CHAPTER 19. THE IMPLEMENTATION PROCESS FOR THE PLAN.

19.1 Implementation Schedule.

19.1.1 MSW.

Any comprehensive solid waste management plan for New York City must recognize the uncertainties that will affect the size and composition of the waste stream over the course of the next twenty years. In addition, it is not yet certain which combination of existing, developing, or yet to be developed waste management methods will prove to be the most environmentally sound and economically efficient tool for managing this waste.

In recognition of the changes that will occur in the size and composition of the waste stream and the tools to manage that stream, the implementation schedule for this plan is divided into two parts. For the first five years, detailed a year-by-year breakdown is provided for development of the basic components of the solid waste management system, including a waste reduction and recycling program together with specified waste disposal and recycling facilities. Thereafter, the schedule **includes year-by-year information to the extent available for an additional five years and** ~~is in the form of~~ a decision tree that identifies the time periods when critical decisions must be made, describes the additional information that will be available in the future to inform that decision-making, and indicates how certain decisions will be made if certain events come to pass.

The City must take a long-range view and have the ability to handle its waste, but must also have the flexibility to adapt to changing conditions. Systems A and B and the No-Action Baseline, which are analyzed in depth in this plan, are reference points for the decisions that lie ahead for the Department of Sanitation and the City Council about what programs and facilities should move forward. This plan, however, does not commit the City to develop any specific facilities in the period after fiscal year 1997. In particular, there is no commitment to build the waste-to-energy capacity described in Systems A and B. For example, no waste-to-energy facility is planned for the Spring Creek site in Brooklyn. Too many major factors that affect the design of the waste management system and that are beyond the City's control have not yet taken shape, for the City to commit at this time to any system detailing a network of waste management facilities for the year 2010. At this point, however, it appears likely that the City's recycling and composting programs will develop after fiscal year 1997 in a manner consistent with the recycling and composting programs described in System A or System B.

The near-term implementation plan, analyzed in section 17.4, sets forth the programs and facilities scheduled for implementation in this chapter over the next five years. Unlike the other systems, the near-term plan includes only those

facilities on which the City now is prepared to move ahead in the next five years, plus two additional composting facilities, which will likely be developed by the end of the decade. Depending on the experience with the near-term plan, additional facilities may be developed over the next decade, but they are not included in the near-term plan which contains only what the City now expects to build.

The goal of this plan has been to assure the City's ability to manage effectively the waste it currently handles together with a large increase in this waste stream if Congress authorizes restrictions on the export of waste. If Congress permits export restrictions, the City might have to manage up to 26,000 tons per day of waste.

The possibility that the life and loading capacity of the Fresh Kills landfill may be curtailed is another area of concern. The Fresh Kills landfill is being upgraded and operated under a Consent Order with the goal of obtaining permits for its long-term operation. In accordance with the strict schedules of the Consent Order, the City is undertaking numerous investigations, studies and designs which will define whether all, part, or any of the landfill can be permitted, as well as what additional mitigative measures need to be taken and what operational controls must be imposed. The on-going investigations, studies and designs will culminate in the City's filing of a permit application the spring of 1995. As an older landfill, Fresh Kills will require variances from current regulations if it is to be permitted. At this time, it would be imprudent to dismiss the possibility that severe restrictions on the continued development of the landfill may be imposed as a result of environmental concerns involving issues such as leachate infiltration into groundwater and landfill stability.

Ongoing investigations and studies should provide more insight into the potential restrictions that might be necessary at Fresh Kills and the landfill's long term viability for continued waste disposal. However, not until permit hearings are completed and the permit is obtained can the landfill's future role be clear. At this time, we must acknowledge that the present level of use might be reduced significantly. Should this occur, the City will require additional disposal capacity.

