
Washington Twp.	Ocean County Landfill Corp. Landfill #1518B	72	US 206, I-287, NJ 18, US 9	"
Mount Arlington Boro	Mt. Arlington SLF Facility #1426A	1	Local roads	"

TABLE 2.C-3A

ESTIMATED TOTAL ANNUAL TRANSPORT AND DISPOSAL COST

Morris County - 1985

Municipality	Transport[1]	Disposal[2]	Total
BOONTON	$ 192,610	$ 72,448	$ 265,058
BOONTON TWP.	94,432	34,730	129,162
BUTLER	207,300	57,180	264,480
CHATHAM	143,535	67,872	211,407
CHATHAM TWP.	127,150	56,874	184,024
CHESTER	33,650	17,965	51,615
CHESTER TWP.	70,122	37,436	107,558
DENVILLE	330,476	127,195	457,671
DOVER	434,544	149,827	584,371
EAST HANOVER	338,751	133,484	472,235
FLORHAM PARK	395,460	167,817	563,277
HANOVER	447,507	194,901	642,408
HARDING	46,400	23,997	70,397
JEFFERSON	344,760	95,121	439,881
KINNELON	145,300	48,094	193,394
LINCOLN PARK	200,124	64,942	265,066
MADISON	254,800	113,972	368,772
MENDHAM	71,672	34,887	106,559
MENDHAM TWP.	54,315	26,439	80,754
MINE HILL	53,754	17,444	71,198
MONTVILLE	363,921	128,147	492,068
MORRIS PLAINS	283,863	114,584	398,447
MORRISTOWN	579,616	299,770	879,386
MORRIS TWP.	270,736	140,021	410,757
MT. LAKES	74,407	27,365	101,772
MT. ARLINGTON	----	----	----
MT. OLIVE	447,120	123,331	570,451
NETCONG	97,266	27,754	125,020
PAR-TROY	1,120,980	463,805	1,584,785
PASSAIC	89,581	51,123	140,704
PEQUANNOCK	328,455	100,665	429,120
RANDOLPH	375,406	135,065	510,471
RIVERDALE	77,976	22,640	100,616
ROCKAWAY	166,522	61,243	227,765
ROCKAWAY TWP.	479,964	172,683	652,647
ROXBURY	490,374	150,291	640,665
VICTORY GARDENS	16,275	5,387	21,662
WASHINGTON	332,136	121,553	453,689
WHARTON	155,425	51,446	206,871
Totals	$ 9,736,685	$ 3,739,498	$13,476,183
	Avg. - $24.50/ton	Avg. - $9.41/ton	Avg. - $33.91/ton

[1]Transport cost based on round-trip mileage X $2.50/mile X # trucks

[2]Disposal cost based on $3.31/cy @ Edgeboro; $5.27/cy @ Ocean County

Complete one table for each
Facility Type:
- Landfills
- Resource Recovery Facilities
- Composting Facilities
- Incinerators
- Others: Specify

EXISTING SOLID WASTE FACILITIES
PROPOSED WASTE FLOWS

Facility Type COMPOST FACILITY

Facility	DEP #	Location (Municipality/County)	Status: See Below	Waste Flow: a) by waste type and municipality b) if sole source: indicate same	Is waste flow consistent with Approved Plan yes/no	Planned/ Approximate Closure Date	Capacity: Landfills: (Remaining Capacity in tons) Others: (Tons per day)
Butler Boro	1403A	Butler Boro/Morris County	1	Type 23 Sole Source	Yes	NA	NA
Green Valley Tree Service	1411A	Florham Pk Boro/Morris County	1	Type 23 Sole Source	Yes	NA	NA
Town of Morristown	1424A	Town of Morristown/ Morris County	1	Type 23 Sole Source	Yes	NA	NA
Stephens State Park	1427A	Mt. Olive Twp/Morris County	1	Type 23 Sole Source	Yes	NA	NA
Hopatcong State Park	1436C	Roxbury Twp/Morris County	1	Type 23 Sole Source	Yes	NA	NA
Hacklebarney State Park	1438A	Washington Twp/Morris County	1	Type 23 Sole Source	Yes	NA	NA
Lurker Park	1410E	East Hanover Twp/ Morris County	1	Type 23 Sole Source	Yes	NA	NA
Chatham Township	1405B	Chatham Twp/Morris County	1	Type 23 Sole Source	Yes	NA	NA
Pequannock Township	1431B	Pequannock Twp/ Morris County	1	Type 23 Sole Source	Yes	NA	NA
Randolph Township	1432C	Randolph Twp/ Morris County	1	Type 23 Sole Source	Yes	NA	NA

Facility Status Categories

1 - Operating; Approved Engineering Plans
2 - Operating; No Approved Engineering Plans, Applied for Permit
3 - Operation; No Approved Engineering Plans, Not Applied for Permit
4 - Proposed; Applied for Permit
5 - Operating; Mulching, No Permit Required

NOTE:

Complete One Table for each Facility Type:
- Landfills
- Resource Recovery Facilities
- Composting Facilities
- Incinerators
- Others: Specify

TABLE 2.C-4

EXISTING SOLID WASTE FACILITIES
PROPOSED WASTE FLOWS

Facility Type COMPOST FACILITY

Facility	DEP #	Location (Municipality/County)	Status: See Below	Waste Flow: a) by waste type and municipality b) if sole source: indicate same	Is waste flow consistent with Approved Plan yes/no	Planned/ Approximate Closure Date	Capacity: Landfills: (Remaining Capacity in tons) Others: (Tons per day)
Kinnelon Township	NA	Kinnelon Twp/Morris County	2	Type 23 Sole Source	Yes	NA	NA
Florham Park Boro	NA	Florham Park Boro/ Morris County	2	Type 23 Sole Source	Yes	NA	NA
Morris County	NA	Par-Troy Twp/ Morris County	2	Type 23 Sole Source for Morris Plains, Morris Twp.	Yes	NA	NA
Pequannock Twp. (Van Winderden)	NA	Pequannock/Morris County	2	Type 23 Sole Source	Yes	NA	NA
Mountain Lakes Boro	NA	Mountain Lakes/ Morris County	2	Type 23 Sole Source	Yes	NA	NA
Passaic Twp.	NA	Passaic Twp/ Morris County	3	Type 23 Sole Source	Yes	NA	NA
Sisters of Charity	NA	Morris Twp/Morris County	2	Type 23 Sole Source	Yes	NA	NA
Chatham Boro	NA	Chatham Boro/Morris County	3	Type 23 Sole Source	Yes	NA	NA
Hanover Township	NA	Hanover Twp/Morris County	3	Type 23 Sole Source	Yes	NA	NA
Town of Dover	NA	Dover/Morris County	3	Type 23 Sole Source	Yes	NA	NA

Facility Status Categories

1 - Operating; Approved Engineering Plans
2 - Operating; No Approved Engineering Plans, Applied for Permit
3 - Operation: No Approved Engineering Plans, Not Applied for Permit

Complete One Table for each Facility Type:
- Landfills
- Resource Recovery Facilities
- Composting Facilities
- Incinerators
- Others: Specify

EXISTING SOLID WASTE FACILITIES
PROPOSED WASTE FLOWS

Facility Type COMPOST FACILITY

Facility	DEP #	Location (Municipality/County)	Status: See Below	Waste Flow: a) by waste type and municipality b) if sole source: indicate same	Is waste flow consistent with Approved Plan yes/no	Planned/ Approximate Closure Date	Capacity: Landfills: (Remaining Capacity in tons) Others: (Tons per day)
Roxbury Township	NA	Roxbury/Morris County	3	Type 23 Sole Source	Yes	NA	NA
Mt. Olive Township	NA	Mount Olive/ Morris County	4	Type 23 Sole Source	Yes	NA	NA
Verkade's Nursery	NA	Lincoln Park Boro/ Morris County	5	Type 23 Sole Source	Yes	NA	NA

Facility Status Categories

1 - Operating; Approved Engineering Plans
2 - Operating; No Approved Engineering Plans, Applied for Permit
3 - Operation; No Approved Engineering Plans, Not Applied for Permit
4 - Proposed; Applied for Permit

Recycling

Institutional Framework - Morris County

The quarterly newsletter, Morris County Resource Recovery Report, has a current circulation of 3,000.

Recycling Activities

Fourteen municipal curbside recycling programs and 39 depot centers are in operation throughout Morris County. Materials collected in these programs include: aluminum, glass, leaves and yard wastes, paper, used motor oil, and metals. A complete description of each of these programs is provided in Table 2.C-6.

Documented Recovered Quantities

Morris County municipalities received a total of $133,971 in 1983 tonnage grant rebates. These formula grants, issued by the Office of Recycling, are awarded to municipalities based on the number of tons of material recycled within municipal borders in a given year.

Boonton, Chatham Borough, Lincoln Park and Parsippany shared an additional $17,468 in rebate monies for asphalt recycling jobs on county roads located in those municipalities.

Twenty-seven municipalities participated in the 1983 Recycling Grants Program documenting a total of 68,198 tons of material recycled. Table 2.C-7 provides a breakdown by municipality and material types recovered.