Because we must plan for additional waste-management capacity well before we will know whether a best-case scenario develops, we will assume that within the next few years export restrictions will be imposed which will result in one-half of the currently exported waste stream being disposed of within the City, that the use of Fresh Kills may be restricted after 1995, and that by the year 2000 there should be a significant reduction

in the waste sent to Fresh Kills. Therefore, to minimize risk and assure an adequate waste disposal capacity in the late 1990s the City will need to start construction of at least one additional waste-to-energy facility in the next five years. To assess more fully composting facilities' potential as a major component of the waste management system, an in-vessel composting plant should also be constructed and mixed-waste composting should be extensively analyzed and carefully evaluated during this period. Efforts must also be initiated to identify specific locations for additional waste management facilities, regardless of whether those facilities will be for waste-to-energy, composting or some other disposal method.

The new waste-to energy facility that the City should construct will be at the Brooklyn Navy Yard. The planning, siting and permitting processes associated with this facility are either completed or have been underway for a long period of time. Plans for this facility are substantially more advanced than for any other potential new facility.

Construction must begin by 1996 if the year 2000 goal of reducing reliance on Fresh Kills is to be assured. Delaying the construction of the Brooklyn Navy Yard facility until 1996 will allow the City to implement the residential recycling program citywide for a two-year period before construction begins. Construction of this facility may be accelerated if either of the following takes place:

- Export restrictions are authorized and additional waste must be disposed of within the City.

- Limitations are placed on the use of the Fresh Kills landfill which would curtail the use of this facility to a level of 8,000 tons per day or less.

If either of these events occurs, and results in a need to accelerate construction of the Brooklyn Navy Yard facility, the Department of Sanitation will notify the City Council of the anticipated effect on waste management in the City and the changes to the plans for development of the facility. If the Commissioner proposes the acceleration of the construction of the Brooklyn Navy Yard facility by more than one year, the Commissioner shall notify the Council. The Council may, within 30 days of the first Stated Council Meeting after such notification, pass a local law which either grants or denies the authority for such acceleration of construction. If the Council passes a local law which denies the authority for such an acceleration and the Mayor disapproves such local law, such acceleration shall not occur until either two-thirds of all the members of the Council have voted whether to repass such local

law, or the period within which such repassing may occur has expired, pursuant to section thirty-seven of the Charter. In the event that such local law is repassed by a two-thirds vote of all the members of the Council, such proposed acceleration shall not occur. In the event the Council does not pass a local law within such thirty-day period, which either grants or denies authority for such acceleration, such acceleration shall occur.

Based in part on the concerns about the feasibility of continued exporting of commercial waste and the capacity of the Fresh Kills landfill, the draft version of this plan called for waste reduction, increased recycling and composting, the upgrading of the three existing incinerators and the construction of a new waste-to-energy facility at the Brooklyn Navy Yard. The draft plan generated much criticism from those who participated in the public comment period and from the City Council, which reviewed the plan pursuant to local law. The criticism focused primarily on two issues. First, many asserted that the waste-reduction and recycling programs should be improved and accelerated. Second, many claimed that the plan relied too heavily on the expansion of waste-to-energy incineration. A number of comments called for deferring decisions on the development of waste-to-energy capacity until the end of the decade, at which time the City would have a better sense of the viability of exporting waste, the capacity of Fresh Kills, and the success of the waste-reduction and recycling efforts. In particular, there was strong sentiment to avoid any increase in air emissions of pollutants, even if the emissions were in compliance with applicable regulatory standards.

During the public comment period on the draft plan, the Council indicated its support of an expanded recycling program by increasing the fiscal year 1993 budget for recycling. The consensus was that the City should expend additional resources to promote recycling before building additional incineration capacity.

In response to these comments, amendments have been made to the draft plan. Additional waste-reduction measures have been added and the waste-reduction projections for the year 2000 have been increased to 9%. The citywide expansion of the curbside recycling program has been accelerated, as has the timetable for recycling the full array of high-quality recyclables. The facilities that will process the recyclables will be brought on line in advance of the schedule in the draft plan.

The suggestion that the City delay expanding its waste-to-energy capacity is more difficult to accommodate. One of the goals of this planning effort has been to increase the City's disposal capacity to cushion the City against the potentially

disruptive effects of significant cutbacks in waste exports and/or the capacity of the Fresh Kills landfill, as well as to re-orient the City's waste-management system to be more consistent with the State hierarchy of waste-management techniques. Of course, it is possible that a best-case scenario could develop -- minimal restrictions on the export of waste, no constraints on the daily operating capacity at Fresh Kills, speedy development of recycling markets, recycling diversion beyond the ambitious 40% rate established by New York State, greater success in waste prevention, and the rapid development of advanced, large-scale technology for in-vessel composting. There is even the possibility that other new technologies may appear and mature quickly. There are significant risks, however, to basing the City's planning efforts on such optimistic assumptions, particularly considering the long lead time required to develop new waste-to-energy capacity.

To address both the need for a balanced, dependable waste-management system and the political consensus that the development of additional waste-to-energy capacity should be deferred and if possible reduced, the final plan provides for an increase in waste-to-energy capacity by the end of the decade, but scales back on the increase by phasing out the Betts Avenue and Greenpoint incinerators (if development of the new Brooklyn Navy Yard facility proceeds as scheduled). This approach assures that if waste reduction and the diversion accomplished through recycling and composting exceed expectations, the City will not have excess waste-to-energy capacity.

Another issue that emerged from the public comments on the draft plan and from the proceedings at the City Council was concern about the proposed development of the ashfill at Fresh Kills. The final plan amends this proposal by eliminating the proposed ashfill at the Fresh Kills landfill. Nor does this plan propose development of an ashfill at the Edgemere landfill. The proposed ashfill would not have had sufficient capacity for disposal of all the ash to be generated under this plan, its development would only postpone the time when the City would have to find another way to handle the ash. The City will acquire out-of-city ashfill capacity. The City will also aggressively pursue opportunities for the beneficial re-use of ash. If beneficial re-use is possible, this would be the preferred alternative for ash management and would replace or reduce the need for ashfill capacity.

The ~~specific components of the City's plan for Phase I (City fiscal years 1993-1997) are~~ implementation plan for the next ten fiscal years is set forth in the schedule below. Unless otherwise indicated, the implementation of each item will occur in the fourth quarter of the relevant fiscal year.

19.1.1.1 Waste Prevention.

FY 1993

- Promote volume-based fees for commercial garbage with Department of Consumer Affairs.
- Evaluate feasibility of residential and institutional volume-based user fees and seek Environmental Protection Agency funding for a pilot program in a residential area.
- Evaluate the feasibility of charging government agencies for waste disposal costs.
- Develop City procurement guidelines to stipulate packaging restrictions and the purchase of re-usable products.
- Develop programs to reduce direct mail. DOS working with the Waste Prevention Partnership in seeking an agreement from the Direct Mail Association to set up procedures to enable recipients of direct mail to remove their names from mailing lists.
- Facilitate development of pilot program for a re-use center. This program will build on the precedent set with Material for the Arts.
- Develop programs for backyard composting of organics in low-density areas and community gardens. Set up demonstration projects.
- Adopt rules halting the municipal collection of mown grass.
- Monitor the progress of "leave the packaging behind" initiatives.
- Develop plan to evaluate impacts of waste prevention programs.
- Lobby for state and federal waste reduction legislation, including all waste reduction legislation described in section 19.3 of this chapter.
- Issue Mayoral directive mandating office waste prevention in city agencies and designating a waste prevention coordinator in each administrative unit. The directive will address procurement practices and office procedures, such as two-sided copying.

- Explore opportunities for incorporating a materials exchange program into recycling buy-back and drop-off centers.

- Expand educational outreach on waste prevention in schools and with tenant and community groups. DOS has a staff of 24 persons who will speak at school assemblies and to other groups about waste reduction.