TABLE 2.C-6

EXISTING RECYCLING/SOURCE SEPARATION ACTIVITIES

Municipality	Program Administered by	COLLECTION MODE (b) Program Collector (a)	Curbside Pickup, Depot, or Both	Schedule/ Location	Materials [1]	Tons Per Year [2]	Current Market(s) (a)	Markets Covered by Contract (Yes/No) (a)	Mandatory Ordinance (Yes/No) (a)	Applying for Recycling Grants? (Yes/No) (c)
Boonton Town	Municipality	Same	Curbside	1st Tues. ea. month	P,G	248.9	Garden State Paper ABCA Glass	No	Yes	Yes
Boonton Township	Volunteers	Same	Depot	Variable/ Rockaway Valley Meth. Church	P	NA	Garden State Paper	No	No	No
Butler Boro	Municipality	Same	Both	Depot-Daily Curbside 2x/mo	P,G,A,L	74.0	Damato Paper Stock Glass Cycle Sys.	No	Yes	Yes
Chatham Boro	Volunteers	Same	Depot	2nd Sat. A.M./ Chatham H.S.	PGA	427.3	Garden St. Paper REI, Reynolds	No	No	Yes
Chatham Township	Volunteers	Same	Depot	4th Sat. A.M./ Corpus Christi	PGA	450.0	Garden St. Paper REI Reynolds	No	No	Yes
Chester Boro	Volunteers	Same	Curbside	Variable	P	140.9	Garden St. Paper	No	No	Yes
Denville Township	Municipality	Same	Depot	Daily/Morris Ave.	PGA	189.8	NA	No	No	Yes
"	Volunteers	Same	Depot	Daily/Union Hill Church	P	NA	NA	No	No	No
Dover Town	Municipality	Same	Both	Curbside-wkly Depot -Wed &Sat	PA A	257.0	Garden St. Paper Hygrade Beverage	No	Yes	Yes

[1] A-aluminum, G-glass, L-leaves/yard wastes, M-metals, O-used motor oil, P-paper

[2] This number represents tonnage documented for 1983 Tonnage Grants. A program without a tonnage number either did not submit a grant application or is a new program.

April 1985

TABLE 2.C-6

EXISTING RECYCLING/SOURCE SEPARATION ACTIVITIES

Municipality	Program Administered by	Program Collector (a)	COLLECTION MODE (b) Curbside Pickup, Depot, or Both	Schedule/ Location	Materials[1]	Tons Per Year[2]	Current Market(s) (a)	Markets Covered by Contract (Yes/No) (a)	Mandatory Ordinance (Yes/No) (a)	Applying for Recycling Grants? (Yes/No) (c)
East Hanover Township	Municipality	Same	Depot	Daily/ Melanie Lane	P	157.4	Garden State Paper	No	No	Yes
Florham Park Borough	Municipality	Volunteers	Depot	2nd & 4th Sats. Columbia Tpke	PG	NA	NA	No	No	Yes
Hanover Township	Municipality	Volunteers	Curbside	Every other mo	P	307	Lobosco & Sons	No	Yes	Yes
"	Municipality	Same	Depot	Daily/N. Jefferson Rd.	G	27.6	Garden State Paper	No	No	Yes
Harding Township	Volunteers	Same	Depot	1st Sat. A.M./ Harding School	P,G,A	142.1	A&J Sorrentino	No	No	Yes
Jefferson Township	Municipality	Private	Curbside	2x/mo.	P,G,A	79.0	NA	No	Yes	Yes
"	Volunteers	Same	Depot	Daily/ United Meth.Ch.	P	56.0	Garden State Paper	No	No	Yes
Kinnelon Township	Municipality	Same	Depot	Daily/ Kinnelon Rd.	P,G,A,M,L,O	94.8+	United Metal S&H Waste Oil	No	No	Yes
"	Volunteers	Same	Depot	1st Sat. A.M./ Reformed Church	P,G,A	92	Garden State Paper Recycling Unlimited, Alum. Container Recyl.	No	No	Yes

[1] A-aluminum, G-glass, L-leaves/yard wastes, M-metals, O-used motor oil, P-paper

[2] This number represents tonnage documented for 1983 Tonnage Grants. A program without a tonnage number either did not submit a grant application or is a new program.

TABLE 2-G.6
EXISTING RECYCLING/SOURCE SEPARATION ACTIVITIES

Municipality	Program Administered by	Program Collector (a)	COLLECTION MODE (b) Curbside Pickup, Depot, or Both	Schedule/ Location	Materials[1]	Tons Per Year[2]	Current Market(s) (a)	Markets Covered by Contract (Yes/No) (a)	Mandatory Ordinance (Yes/No) (a)	Applying for Recycling Grants? (Yes/No) (c)
Lincoln Park Borough	Municipality	Volunteers	Curbside	1x/mo.	P	299	Annex Paperstock	No	Yes	Yes
"	Municipality	Same	Depot	1st 3 Sat.'s/ Main St.	G,A	NA	Pace Glass	No	No	Yes
Madison Borough	Volunteers	Same	Depot	3rd Sat. A.M./ John Street	P	111.9	Garden State Paper	No	No	Yes
Mendham Borough & Township	Municipality	Private	Depot	2nd Sat. A.M./ Route 24 west	P,G,A	NA	NA	No	No	Yes
Mine Hill Township	Volunteers	Same	Depot	Sat. mornings Baker St.	P,G,A	93.6	Garden State Pap Thatcher Glass	No	No	Yes
Montville Township	Municipality	Same	Depot	Sat. mornings River Road	P,G,A	213.1	Annex Paperstock Thatcher Glass	No	No	Yes
Morris Plains Borough	Volunteers	Same	Depot	2nd Sat. A.M./ Grannis Ave.	P,G,A	23.6	R. Loboaco Thatcher Glass Garden State Pap	No No No	No No No	Yes Yes No
"	Volunteers	Same	Depot	Daily/ Trinity Church	P	NA	NA	No	No	No
Morristown Town	Municipality	Same	Curbside	1x/mo.	P,G,A	NA	NA	No	No	Yes
"	Volunteers	Same	Depot	Sundays/Lake Rd.	P,G	NA	NA	No	No	No

[1] A-aluminum, G-glass, L-leaves/yard wastes, M-metals, O-used motor oil, P-paper

[2] This number represents tonnage documented for 1983 Tonnage Grants. A program without a tonnage number either did not submit a grant application or is a new program.

April 1985

TABLE 2.C-6
EXISTING RECYCLING/SOURCE SEPARATION ACTIVITIES

Municipality	Program Administered by	Program Collector (a)	COLLECTION MODE (b) Curbside Pickup, Depot, or Both	Schedule/ Location	Materials	Tons Per Year	Current Market(s) (a)	Markets Covered by Contract (Yes/No) (a)	Mandatory Ordinance (Yes/No) (a)	Applying for Recycling Grants? (Yes/No) (c)
Mt. Arlington	Volunteers	Same	Depot	Daily/ Howard Blvd/	G	NA	NA	No	No	No
Mount Olive Township	Municipality	Same	Curbside	1x/mo.	P	89.6	Garden State Paper	No	Yes	Yes
"	Volunteers	Same	Depot	1st Sat. A.M./ Rt. 206	P	76.8	Garden State Paper	No	No	Yes
"	Volunteers	Same	Depot	Daily/Rt. 46	P	185.0	Garden State Paper	No	No	Yes
Mountain Lakes Borough	Volunteers	Same	Depot	4th Sat. A.M./ Pocono Road	P,G,A,M,L	206.1	Garden State Pap Thatcher Glass	No	No	Yes
Netcong Borough	Municipality	Private	Curbside	Weekly	P	NA	NA	No	Yes	No
Par-Troy Township	Municipality	Same	Depot	Daily/Smith-field Park	P,A	NA	NA	No	No	Yes
"	Volunteers	Same	Depot	4th Sat. A.M./ Grafton Drive	P	NA	Garden State Paper	No	No	Yes
Passaic Twp.	Volunteers	Same	Depot	Every Sat. A.M./ Warren Avenue	P,G,A,O	278.1	Sorrentino, Thatcher Glass, Phil's Waste Oil	No	No	Yes
Pequannock Twp. Township	Municipality	Same	Depot	Daily/Washing-ton Park	P,G,A,L	156.7	Damato Paper Ron Gordon	No	No	Yes
Randolph Township	Municipality	Private	Curbside	1x/mo	P,G,A	151.1	Garden State Paper	No	Yes	Yes

[1] A-aluminum, G-glass, L-leaves/yard wastes, M-metals, O-used motor oil, P-paper

[2] This number represents tonnage documented for 1983 Tonnage Grants. A program without a tonnage number either did not submit a grant application or is a new program.

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TABLE 2.C-6
EXISTING RECYCLING/SOURCE SEPARATION ACTIVITIES

Municipality	Program Administered by	Program Collector (a)	COLLECTION MODE (b) Curbside Pickup, Depot, or Both	Schedule/ Location	Materials [1]	Tons Per Year [2]	Current Market(s) (a)	Markets Covered by Contract (Yes/No) (a)	Mandatory Ordinance (Yes/No) (a)	Applying for Recycling Grants? (Yes/No) (c)
Randolph Township (cont)	Municipality	Same	Depot	Daily/Morris & Sussex Tpkes.	P,G,A,L	2838.0	Compost	No	No	Yes
"	Volunteers	Same	Depot	Daily/Dover-Chester Road	P	91.5	Garden State Paper	No	No	Yes
Riverdale Borough	Volunteers	Same	Depot	1st. Sun. Hamburg Tpke.	P	NA	NA	No	No	No
Rockaway Borough	Volunteers	Same	Depot	Daily, E. Main Street	P	NA	NA	No	No	No
Rockaway Township	Municipality	Private	Curbside	Daily	P	204.0	Garden State Paper	No	Yes	Yes
Roxbury Township	Municipality	Same	Curbside	1x/mo.	P,G,A	267.5	Garden State Paper	No	Yes	Yes
							ABCA Glass, Hygrade Beverage	No	Yes	Yes
"	Municipality	Same	Depot	Daily/Horse-shoe Lake	P,G,A	included in above No.	Same as above	No	No	Yes
"	Volunteers	Same	Depot	2nd Sat. A.M./ Eyland Ave.	P	131.3	Garden State Paper	No	No	Yes
"	Volunteers	Same	Depot	1st. Sat./ Main St.	P	60.3	Garden State Paper	No	No	Yes

[1] A-aluminum, G-glass, L-leaves/yard wastes, M-metals, O-used motor oil, P-paper

[2] This number represents tonnage documented for 1983 Tonnage Grants. A program without a tonnage number either did not submit a grant application or is a new program.