- Expand the pilot "no bag" campaign and the program to reduce and re-use packaging at dry cleaning establishments to other retailers. There will be a particular focus on excess packaging provided at small businesses, such as green grocers, deli's and bodegas.

- Pursue changes to the City building codes to encourage waste prevention and recycling.

- Expand the City waste prevention partnership to include designers, manufacturers and distributors.

- Focus educational outreach on low-income persons and on people for whom English is a second language. DOS has a bilingual community outreach staff and DOS mailings are in Spanish and English. DOS's media efforts will target television programs, print media and radio programs that have non-English speaking audiences.

- Work with other cities to establish a multiple cities coalition to develop model waste prevention legislation to be adopted by the legislatures of the cities in the coalition.

FY 1994

- Continue to expand and monitor progress of waste prevention and re-use programs.

- Evaluate implementing waste audit requirements for commercial and institutional waste. If legislation authorizing the establishment of exclusive licensing districts for commercial refuse collection is enacted, develop an RFP for collection services that requires the provision of waste audit services.

- Pursue the following local and/or state legislative initiatives:

  Mandating signs in certain retail stores discouraging

the use of unnecessary bags or banning the provision of free bags and unnecessary packaging at retail establishments,

Providing economic incentives to businesses that produce and consumers who acquire products that prevent waste, such as refillable packaging, washable diapers and mulch mowers, and

Requiring companies that send direct mail to include a means by which addressees may remove their names from mailing lists.

FY 1995

- Conduct pilot testing of a residential volume-based user fee.
- Pursue legislation to promote durability and waste prevention through product stewardship -- requiring manufacturers through a deposit and/or leasing system, to take back specific products such as refrigerators, cars, toasters and televisions.

FY 1997

- Continue with all on-going waste reduction efforts.
- Set new more ambitious targets for waste reduction.

19.1.1.2 Recycling Programs and Facilities

FY 1993

Programs

- Expand curbside collection program to all of Manhattan **(in September 1992)**, the Bronx **(in December 1992)**, and Brooklyn **(in June 1993)** for all six currently designated materials **(including telephone books)**.
- Expand public information for recycling program by establishing telephone "hot line," sustained media program, and seminars for building owners and superintendents. The media program will include radio, television and print advertisements as well as DOS mailings.
- Expand out-reach efforts to enhance participation rates. In

addition to the 24 persons working in the DOS recycling outreach effort, a part-time worker will be hired in each community district to coordinate recycling efforts, involve block associations in recycling, act as a liaison between DOS and community groups, and educate community residents about recycling. Bilingual workers will be employed in areas where significant numbers of residents speak English as a second language.

- Improve recycling rates of City agencies through aggressive outreach and monitoring programs. DOS monitors the recycling efforts of agencies and the Mayor's Office of Operations participates in efforts to increase recycling. Study the feasibility of requiring agencies to use or acquire goods made of recyclable materials.

- Conduct pilot test of dual-compartment/dual compacting collection truck and explore other truck technologies.

- Research and develop strategies to encourage the growth of markets for the City's recyclables. The focus of this effort is to enter into long-term contracts for large quantities of each type of recyclable material collected by the City.

- Conduct a battery collection pilot. Starting in FY 1995 batteries will be collected as part of the high-quality recycling program. DOS is also participating on a State task force, chaired by the Commissioner of Environmental Conservation, established pursuant to Section 27-0719 of the State Environmental Conservation Law, to develop a statewide action plan for a battery collection system. The Commissioner is required by law to issue its report by January 1, 1993. Evaluate the implications of this report for the City's battery collection programs.

- Conduct a textile collection and processing pilot.

- Conduct a polystyrene collection and processing pilot.

- Arrange for a one-day drop-off of household hazardous waste, including batteries, at a location in each borough. This program will be continued each year on an ongoing basis, unless an alternative approach to handling household hazardous waste is developed. It is anticipated that service establishments and other facilities will continue to collect and arrange for re-refining of used oil, consistent with the provisions of NYCRR Section 360-14.4.

- Encourage development of new industries in the City that use the City's recyclables. The Department has already

attracted a proposal from a company to develop a paper de-inking and reprocessing facility in the City to handle the newsprint and magazines collected by the City. DOS is working with the Port Authority and the Environmental Defense Fund on a study of what recycling industries have the greatest chance of developing in the City. DOS will coordinate this effort with the Economic Development Corporation and the State Department of Economic Development.

- Award long-term supply contract for newspaper.
- Issue an RFP for a long-term contract for an additional recyclable material.
- Develop pilot tests for alternative methods of collection and processing of recyclable materials.
- Develop pilot for private collection of recyclables.
- Revise residential recycling rules to permit use of bags as well as plastic containers for recyclables and to increase building signage requirements.
- Seek amendments to Local Law 19 to conform to this plan.
- Revise commercial recycling rules and transfer station rules to minimize contamination and maximize recovery of recyclable materials.

Facilities

- Begin construction of Staten Island MRF. The anticipated construction period for all MRFs is approximately two years.
- Submit Uniform Land Use Review Procedure applications for Bronx, Brooklyn, Manhattan and Queens MRFs.
- Issue RFPs to design and construct Bronx, Brooklyn and Manhattan MRFs. (Note: Uniform Land Use Review Procedure may be concurrent with issuance of the RFPs). **The City will continue to rely on privately owned waste transfer stations to process recyclable materials to the extent City-owned MRFs do not have sufficient capacity to process the recyclable materials collected by the City. The City may issue an RFP for one or more longterm contracts for the use of privately owned MRFs.**
- Develop six self-help bulk recycling sites. Equipment to facilitate recycling of bulk materials will be installed at

existing DOS facilities.

- Issue RFPs for one buy-back center in each borough.
- Monitor participation rates, new collection and processing technologies and markets for recyclables.
- **Pursue enactment of all recycling legislation and regulation described in section 19.3 of this chapter.**

FY 1994

Programs

- Expand curbside recyclable collection program citywide by September 15, 1993.
- Examine the economic feasibility of designating additional high quality materials for collection in the commercial recycling programs.
- Conduct five pilots in residential sections (one in each borough) designed to test the feasibility of recycling and composting materials in addition to those recyclable materials currently collected at curbside and of requiring residents to sort their waste into four bags or containers. These pilots will be conducted in a variety of neighborhoods, so that the feasibility of such programs is tested in high- and low-density areas and in areas with populations of varying income levels and ethnic backgrounds. The Park Slope intensive zone shall be used as a model for these pilots. If successful, the methods used in these pilots may be the basis for an expanded program in other parts of the City.
- Conduct a mixed-waste processing pilot using residential waste (as a supplement to the curbside source separation of recyclables to recover additional materials from the "refuse" component of the waste stream). Based on the experience with this pilot, evaluate whether additional mixed-waste processing pilots should be conducted and whether more extensive use of mixed-waste processing will produce significant tonnages of marketable recyclable materials.
- Acquire a tire shredder for the Fresh Kills landfill. This shredder will be used for those tires that have not been recovered through other recycling programs. Attempts will be made to market the tires shredded by this equipment to end-users.

- o If pilot tests of dual compartment/dual compacting trucks are successful, procure additional dual compartment/dual compacting collection trucks. If the pilot tests are not successful, conduct a pilot for other truck technologies, if appropriate.
- o Continue program for collection of household hazardous waste.