April 1985

TABLE 2.C-6

EXISTING RECYCLING/SOURCE SEPARATION ACTIVITIES

Municipality	Program Administered by	COLLECTION MODE (b) Program Collector (a)	Curbside Pickup, Depot, or Both	Schedule/ Location	Materials [1]	Tons Per Year [2]	Current Market(s) (a)	Markets Covered by Contract (Yes/No) (a)	Mandatory Ordinance (Yes/No) (a)	Applying for Recycling Grants? (Yes/No) (c)
Victory Gardens	Municipality	Same	Curbside	Every Wed.	P	NA	NA	No	Yes	Yes
Washington Township	Municipality	Same	Depot	Sat. mornings/ Rock Road	G,A	19.7	Thatcher Glass Garden State Paper	No	No	Yes
"	Volunteers	Same	Depot	Daily/Westmill Road	P	212.4	SORT Corp.	No	No	Yes
Wharton Borough	Municipality	Same	Curbside	2nd & 4th Mondays	PGA	56.30	Garden State Paper Thatcher Glass	No	Yes	Yes

[1] A-aluminum, G-glass, L-leaves/yard wastes, M-metals, O-used motor oil, P-paper

[2] This number represents tonnage documented for 1983 Tonnage Grants. A program without a tonnage number either did not submit a grant application or is a new program.

April 1985

Table 2.C-7

Documented Municipal Recycling
Morris County - 1983

Tonnage Documented for 1983 (TPY)

Municipality	Paper	Glass	Other	Total
Boonton Town	412.1	104.3	1631.0	2147.4
Butler Boro	119.0	11.0		130.0
Chatham Boro	512.3	48.7	475.0	1036.0
Chatham Twp.	664.3	48.4	32.6	745.3
Chester Boro	537.0		103.3	640.3
Denville Twp.	179.7	70.7	53.8	304.2
Dover	745.0		1348.7	2093.7
East Hanover	9058.6	20.5	18.2	9097.3
Hanover Twp.	1190.9	27.6	195.8	1414.3
Harding Twp.	91.5	44.8	10.8	147.1
Jefferson Twp.	365.0	10.0	135.0	510.0
Kinnelon Boro	435.3	32.5	161.4	629.2
Lincoln Park Boro	1205.0	10.0	2854.0	4069.0
Madison Boro	521.8	11.1	811.6	1344.5
Mendham Boro	210.0		73.6	283.6
Mine Hill Twp.	125.0	24.1	14.2	163.3
Montville Twp.	1216.9	34.2	5490.2	6741.3
Morris Plains	869.4	4.0	5156.7	6030.1
Morristown Town	16.2	29.5	22.3	68.0
Mountain Lakes Boro	161.2	26.4	144.5	332.1
Mount Olive Twp.	592.0		116.0	708.0
Par-Troy Twp.	4195.0	50.0	390.7	4635.7
Passaic Twp.	2957.8	41.0	121.3	3120.0
Pequannock Twp.	347.2		1755.2	2102.4
Randolph Twp.	3587.6	5.5	3035.4	6628.5
Rockaway Twp.	1036.6	9.6	596.4	1642.6
Roxbury Twp.	1279.4	133.7	9577.3	10,990.4
Washington Twp.	316.6	19.2	972.7	1308.5
Wharton Boro	619.7	111.1	47.7	778.5
Totals	33,568.1	927.9	35,344.7	69,840.8

April, 1985

Chapter 3 - Description of Future Alternatives

3.A Landfills

Based on the agreement in the Administrative Consent Order pertaining to landfill development, the description of future landfill alternatives should include the development of a sanitary landfill within Morris County. This new facility would provide short-term disposal capacity until the implementation of resource recovery. It would also provide for long-term disposal capacity for ash residue, non-processable waste and for by-pass periods when the resource recovery facility is being serviced.

4.A Preferred Landfill Alternatives

Morris County's future landfill alternatives include the investigation of both long-term and short-term disposal capacity. Morris County conducted an extensive study to determine whether there was a suitable site within the County for a long-term sanitary landfill. (See "Sanitary Landfill Site Evaluation Report", September 1982, prepared by Terraqua Resources Corporation). Those sites, found to meet basic criteria, were eventually eliminated due to the considered risk of pollution to the County's groundwater. Consequently, the Morris County Board of Chosen Freeholders adopted a resolution certifying failure to locate a suitable landfill site within the County in December, 1983 pursuant to N.J.S.A. 13:1E-21.

The Department was ordered by Superior Court to conduct a landfill siting study for Morris County. Their consultant's Dresdner Associates, designated Site 6-1B in Rockaway Township as the preferred landfill site in their report, "Sanitary Landfill Siting Study, Morris County, New Jersey", August, 1984.

Subsequently, Morris County entered into the Administrative Consent Order with DEP that outlines development schedules for a landfill and a resource recovery facility. The DEP, through their consultants Woodward-Clyde Consultants, prepared an Environmental Impact Statement (EIS) for Site 6-1B in Rockaway Township. The EIS disclosed that portions of this site are suitable for development of a state-of-the-art sanitary landfill. Morris County will proceed with the development stages to bring this new landfill into operation in early 1986. The Morris County Landfill will provide both short-term and long-term disposal capacity.

Existing solid waste flows should continue until development of the new landfill. The 37 municipalities which are presently directed to Edgeboro Landfill should continue to dispose of their waste at that facility until 1986. Mount Arlington Borough should continue to utilize its own municipal landfill until that facility has reached its design capacity or until implementation of resource recovery. Washington Township, whose waste was redirected to Ocean County Landfill (DEP #1518B) in September, 1983 following the closure of High Point Sanitary Landfill, should continue to be directed to the Ocean County Landfill until commencement of operation of the new Morris County Landfill in 1986.

It should be noted that the Administrative Consent Order specifies that Morris County will accept for disposal at its landfill an amount of solid waste equal to the quantity of waste disposed of in Middlesex County from the 20 Morris County municipalities formerly disposing at Hamm's Landfill. This compensation will be available for solid waste generated outside of Middlesex and Morris Counties, but currently disposed of in Middlesex County.

4.B Evaluation of Waste Transport Alternative

Until the implementation of a sanitary landfill in early 1986, most waste generated within Morris County is expected to be exported to disposal facilities outside of the District. The previous waste transport strategy recommended the development of three transfer stations to service Morris County. This strategy, however, was based upon the fact that most municipalities within the county are in excess of 30 miles (one-way) from their designated disposal sites; and that this practice would continue until implementation of resource recovery.

Since Morris County is to provide a sanitary landfill in Rockway Township, transfer stations generally would not be economically viable once the landfill facility becomes operable. Therefore, transfer stations will not be an integral part of the County's solid waste management strategy.

This will not preclude the development of transfer stations within Morris County. In addition to the economic benefits, transfer facilities can result in a reduction of truck traffic at the new landfill and ultimately at the energy recovery facility. Also, transfer stations can be designed to recover and market recyclable materials resulting in a reduction in waste processing and associated costs at the landfill and/or energy recovery facility. Therefore, independent proposals for transfer facilities will be reviewed and approved by the County if deemed suitable.

Chapter 5 - Public Participation Program

The following amended tables provide updated information regarding the Solid Waste Advisory Council membership (5.1) and Meeting Schedule (5.2), Public Information and Public Hearing Schedule (5.3), and the District Solid Waste Management Staff (5.4).

TABLE 5.1

Morris County

Solid Waste Advisory Council

Member	Municipality
Frank Schimmenti, Chairman	Boonton
Tom Branch, Vice-Chairman	Mendham Twp.
Stephen Batty	Mountain Lakes
Margit Brown	Morristown
Carl Erickson	Dover
Chas. Peter Hunkele, Jr.	Chester Twp.
Augustus Knight, Jr.	Chester Twp.
Robert Powell	Morristown
R. Fenn Putman	Mendham Twp.
Kenneth Rogers	Parsippany
Carolyn Rynn	Roxbury Twp.
Ex-Officio	
Carol Murphy, Freeholder	Montville Twp.

TABLE 5.2

DISTRICT SOLID WASTE
ADVISORY COUNCIL:

SWAC Meeting Schedule

(for all meetings in preceding 2 calendar years)

Date	Place
3/16/83 P.M. 7:30	County Court House, Morristown, Freeholders Conference Room
4/20/83	" " " " "
5/18/83	" " " " "
6/15/83	" " " " "
7/20/83	" " " " "
9/21/83	" " " " "
10/19/83	" " " " "
11/16/83	" " " " "
12/21/83	" " " " "
1/24/84	" " " " "
2/15/84	" " " " "
3/21/84	" " " " "
4/18/84	" " " " "
5/16/84	" " " " "
6/20/84	" " " " "
7/18/84	" " " " "
8/15/84	" " " " "
9/19/84	" " " " "
10/17/84	" " " " "
12/19/84	" " " " "
1/16/85	" " " " "
2/13/85	" " " " "
3/20/85	" " " " "

TABLE 5.3

Public Information and Public Hearing Schedule
(for preceding two full years)

Date	Place	Subject/Type of Meeting (Hearing, Information, Session, etc.)
6/17/81	Morris County Courthouse, Freeholders' Meeting Room	Public meeting w/League of Municipalities to present landfill siting methodology
12/16/81	Morris County Courthouse, Jury Assembly Room	Public meeting to present landfill site selection methodlogy and to accept public comment on same
2/11/82	County College of Morris, Gymnasium	SWAC public hearing on candidate landfill site in Rockaway Township
2/22/82	Roxbury High School	SWAC public hearing on candidate landfill site in Roxbury Township
3/22/82	Mt. Olive High School	SWAC public hearing on candidate landfill site in Mt. Olive Township
2/13/85	Morris County Courthouse, Freeholders Meeting Room.	Public hearing re: Plan Amendment for waste flow redirection.

TABLE 5.4

DESIGNATED DISTRICT SOLID WASTE MANAGEMENT
IMPLEMENTING AGENCY
(complete separate sheet for each agency which shares implementing authority)

Name of Agency: Morris County Board of Chosen Freeholders

Address: Courthouse
Morristown, New Jersey 07960

Phone number: (201) 829-8212

Staff:

NAME	TITLE	SUMMARY OF DUTIES
Glenn Schweizer	Solid Waste Coordinator	Staff supervision; liaison w/SWAC and Freeholders; Management and implementation of solid waste systems in Morris County.
Lauren Roman	Sr. Planner Solid Waste	Preparation of technical studies re: Solid Waste Management Plan, landfill development, resource recovery implementation.
Lori Scozzafava	Recycling Coordinator	Provision of technical assistance to municipalities and recycling groups; implementation of County Recycling Program.
Penny Jones	Recycling Education Specialist	Provision of assistance to municipalities and volunteer groups re: development and implementation of public information and educational programs.