Facilities

- o Issue RFP to design and construct Queens MRF.
- o Begin design/construction of Bronx, Brooklyn and Manhattan MRFs.
- o Enter into contracts for five buy-back centers -- one in each borough--and continue contracts with existing drop-off centers. Seek to involve not-for-profit, thrift organizations in a program to exchange and re-use goods collected at the buy-back centers.
- o **Based on data provided by private carters and private waste transfer stations, prepare a description of private efforts to recover recyclables, including the quantities and types of materials collected. This data will become available to the City as private carters and operators of private waste transfer stations comply with the requirements of the City's commercial recycling and transfer station rules for the submission of data to the City and a critical mass of information is accumulated. This study will include construction and demolition debris, which is collected and processed by private companies at privately owned facilities, permitted by the Department of Sanitation. As with other materials, the City's rules require reporting on how much C&D material is recycled and re-used.**

FY 1995

- o Expand curbside collection program citywide to include all the high-quality recyclable materials and bulk metal.
- o Begin design/construction of Queens MRF.

FY 1996

- o Expand curbside collection program to include nonmetal bulk materials.

FY 1997

- o **Issue RFP for second Queens MRF. Depending on the tonnage of recyclables collected at curbside, it may be necessary to develop additional MRFs or enter into contracts for the use of privately owned MRFs. On an ongoing basis the Department of Sanitation will determine what additional MRF capacity**

will be required. Current projections indicate that the City may need to contract out for additional capacity starting in FY 1997, but that the recycling diversion rate will then stabilize (See Table 17.4-1).

FY 1998

- **Begin construction of second Queens MRF.**

19.1.1.3 Composting.

FY 1993

- Conduct institutional composting pilot at Fresh Kills composting facility.
- Research and evaluate composting technologies, monitor facilities operations.
- Conduct in-vessel composting pilot at Riker's Island.
- Continue leaf and yard waste collection in Staten Island.
- Issue RFP to develop home-composting demonstration sites and promote home-composting and grass mulching citywide.
- Examine feasibility of developing out of the City a co-composting facility combining sludge and compostable waste.

FY 1994

- Construct leaf and yard waste composting facility at Edgemere Facility.
- Submit Uniform Land Use Review application for and issue RFP for design and construction of an in-vessel composting facility.
- Evaluate feasibility of developing a mixed-waste composting facility.
- Implement home-composting demonstration sites and home-composting and grass mulching promotion citywide.
- Expand Christmas tree collection citywide.

FY 1995

- Begin construction of in-vessel composting facility.

- **Based on a review of the status of composting technology, the experience with the Riker's Island composting facility, and other relevant information, consider proceeding with development of two additional composting facilities. The size of these facilities will depend on whether they are designed to accommodate only commercial and institutional organic waste or also residential organic waste. For purposes of the composting section of this implementation schedule, it is assumed that residential (in low density areas), commercial and institutional composting are determined to be feasible, even though the final decision on whether to proceed with this course of action will not be made until at the earliest FY 1995.**

FY 1996

- Initiate citywide leaf and yard waste collection.
- **Issue RFPs for two in-vessel composting facilities, if feasible.**

FY 1997

- Construct a new leaf and yard waste composting facility at the Fresh Kills landfill to replace the existing facility.
- **Start construction of two in-vessel composting facilities, if feasible.**

FY 1998

- **Start operations at two in-vessel composting facilities, if feasible.**
- **Start collection of organics in low-density residential areas, if feasible.**

19.1.1.4 Waste-to-Energy

FY 1993

- Evaluate front-end pre-processing systems for retrofitting Southwest Brooklyn incinerator.
- Begin renovation of Southwest Brooklyn incinerator to provide the combustion and air-pollution controls required to meet the new Clean Air Act requirements.

FY 1994

- Cease operations at two of the four furnace lines of the Betts Avenue incinerator.

- Initiate efforts to secure out-of-city disposal capacity.

FY 1995

- If the permit for the Brooklyn Navy Yard waste-to-energy facility is denied by the State DEC or the permit application is withdrawn or the BNY waste-to-energy project is terminated, proceed with renovation of the existing Betts Avenue and Greenpoint incinerators to meet the new Clean Air Act requirements.

- In case of emergency, decide whether to proceed with the renovation of the Greenpoint incinerator. Any decision to proceed with the renovation shall require approval by the City Council. An emergency would include events such as (a) governmental restrictions that curtail the export of commercial waste, (b) the State DEC restricting the loading capacity of Fresh Kills below its then-current use, or (c) denial of the permit for the renovation of the Southwest Brooklyn incinerator by the State DEC or the withdrawal of the permit application for that project.

- Cease operations at the Betts Avenue incinerator by June 30, 1995, unless it is to be renovated as described in the preceding entry.

FY 1996

- Cease operations at the Greenpoint incinerator by November 15, 1995, unless it is to be renovated as described in the preceding provision.

- Start construction of Brooklyn Navy Yard facility.

  Prior to the time that the company that will build the facility seeks financing for the construction of the Brooklyn Navy Yard facility, the Department of Sanitation will have fully implemented the City-wide curbside collection of recyclables on the accelerated schedule (specified in this plan), and will have established a pilot program to test "four-sort" collection in each of the five boroughs.

  Stack testing shall be done in compliance with all applicable federal and state laws and regulations and with all applicable permit conditions. At a minimum, stack testing shall be done on the facility, not later than 180

days and not later than 365 days after the date refuse firing is initiated prior to a certificate to operate and once every 18 months thereafter for the life of the facility. Stack tests shall be done for the following emissions: particulate matter, carbon monoxide, sulfur dioxide, oxides of nitrogen, hydrogen chloride, non-methane hydrocarbons, polychlorinated dibenzo-p-dioxins, polychlorinated dibenzo furans, polycyclic aromatic hydrocarbons, polychlorinated biphenyls, sulfuric acid, formaldehyde, arsenic, beryllium, cadmium, chromium, lead, mercury, nickel, antimony, cobalt, copper, manganese, scandium, selenium, vandium, zinc. Continuous emission monitoring equipment shall be installed and operated for the following: nitrogen oxides, sulfur dioxide, oxygen, carbon monoxide, opacity and ammonia. Records of such monitoring and testing shall be available to the public. The Department of Sanitation will set up three air-quality monitoring devices in the community around the Brooklyn Navy Yard facility prior to the start of operations at the facility.

For each ton of garbage delivered to the Navy Yard facility, a sum of two dollars shall be dedicated to a fund to be used for educatiional programs in the City designed to promote recycling and waste prevention and reduction.

FY 1997

- Issue RFP for installation of waste-to-energy capacity at Southwest Brooklyn incinerator.

FY 1999

- **Begin operations at Brooklyn Navy Yard facility.**
- **Start construction of waste-to-energy equipment at Southwest Brooklyn facility.**

FY 2001

- **Start operations of waste-to-energy equipment at Southwest Brooklyn facility.**

19.1.1.5 Landfill.

FY 1993

- Complete gas migration control system.

- Continue development of gas remediation/recovery program.
- Close Section 3/4.
- Continue development of leachate collection and treatment program.
- Ongoing landscaping and site improvements.
- Issue RFP for out-of-city ashfill capacity seeking a minimum of five years of capacity for the ash from the Southwest Brooklyn and Brooklyn Navy Yard facilities.
- Initiate efforts to secure out-of-city landfill capacity.
- Withdraw the State Department of Environmental Conservation application for an ashfill at Fresh Kills concurrently with the submission of this plan to the Department. Any development of an ashfill at Fresh Kills in the future shall require Council approval.

FY 1994

- Close Section 2/8 (Note: this will be done in calendar year 1993).
- Begin gas recovery from entire Fresh Kills landfill.
- Continue to develop Fresh Kills landfill infrastructure improvements. This work will extend through FY 1996.
- Continue research on ash re-use and issue RFP or request for information for beneficial re-use of ash.
- Enter into contract for out-of City ashfill capacity.
- **Issue RFP for out-of-city landfill capacity.**

FY 1995

- Enter into contract for beneficial re-use of ash, if feasible.
- Complete storm water control system for Fresh Kills landfill.
- Submit permit application to State DEC for Fresh Kills landfill.