- Please provide a summary or outline of public participation, education and outreach activities planned for the upcoming year. This description should include details of the public involvement phase of the adoption of this Plan Update. Please also describe any activities such as meetings, hearings, etc. not included in Table 12B.

Chapter 6 - Solid Waste Management Plan

This chapter will summarize the key components of the Morris County Solid Waste Management Plan Update including interim and long-range strategies through the year 1995. The data utilized in developing this Plan Update, as well as certain individual components, may be subject to improvement and refinement as future needs and conditions require.

6.A General Policy

It is the general policy of the Morris County Solid Waste Management District to ensure that interim and long-range disposal of solid waste generated in the County is done in the most cost effective, environmentally sound manner. The County recommends that a multi-faceted solution be incorporated in dealing with solid waste mangement including recycling, resource recovery and landfilling.

Interim policy calls for the aggressive application of source separation efforts and for the continued disposal of waste in out-of-county landfills until commencement of operation of the new Morris County landfill. The new landfill will provide disposal capacity for Morris County until implementation of resource recovery. The landfill will also provide long-term disposal capacity for non-processible waste and for the ash residue from a waste-to-energy facility, if permitted by DEP. The long-term strategy proposes the use of a single waterwall incineration facility for waste volume reduction and energy production for the total solid waste load of Morris County.

Morris County will remain dependent on out-of-county land disposal facilities during the interim period. The County has been unsuccessful in obtaining inter-district agreements from other counties, and is presently complying with waste flow directives ordered by DEP. In order to reduce waste quantities exported outside of the district, Morris County requires that all municipalities pass mandatory recycling ordinances and develop source separation programs.

Current estimates of material recycling represent about 10% of the County waste stream. It is unlikely that these low technology efforts will result in a waste stream reduction greater than 25%, and therefore more effective volume reduction and energy recovery through incineration is preferred for the long term.

The County does not wish to preclude the implemenation of a regional waste-to-energy facility with one or more surrounding districts. However, since no such arrangement has been finalized, it is prudent for the county to pursue a sole source strategy at this time. Regionalization concepts can be incorporated by Plan amendment in the future.

Should a regionalization concept be arranged, Morris County will seriously consider utilizing transfer stations. This may result in benefits for both this district and for the waste receiving district. For most Morris County municipalities, transport costs to an out-of-district disposal site may be minimized through the use of transfer stations. For the receiving district, traffic related impacts at the disposal facility can be mitigated.

6.B Procurement Strategy

The cornerstone of Morris County's long range plan for solid waste management is the implementation of an energy recovery facility. It is recommended that this facility be owned and operated by the private sector on a site to be selected by Morris County. If required, the County can purchase the site and lease it to the operator.

In accordance with the Administrative Consent Order, Morris County will designate a site for the waste-to-energy facility by September 1, 1985. The selection of a full service contractor to own and operate the facility will be made by June 1, 1986. Commencement of full operation of the facility is projected for November 1, 1990.

The second key structural element of the Solid Waste Management Plan is the landfill strategy. It is expected that this facility will be owned by Morris County and operated by the private sector. Initially, the county will apply for a Temporary Certificate of Authority to Operate (TCAO). After obtaining the TCAO permit from DEP, and following the design and operation of the first stage of the landfill, Morris County will make formal application to DEP for a full permit.

Table 6.B-1 presents a compilation of studies completed or to be undertaken as part of this long range planning and implementation process. Table 6.B-2 presents the schedule for the implementation of the landfill and energy recovery facility (see also: Administrative Consent Order-Appendix 1).

In accordance with the County's agreement with DEP, "Morris County shall utilize its best efforts, including establishment of a mandatory county-wide recycling program, if necessary, to ensure that no more than 75 trucks or 550 tons of solid waste are transported to Middlesex County from the municipalities that had previously utilized the Hamm's Landfill."

While Morris County's waste is transported and disposed of out of district, implementation of mandatory multi-material recycling programs at the municipal level will continue to be actively encouraged by the County. In conjunction with the development of the Morris County landfill, the County will require mandatory recycling for every municipality. Municipalities will be required to pass a mandatory recycling ordinance by September 1, 1985. When Morris County beings operation of its own landfill disposal facility, all municipalities will be required to have mandatory recycling programs in operation. Each municipality will also be required to submit quarterly reports to the County to document recycling tonnages. Penalties will be assigned to those municipalities held in non-conformance with any of these requirements. County-wide recycling goals will be established prior to program implementation.

Informing municipalities of pending recycling requirements will no doubt encourage them to organize their mandatory multi-material recycling programs. In addition, the knowledge that Morris County will take in, on a ton-for-ton basis, an equal amount of waste that it exports until a new county facility is operational, should further stimulate increased recycling efforts.

Continuing recycling efforts will offer additional benefits, including a reduction in size and capital costs of the resource recovery facility, an extension of the disposal capacity at the new landfill, and additional recycling rebate funding.

Many Morris County municipalities will choose to develop and implement curbside recycling services. However, if a municipality can successfully remove materials from the waste stream through other programs, such as multi-material drop-off centers, it is their option to do so.

6.C Proposed Facilities

Two facilities are proposed in this solid waste management plan. These include one sanitary landfill and one energy recovery facility.

Site 6-1B, located in Rockaway Township, has been designated as the site for the sanitary landfill. The landfill site, consisting of portions of 1,754 acres, is located west of Green Pond Road, south of Snake Hill Road, and shares its western border with Picatinny Arsenal. Figures 6.C-1 and 6.C-2 show the site location of the facility. The specific lots, blocks, acreage, and ownership of the parcels comprising the proposed landfill site are presented in Table 6.C-2. Additional pertinent information on this proposed site can be found in the environmental impact statement prepared for DEP by Woodward-Clyde Consultants, the landfill siting report prepared for DEP by Dresdner Associates, and the landfill siting report prepared for Morris County by Terraqua Resources Corporation.

Development of a sanitary landfill at Site 6-1B will require all current state-of-the-art environmental safeguards including liners, leachate collection and treatment systems, gas venting, monitoring, daily cover, surface drainage, and proper closure.

Development of the facility will reduce transportation costs for Morris County municipalities. As shown in Figure 6.C-1, the proposed site is approximately centrally located within the County. A collection/haul analysis, based on the proposed waste flow to the new Morris County landfill, is presented in Table 6.C-3.

Disposal costs are expected to be significantly higher at the new landfill due to the required environmental safeguards.

Waste flow assignments to existing and proposed solid waste facilities are presented in Table 6.C-1. To summarize, waste from the 37 municipalities presently directed to Edgeboro Landfill will continue to be disposed there until commencement of operation of the Morris County Landfill in 1986. Washington Township will continue to be directed to the Ocean County Landfill until opening of the new Morris County Landfill. Mount Arlington's waste will continue to be disposed of in their municipal landfill until implementation of resource recovery in 1990.

All of Morris County's processible waste will be directed to the waste-to-energy facility projected to begin operation in 1990. All non-processible waste and ash residue generated from the resource recovery facility will be disposed of (if permitted) at the Morris County Sanitary Landfill.

It should be noted that no waste has been directed to the facility proposed by the Lakeland Regional Solid Waste Management Authority from its Morris County communities of Butler, Kinnelon and Pequannock. There are several reasons for this. The County believes that the 250 TPD design capacity (5 day/week) for the facility is much larger than necessary to accommodate waste from the six member municipalities. The Morris County share, using 1985 as a base year accounts for only 85 TPD on a 5 day/week basis.

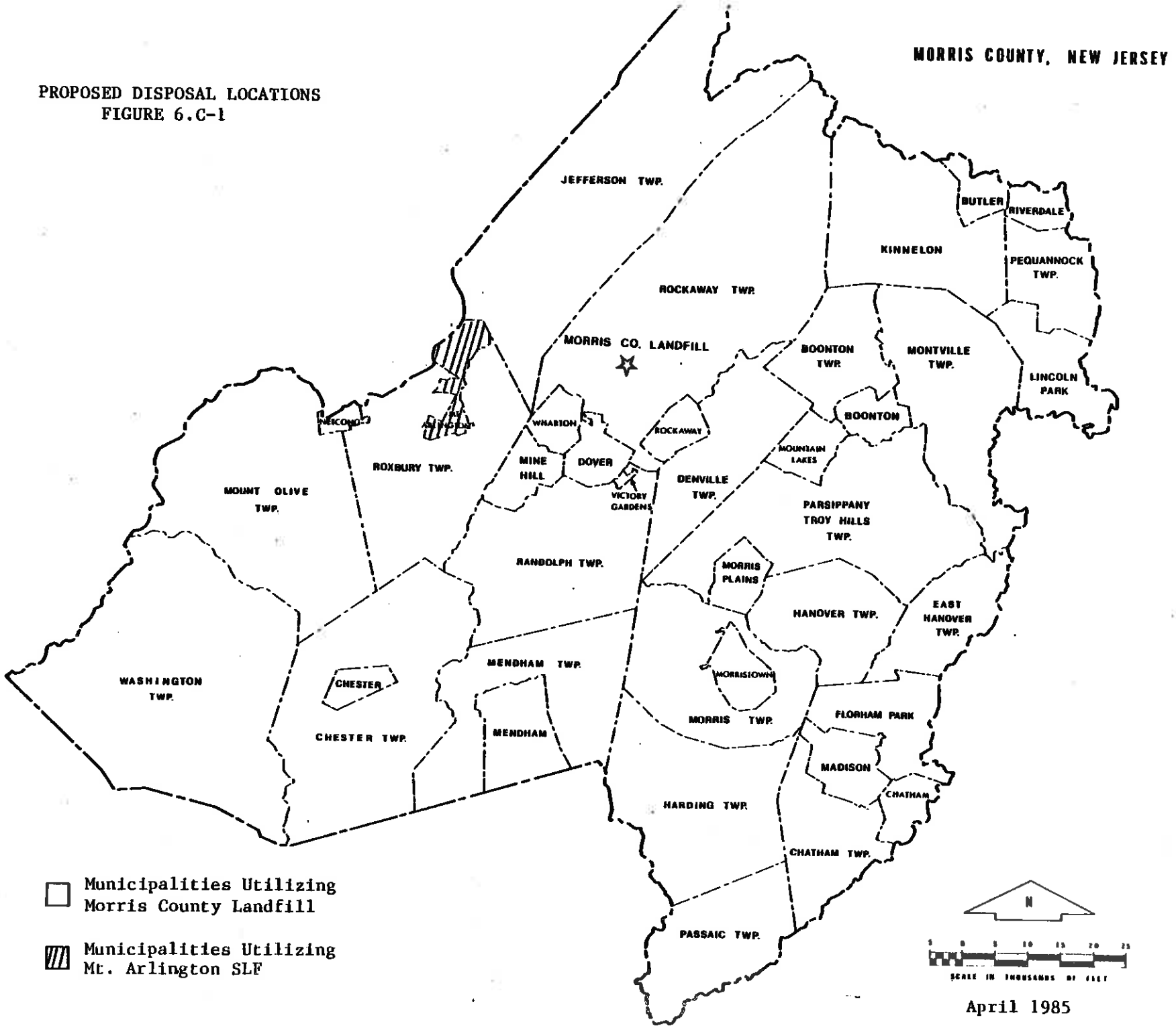
Secondly, it is also believed that a small facility such as that proposed by the Lakeland Authority will exhibit diseconomies with respect to required air pollution control equipment and power generation devices when compared to a larger facility.

Finally, based on reports submitted to the County by the Authority, very little progress has been made toward the implementation of the facility originally scheduled to come on line in 1983. To date the County has no knowledge regarding site and energy market commitments necessary for implementation. Therefore waste from Butler, Kinnelon, and Pequannock will be assigned to the Morris County Landfill and ultimately to the waste-to-energy facility when it comes on line.

Morris County has been receiving numerous proposals for development of compost facilities throughout the entire county. All such proposals, and any new applications for compost facilities, or temporary facilities for the disposal of on-site generated vegetative waste within Morris County, will be considered consistent with the District Solid Waste Management Plan provided it meets existing environmental design and operation standards of the Department of Environmental Protection.

A compost facility is defined as any facility utilized for the natural conversion of organic materials to humus by micro-organism activity. A vegetative waste facility is any facility utilized for the disposal of vegetative waste (Type 23 including tree stumps) which are generated on site, with the facility being terminated upon completion of land clearance and disposal activities.

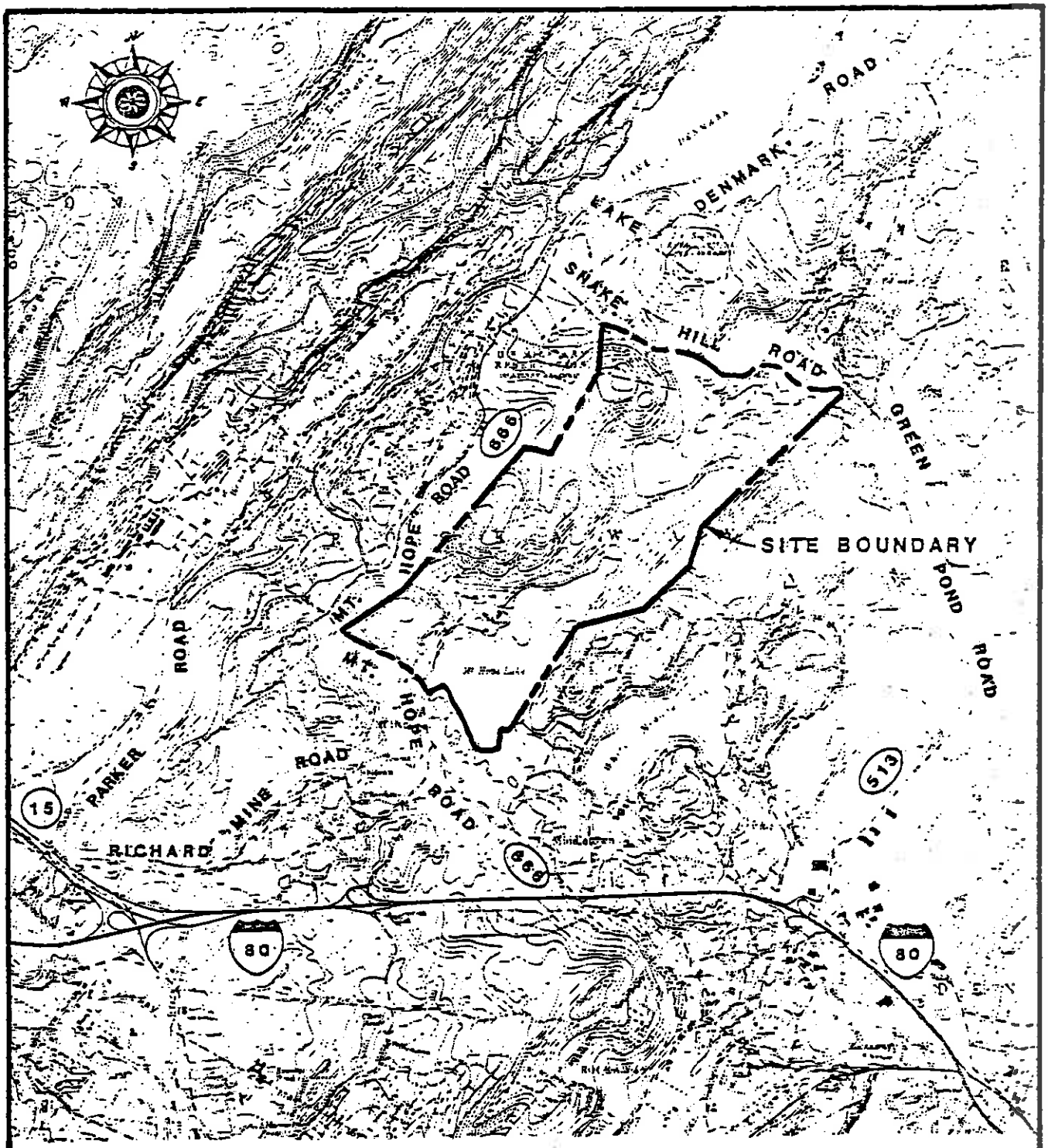
PROPOSED DISPOSAL LOCATIONS
FIGURE 6.C-1



Municipalities Utilizing Morris County Landfill

Municipalities Utilizing Mt. Arlington SLF

April 1985



REFERENCE: UNITED STATES GEOLOGICAL SURVEY, 1970,
DOVER QUADRANGLE, NEW JERSEY, 7.5 MINUTE SERIES

4000 0 4000

SCALE IN FEET

FIGURE 6.C-2
SITE 6-1B
LOCATION MAP

TABLE 6.B-1

COMPLETED AND PLANNED SOLID WASTE STUDIES
1979 to Present

Type of Study: (Feasibility, Engineering, Site Assessment; Preliminary or Final, etc.)	Completion Date (Actual or Expected)	Cost	Consultant/Contractor or (In-House)	Source of Funds	For Completed Studies: Brief Summary of Procedure & Findings
Solid Waste Management Plan	12/79	$60,000	RAS Associates	DEP Grant	County Solid Waste Data and Management Strategy
Sanitary Landfill Site Assessment (Preliminary)	11/81	NA	In-House	NA	Identified 20 potential sites
Sanitary Landfill Site	10/82	$200,000	Terraqua Resources Corp.	$20,000 DEP	Detailed evaluation of 4 potential sites. Recommendation for final site selection.
Energy Market Evaluation (Preliminary)	11/82	NA	In-House	NA	Identified potential markets.
Feasibility of a Transfer Station (Preliminary)	1/83	NA	In-House	NA	Evaluated the economic feasibility of utilizing a transfer station for eastern Morris County municipalities.
Solid Waste Generation and Composition (Final)	2/83	NA	In-House	NA	Prepared new solid waste generation and composition projections.
Identification of Resource Recovery Search Areas	11/83	NA	In-House	NA	Identified potential resource recovery sites and recommended 8 for further review by consultan
Review of Waste-To-Energy Technologies	2/84	$17,000	Bechtel	County	Reviewed and compared three waste processing technologies: mass burn waterwall incineration, modular incineration & RDF. Recommended mass burn as preferre technology.
Facility Site and Energy Market Evaluations	12/84	$122,000	Bechtel In-House	County	Conducted a site assessment and energy market study for a resource recovery facility. Recommended preferred site and energy market.

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TABLE 6.B-1 (Cont)

COMPLETED AND PLANNED SOLID WASTE STUDIES

1979 to Present

Type of Study: (Feasibility, Engineering, Site Assessment; Preliminary or Final, etc.)	Completion Date (Actual or Expected)	Cost	Consultant/Contractor or (In-House)	Source of Funds	For Completed Studies: Brief Summary of Procedure & Findings
Facility Site Evaluation - Resource Recovery Facility	1/85	$35,000	Bechtel	County	Consultant reviewed three potential sites for waste-to-energy facility. All three were determined to be suitable.
Conceptual and Engineering Design for First Stage of Landfill	8/85	NA	Consultant	County	
Preparation of Procurement Documents for Resource Recovery Facility	12/85	$56,500	Bechtel In-House	County	
Evaluation of Vendor Proposals/Selection of Vendor	6/86	$42,700	In-House/Bechtel	County	
Full Environmental Impact Statement and Engineering Design for Landfill	9/86	NA	Consultant	County	
Other Preconstruction Activities - RRF	12/86	NA	Vendor/In-House/ Bechtel	NA	

TABLE 6.B-2 PROPOSED SOLID WASTE FACILITY IMPLEMENTATION SCHEDULE

Facility MORRIS COUNTY LANDFILL (complete one sheet for each new facility proposed or planned)

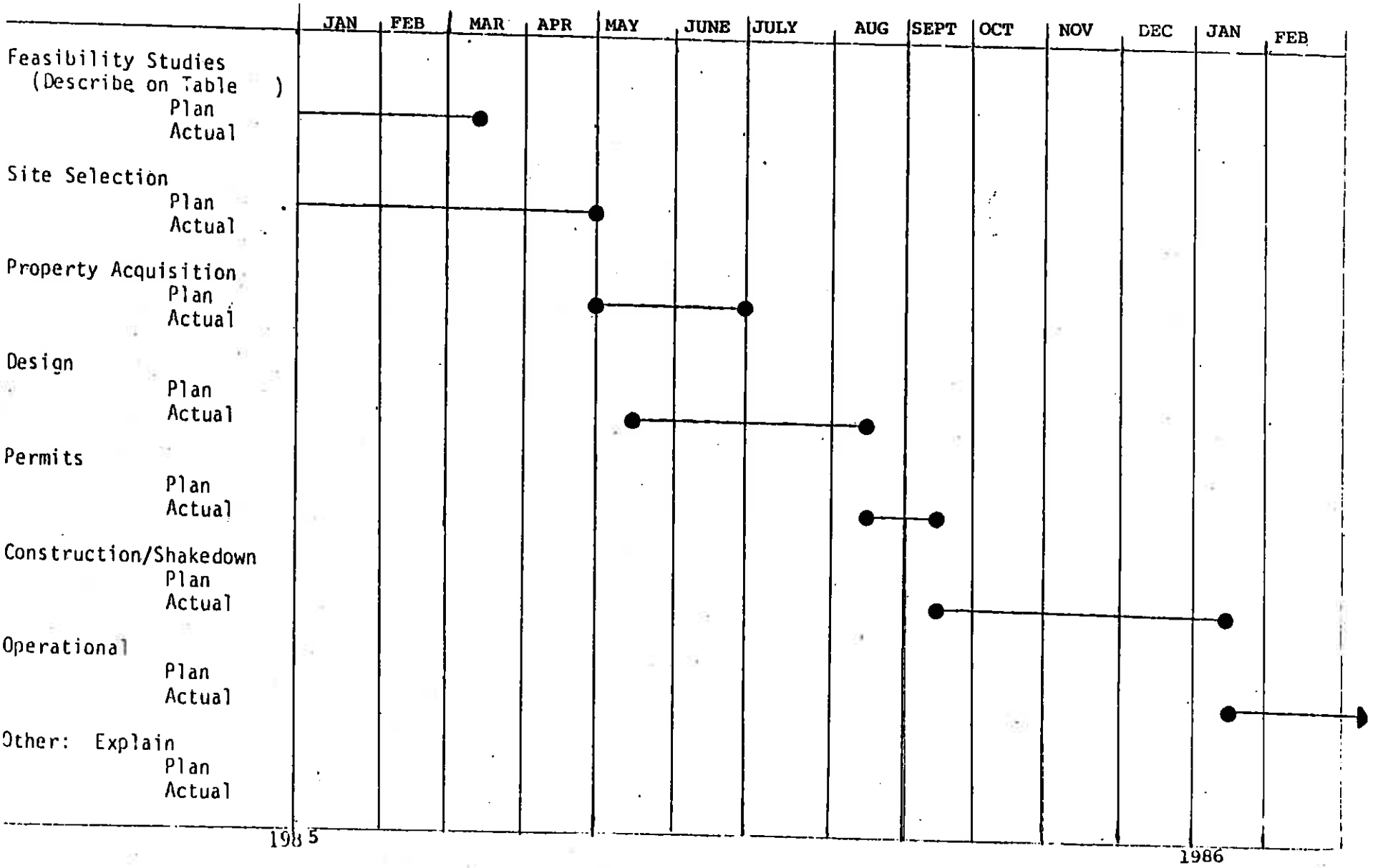

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TABLE 6.B-2 PROPOSED SOLID WASTE FACILITY IMPLEMENTATION SCHEDULE (cont'd)

Facility MORRIS COUNTY RESOURCE RECOVERY (complete one sheet for each new facility proposed or planned)

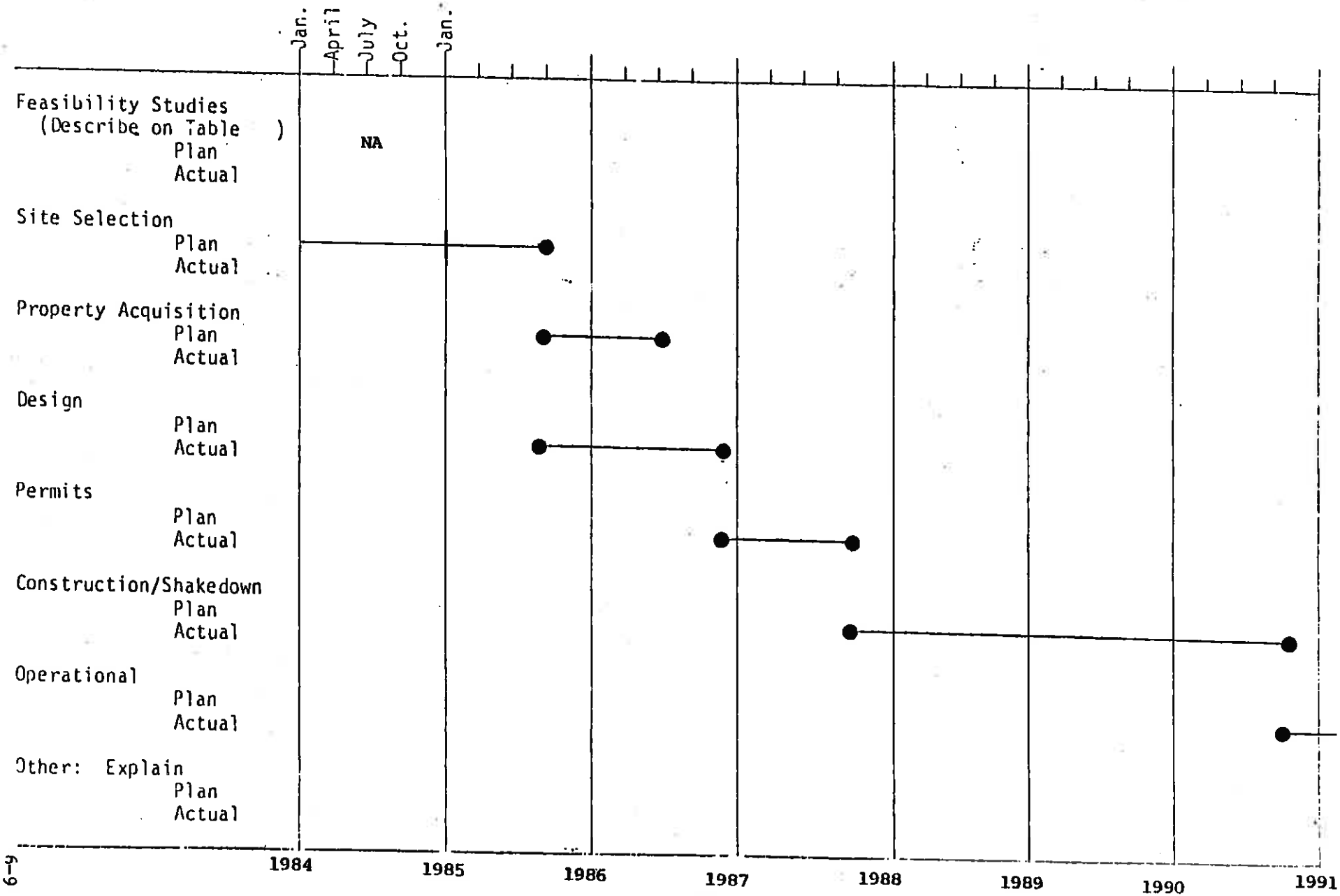

TABLE 6.C-1
MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY

FACILITY Edgeboro LF (#1204A)

TOTAL WASTE TO BE DISPOSED OF (TPY)

Municipalities	1985										Total
Boonton Town	7,792										7,792
Boonton Twp.	3,735										3,735
Butler Boro	6,150										6,150
Chatham Boro	7,300										7,300
Chatham Twp.	6,117										6,117
Chester Boro	1,932										1,932
Chester Twp.	4,026										4,026
Denville Twp.	13,680										13,680
Dover Town	16,114										16,114
E. Hanover Twp.	14,357										14,357
Florham Park Boro	18,049										18,049
Hanover Twp.	20,962										20,962
Harding Twp.	2,581										2,581
Jefferson Twp.	10,228										10,228
Kinnelon Twp.	5,173										5,173
Lincoln Park Boro	6,985										6,985
Madison Boro	12,258										12,258
Mendham Boro	3,752										3,752
Mendham Twp.	2,844										2,844
Mine Hill Twp.	1,867										1,867
Montville Twp.	13,783										13,783
Morris Plains	12,324										12,324
(cont'd)											
TOTAL											

TABLE 6.C-1 (cont'd)
MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY

FACILITY Edgeboro LF (#1204A)

TOTAL WASTE TO BE DISPOSED OF (TPY)

Municipalities	1985										Total
Morris Twp.	15,060										15,060
Morristown Town	32,241										32,241
Mount Olive Twp.	13,265										13,265
Mountain Lakes Boro	2,943										2,943
Netcong Boro	2,985										2,985
Par-Troy Twp.	49,884										49,884
Passaic Twp.	5,498										5,498
Pequannock Twp.	10,827										10,827
Randolph Twp.	14,527										14,527
Riverdale Boro	2,435										2,435
Rockaway Boro	6,587										6,587
Rockaway Twp.	18,573										18,573
Roxbury Twp.	16,164										16,164
Victory Gardens Boro	579										579
Wharton Boro	5,533										5,533
Government	23,053										23,053
TOTAL	412,177										412,177

TABLE 6.C-1 (cont'd)
MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY

FACILITY **Morris County Landfill**

TOTAL WASTE TO BE DISPOSED OF (TPY)

Municipalities	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Total
Boonton Town	7,918	8,044	8,183	8,305							
Boonton Twp.	3,818	3,902	3,992	4,078							
Butler Boro	6,308	6,469	6,644	6,808							
Chatham Boro	7,399	7,496	7,605	7,696							
Chathan Twp.	6,293	6,471	6,667	6,848							
Chester Boro	1,976	2,020	2,066	2,110							
Chester Twp.	4,160	4,297	4,446	4,582							
Denville Twp.	13,975	14,271	14,594	14,891							
Dover Town	16,414	16,715	17,039	17,319							
E. Hanover Twp.	14,704	15,056	15,429	15,788							
Florham Park Boro	18,372	18,696	19,035	19,358							
Hanover Twp.	21,402	21,844	22,312	22,760							
Harding Twp.	2,635	2,689	2,749	2,803							
Jefferson Twp.	10,580	10,935	11,329	11,696							
Kinnelon Twp.	5,297	5,421	5,560	5,686							
Lincoln Park Boro	7,122	7,258	7,409	7,545							
Madison Boro	12,449	12,635	12,845	13,026							
Mendham Boro	3,893	4,036	4,193	4,342							
Mendham Twp.	2,949	3,055	3,174	3,284							
Mine Hill Twp.	1,908	1,940	1,976	2,007							
Montville Twp.	14,188	14,599	15,044	15,466							
Morris Plains	12,528	12,732	12,994	13,147							
(cont'd)											
TOTAL											

ALL NON-PROCESSIBLE WASTE FROM
39 MUNICIPALITIES
(15% OF TOTAL)

TABLE 6.C-1 (cont'd)
MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY

FACILITY **Morris County Landfill**

TOTAL WASTE TO BE DISPOSED OF (TPY)

Municipalities	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Total
Morris Twp.	15,395	15,732	16,104	16,441							
Morristown Town	32,765	33,286	33,835	34,352							
Mount Olive Twp.	13,789	14,324	14,909	14,464							
Mountain Lakes Boro	2,978	3,010	3,049	3,097							
Netcong Boro	3,083	3,183	3,292	3,396							
Par-Troy Twp.	50,822	51,756	52,777	53,705							
Passaic Twp.	5,609	5,772	5,846	5,958							
Pequannock Twp.	11,028	11,228	11,449	11,647			ALL NON-PROCESSIBLE WASTE FROM				
Randolph Twp.	15,063	15,607	16,201	16,768			39 MUNICIPALITIES				
Riverdale Boro	2,474	2,513	2,555	2,593			(15% OF TOTAL)				
Rockaway Boro	6,745	6,904	7,076	7,237							
Rockaway Twp.	18,972	19,374	19,816	20,220							
Roxbury Twp.	16,662	17,167	17,717	18,263							
Victory Gardens Boro	595	609	625	639							
Washington Twp.	8,614	9,027	9,477	9,911							
Wharton Boro	5,641	5,750	5,867	5,976							
Government	22,834	22,610	22,385	22,161							
TOTAL	429,357	438,383	448,214	457,333	70,433	71,496	72,568	73,648	74,729	75,330	2,221,911

TABLE 6.C-1 (cont'd)
MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY

FACILITY Mount Arlington Boro SLF (#1426A)

TOTAL WASTE TO BE DISPOSED OF (TPY)

Municipalities	1985	1986	1987	1988	1989	1990	1991	1992	1193	1994	Total
Mt. Arlington	2,562	2,656	2,750	2,855	2,952	To Morris	County Resource	Recovery	Facility		13,775
Total	2,562	2,656	2,750	2,855	2,952						13,775

TABLE 6.C-1 (cont'd)
MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY

FACILITY Ocean County Landfill Corp. (#1518B)

TOTAL WASTE TO BE DISPOSED OF (TPY)

Municipalities	1985										Total
Washington Twp.	8,211										8,211
Total	8,211										8,211

TABLE 6.C-1 (cont'd)
MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY

FACILITY **Morris County Resource Recovery Facility**

TOTAL WASTE TO BE DISPOSED OF (TPY)

Municipalities	1990	1991	1992	1993	1994	1995
Boonton Town						
Boonton Twp.						
Butler Boro						
Chatham Boro						
Chatham Twp.						
Chester Boro						
Chester Twp.						
Denville Twp.						
Dover Town						
E. Hanover Twp.						
Florham Park Boro						
Hanover Twp.						
Harding Twp.						
Jefferson Twp.						
Kinnelon Twp.						
Lincoln Park Boro						
Madison Boro						
Mendham Boro						
Mendham Twp.						
Mine Hill Twp.						
Montville Twp.						
Morris Plains						
(cont'd)						
TOTAL						

ALL PROCESSIBLE WASTE FROM

39 MUNICIPALITIES

(75% OF TOTAL*)

***Assumes 15% non-processible and 10% recycling**

TABLE 6.C-1 (cont'd)
MORRIS COUNTY DISTRICT WASTE DISPOSAL STRATEGY

FACILITY Morris County Resource Recovery Facility

TOTAL WASTE TO BE DISPOSED OF (TPY)

Municipalities	1990	1991	1992	1993	1994	1995					
Morris Twp.											
Morristown Town											
Mount Arlington											
Mount Olive Twp.											
Mountain Lakes Boro											
Netcong Boro											
Par-Troy Twp.											
Passaic Twp.											
Pequannock Twp.											
Randolph Twp.											
Riverdale Boro											
Rockaway Boro											
Rockaway Twp.											
Roxbury Twp.											
Victory Gardens Boro											
Wharton Boro											
Government											
TOTAL	352,168	357,480	362,841	368,239	379,152						2,193,526

ALL PROCESSIBLE WASTE FROM
39 MUNICIPALITIES
(75% OF TOTAL)*

*Assumes 15% non-processible and 10% recycling

TABLE 6.C-2

Properties Comprising The Proposed Landfill Site*

Rockaway Township

Block & Lot	Acreage	Owner
Block 229, Lot 10	1120.0	Mt. Hope Mining Company
Block 229, Lot 10-A	76.9	Ruth Stahl
Block 229, Lot 10-2	557.1	Mt. Hope Rock Products
Total	1754.0	

*Portions of these properties will be designated as usable for landfilling.

TABLE 6.C-3

COLLECTION/HAUL ANALYSIS

(Based on Proposed Waste Flows)

Municipality	Disposal Facility	Distance (one way) (miles)	Primary Route(s)	Utilization of Transfer Station (No) or (Name of Facility)
Boonton Town	Morris County Landfill	13	I-287,I-80,MC513	No
Boonton Township	"	14	I-287,I-80,MC513	"
Butler Boro	"	22	MC511,I-287,I-80,MC513	"
Chatham Boro	"	22	NJ24,I-287,I-80,MC513	"
Chatham Township	"	22	MC647,NJ24,I-287,I-80,MC513	"
Chester Boro	"	24	US206,I-80,MC513	"
Chester Township	"	24	NJ24,US206,I- 80,MC513	"
Denville Township	"	7	I-80,MC513	"
Dover Town	"	8	US46,MC513	"
East Hanover Township	"	18	MC632,I-80,MC513	"
Florham Park Boro	"	21	MC510,I-287,I-80,MC513	"
Hanover Township	"	13	NJ10,I-287,I-80,MC513	"
Harding Township	"	20	MC663,I-287,I-80,MC513	"
Jefferson Township	"	18	MC699,NJ15,I-80,MC513	"
Kinnelon Boro	"	21	MC618,I-287,I-80,MC513	"
Lincoln Park Boro	"	19	US202,I-287,I-80,MC513	"
Madison Boro	"	20	NJ24,I-287,I-80,MC513	"
Mendham Boro	"	24	NJ24,I-287,I-80,MC513	"
Mendham Township	"	22	NJ24,I-287,I-80,MC513	"
Mine Hill Township	"	10	US46,MC513	"
Montville Townshp	"	17	I-287,I-80,MC513	"
Morris Plains Boro	"	11	NJ53,I-80,MC513	"

COLLECTION/HAUL ANALYSIS

(Based on Proposed Waste Flows)

Municipality	Disposal Facility	Distance (one way) (miles)	Primary Route(s)	Utilization of Transfer Station (No) or (Name of Facility)
Morris Township	Morris County Landfill	17	I-287,I-80,MC513	No
Morristown Town	"	17	I-287,I-80,MC513	"
Mount Olive Township	"	19	US46,I-80,MC513	"
Mountain Lakes Boro	"	7	US46,I-80,MC513	"
Netcong Boro	"	15	I-80,MC513	"
Par-Troy Township	"	11	I-287,I-80,MC513	"
Passaic Township	"	28	MC604,MC663,I-287,I-80,MC513	"
Pequannock Township	"	22	MC511,US202,I-287,I-80,MC513	"
Randolph Township	"	10	NJ10,MC513	"
Riverdale Boro	"	24	MC511,US202,I-287,I-80,MC513	"
Rockaway Boro	"	5	US46,MC513	"
Rockaway Township	"	5	MC513	"
Roxbury Township	"	13	I-80,MC513	"
Victory Gardens Boro	"	7	MC513	"
Washington Township	"	28	NJ24,US206,I-80,MC513	"
Wharton Boro	"	9	I-80,MC513	"
Mt. Arlington Boro	Mt. Arlington SLF Facility #1426A	1	Local Road	

April 1985

IN THE MATTER OF : ADMINISTRATIVE

MORRIS COUNTY SOLID : CONSENT ORDER

WASTE MANAGEMENT PLAN:

The following ADMINISTRATIVE CONSENT ORDER is issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (hereinafter "the Department") by N.J.S.A. 13:1D-1 et seq. and the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq.

FINDINGS

1. Morris County (hereinafter "the County") is designated as a solid waste management district pursuant to N.J.S.A. 13:1E-19.

2. The solid waste generated in Morris County has been disposed of at the Edgeboro landfill in Middlesex County and at the Hamm's landfill in Sussex County.

3. The Superior Court of New Jersey ordered the closure of Hamm's landfill as of December 8, 1984.

4. The Solid Waste Management Act requires the Morris County Board of Chosen Freeholders to prepare and implement a solid waste management plan which provides a comprehensive strategy for the efficient collection, processing, and disposal of solid waste generated within the

County, as well as financing mechanisms to insure funding of these operations.

5. In litigation before the Superior Court of New Jersey captioned In the Matter of Hamm's Sanitary Landfill, Docket No. C-1199-83E (consolidated), the Department has sought to establish a schedule for the implementation by Morris County of its solid waste management responsibilities.

6. Representatives of the Department and the County have sought to resolve this matter consensually. Having successfully negotiated an agreement, the Department and the County enter into this Administrative Consent Order without trial or adjudication of any issues of fact or law and without admission of liability by the parties with respect to such issues, with the exception of the County's binding obligation to comply with all of the terms of this Administrative Consent Order set forth herein below.

ORDER

NOW THEREFORE, IT IS HEREBY ORDERED AND AGREED THAT:

1. Morris County shall propose an amendment to its district Solid Waste Management Plan for the development of said facility at a site in Rockaway Township designated as Site 6-1B in the report entitled "Sanitary Landfill Siting Study, Morris County, New Jersey" prepared by Dresdner Associates, dated August, 1984. The Department hereby withdraws

all previous objections to the inclusion of said site in the Morris County Solid Waste Management Plan as the location of a county sanitary landfill and other appropriate county solid waste disposal facilities. In the event that the Environmental Impact Statement on Site 6-1B discloses that the site is not a suitable landfill site or in the event that the site cannot otherwise be implemented for reasons beyond the control of Morris County, then the parties shall forthwith meet to resolve the long-term disposal obligations of Morris County. If for any other reason said site is not included in Morris County's plan, Morris County shall select another site within Morris County as a landfill site. The Department rescinds its directives of August 30, 1984 and September 18, 1984, subject to the adoption by Morris County of a plan amendment designating Site 6-1B or any other suitable site as a landfill site. Morris County shall proceed to develop the landfill facility in Morris County according to the following timetable:

A.	Completion by the Department of Environmental Protection of an Environmental Impact Statement for Site 6-1B	By Mar. 15, 1985
B.	Adoption by Morris County of Plan Amendment Designating the Landfill Site In Accord With Procedures Established in Solid Waste Management Act	By May 1, 1985
C.	Employment by Morris County of a Consultant to prepare conceptual design for the landfill, engineering design for first stage of the landfill and cost estimates for all measures necessary to commence operations	By May 15, 1985

D.	Approval by Department of Environmental Protection of Plan Amendment	By June 1, 1985
E.	Acquisition by Morris County of the Landfill Site	By July 1, 1985
F.	Submission by Morris County of Application for Temporary Certificate of Authority to Operate	By Aug. 15, 1985
G.	Issuance by Department of Environmental Protection of Temporary Certification of Authority to Operate	By Sept. 15, 1985
H.	Employment by Morris County of Contractor to Construct First Stage of the Facility	By Sept. 15, 1985
I.	Employment by Morris County of Operator to Operate Facility	By Oct. 15, 1985
J.	Completion of Construction and Commencement of Operation by Morris County of First Stage of Facility	By Jan. 15, 1986

Where public bidding is necessary to the accomplishment of any of the assigned tasks, Morris County agrees to commence and complete the bidding process in a timely manner sufficient to permit the award of contracts by the dates indicated. If approval of the Board of Public Utilities is required to establish a tariff for the facility, Morris County shall submit a tariff application to the Board as early as is necessary to establish a tariff for the facility by January 15, 1986. If Board approval is not required, Morris County shall take all measures necessary to establish a schedule of charges for use of the facility by January 15, 1986. No later than July 1, 1985, Morris County shall reimburse the Department in an amount not to exceed $100,000 for the cost of the Environmental Impact Statement on Site 6-1B.

2. Morris County shall develop a resource recovery facility in Morris County according to the following timetable:

A.	Adoption by Morris County of an amendment to the County Solid Waste Management Plan designating a site for the resource recovery facility	By Sept. 1, 1985
B.	Approval by Department of Environmental Protection of Plan Amendment	By Dec. 1, 1985
C.	Issuance by Morris County of request for proposals or publication of advertisement of bids for full service resource recovery contractor	By Dec. 15, 1985
D.	Submission by Morris County of Preliminary Environmental Impact Statement (EIS) and preliminary designs, drawings, etc.	By May 1, 1986
E.	Selection by Morris County of full service contractor	By June 1, 1986
F.	Submission by Morris County of a final EIS, an engineering design, and application for all required DEP permits	By Dec. 1, 1986
G.	If Tariff and Certificate of Public Convenience and Necessity will be required by law to operate the facility, submission by Morris County of a formal application to BPU, together with all required supporting documentation	By Feb. 1, 1987
H.	Completion by Department of Environmental Protection of review and decision on design and all applications	By Nov. 1, 1987
I.	Completion by Morris County of construction and commence-	By May 1, 1990

ment of limited operations for testing and training purposes

J. Commencement by Morris County of full operation — By Nov. 1, 1990

3. The Department shall, pursuant to law and in accordance with the regulations promulgated pursuant to the Solid Waste Management Act, redirect the solid waste flow from Morris County that had been disposed of at the Hamm's landfill to the Edgeboro landfill or any other disposal facility in Middlesex County subject to the provisions of Paragraph 4. Morris County shall utilize its best efforts, including establishment of a mandatory county-wide recycling program, if necessary, to ensure that no more than 75 trucks or 550 tons of solid waste are transported to Middlesex County each day from the municipalities that had previously utilized the Hamm's Landfill. Pursuant to this Order, Morris County agrees to develop the disposal facilities set forth above to ensure that no solid waste generated in Morris County will be disposed of in Middlesex County after January 15, 1986. In compensation for the use of solid waste disposal capacity in Middlesex County by the Morris County municipalities previously utilizing the Hamm's landfill, the parties agree that Morris County will accept for disposal at its landfill facility solid waste generated outside of Middlesex and Morris Counties, but currently disposed of in Middlesex County, in an amount equal to the quantity of solid waste disposed of in Middlesex County from the Morris County municipalities previously utilizing the Hamm's Landfill.

4. If any delay or anticipated delay in the achievement of any deadline contained in this Administrative Consent Order has been or will be caused by circumstances alleged to be beyond Morris County's control,

then Morris County shall provide written notice to the Department within 10 days of the delay or anticipated delay. The burden of proving that any such delay is caused by circumstances beyond Morris County's control and the length of such delay attributable to those circumstances shall rest with Morris County. Any delay caused by the Department's failure to meet its commitments under the timetables established in this Order shall be deemed by the Department to be delays beyond the control of Morris County. In the event that the Department determines that Morris County has proven unavoidable delay, the time for performance hereunder shall be extended by the Department for a period no longer than the delay resulting from such circumstances. If the events causing such delay are found not to be beyond the control of Morris County, failure to comply with the provisions of this Administrative Consent Order shall constitute a breach of the Order's requirements. Upon a breach of the Order by Morris County, the Department's obligation under Paragraph 3 of this Order to direct solid waste from Morris County shall be terminated. Delay in completing an interim requirement shall not justify or excuse delay in the attainment of subsequent requirements except to the extent that the performance schedule is adjusted by the Department. In the event that Morris County demonstrates unavoidable delay on Task 1.B, the Department will adjust the timetable for completion of Task 2.A. to the extent that the Department deems is justifiable.

5. In the event that Morris County is delayed in completing and commencing operations at its own facility by January 15, 1986, Morris County shall further accept for disposal at its landfill facility solid waste generated outside of Middlesex and Morris Counties, but currently

disposed of in Middlesex County, in an amount equal to that disposed of in Middlesex County after January 15, 1986 by the Morris County municipalities that utilized facilities in Middlesex County prior to this Order. In the event that the Department of Environmental Protection determines that Morris County has demonstrated delay resulting from circumstances beyond Morris County's control, the effective date for the additional compensation provided for by this paragraph shall be extended depending on the extent of the unavoidable delay as determined by the Department.

6. The cost of the Environmental Impact Statement conducted pursuant to Paragraph 1 of this Order shall be deemed by the Department to be an essential part of the basis of charges for the use of any County solid waste disposal facilities developed at Site 6-1B. The Department agrees to assist and support Morris County in this regard in the application for any approvals required to establish a rate for any solid waste disposal facility developed at Site 6-1B.

7. The Department and Morris County hereby agree to seek an order in the matter captioned In the Matter of Hamm's Sanitary Landfill, Docket No. C-1199-83E (consolidated), vacating all prior orders or portions of orders of the Court in that matter inconsistent with the terms of this Administrative Consent Order, but expressly providing that all other orders or portions thereof shall remain in full force and effect.

8. The parties hereto agree to take any and all steps necessary to effectuate this Order. Morris County further agrees to amend its district solid waste management plan within 60 days of the signing of this Order to reflect the waste flow redirection of the Morris County solid waste that had been disposed of at the Hamm's landfill to the Edgeboro landfill.

9. This Administrative Consent Order shall be fully enforceable in the Superior Court of New Jersey upon the filing of a summary action for compliance and shall constitute an administrative order issued pursuant to the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq. Nothing in this Administrative Consent Order shall prohibit, prevent or otherwise preclude the Department from taking whatever legal action it deems appropriate to enforce the environmental protection laws of the State of New Jersey in any manner not inconsistent with the terms of the Administrative Consent Order, and shall not prohibit, prevent or otherwise preclude the Department from utilizing this Administrative Consent Order in any subsequent administrative or judicial proceedings.

10. No modification to the Administrative Consent Order shall be effective, binding or otherwise valid unless reduced to writing and duly consented to by the undersigned parties.

11. The parties hereby consent to and agree to comply with all the provisions of this Administrative Consent Order. The County agrees to the entry of this Order and waives any right it may have to an administrative hearing on the matters contained herein.

12. The parties agree to take whatever legal action is necessary to effectuate the purposes and intent of this agreement.

13. This Order shall take effect upon signature on behalf of the Department and the County.

Morris County

By: Patrick J. Hyland

Title: DIRECTOR
BOARD OF CHOSEN FREEHOLDERS
COUNTY OF MORRIS

Date: 1/9/85

Department of Environmental Protection

By: Robert E. Hughey

Title: Com. NJDEP

Date: 1/9/85