FY 2001

- **Issue RFP for additional out-of-city landfill capacity, if necessary.**

19.1.1.6

FY 1997 Decision Tree.

By FY 1997, the City will have gained additional information concerning critical factors affecting the components of its solid waste management system. These critical factors include:

(1) the impact of Federal and State legislation on the export of City waste,

(2) the diversion rates the City has achieved and is likely to achieve with the recycling and composting programs,

(3) whether the City should continue to process the recyclables it collects at both City-owned MRFs and through contracts with private companies or should construct additional MRFs and rely less on contracting out,

(4) the existing and prospective size and scope of markets for recyclable materials,

(5) how well the City's first in-vessel composting facility is working, the feasibility of developing out of the City a co-composting facility combining sludge and compostable solid waste, and the latest assessments of mixed waste composting technology,

(6) the permitted daily capacity of the Fresh Kills landfill, variations in its daily loading capacity and the likely remaining life of the landfill,

(7) the cost and amount of out-of-city ashfill capacity available to the City and the feasibility of beneficial re-use of ash from waste-to-energy facilities,

(8) the results of City, State and Federal waste reduction efforts and the likely impacts of new waste reduction initiatives,

(9) the then current costs per ton of each component of the solid waste management system and of exporting MSW (if exporting is feasible),

(10) the size of the waste stream, and

(11) the size of the expense and capital budgets for the solid waste management system under the FY 1997 budget and the four-year plan.

The City's additional knowledge about the above factors will allow the City to make a second set of decisions concerning the mix of the components in the solid waste management system.

The criteria for evaluating the solid waste management system and deciding what changes should be made to the system will include the targets in Table 17.4-1 for the percentages of the waste stream handled through each element in the system. By the year 2000, we anticipate that the total daily residential, institutional and commercial waste stream will be approximately 25,100 tons per day, assuming that waste reduction efforts have reduced the waste stream by approximately 9%. Subject to the many uncertainties that will affect the system over the next eight years, we expect that the waste stream would be managed approximately as follows: 11,500 tons would be recycled and composted, 3,900 tons would be burned at two waste-to-energy facilities (the Brooklyn Navy Yard and Southwest Brooklyn [at 3,000 tons-per-day and 750 tons-per-day capacity, respectively, at 85 percent availability, on the basis of a 302-day year for comparability to the other tonnages in this paragraph]), 4,100 tons would be exported (on the assumption that commercial exports would be half of current levels), and the balance (5,600 tons) would be placed in the Fresh Kills landfill. These estimates of what waste will be eliminated, recycled and composted are in no sense limits on what will be accomplished. If more waste is reduced, recycled and composted, this will provide welcome relief from the City's reliance on the Fresh Kills landfill and the exporting of waste.

The City will consider the factors affecting the solid waste management system and the predictions for the year 2000 described in the preceding paragraphs. Based on that analysis, the City will decide:

Whether to start the curbside collection of compostable materials or to limit the collection of compostable materials to institutions and commercial establishments,

Whether additional changes should be made to the City's collection system,

What composting technology should be pursued,

How many composting facilities should be developed,

Whether it is feasible for the City to increase the recyclable materials targeted for residential curbside collection,

Whether to construct additional MRF capacity, to enter into

contracts for the processing of recyclable materials or to pursue both options,

Whether the pilot programs implemented in the preceding years (such as the pilots involving volume-based user fees, private collection of recyclables, intensive recycling and composting and mixed waste processing) should be expanded,

Whether sufficient recycling and re-use of construction and demolition materials is occurring and whether the City should take action to change existing practices,

and

Whether and how to develop additional waste disposal capacity.

These decisions are best made when the relevant information is available, but certain changes in the variables will dictate certain results.

If the analysis indicates that the predictions for the year 2000 are likely to be accurate and that the anticipated levels of recycling, composting, waste-to-energy burning, exporting and landfilling can be maintained at a reasonable cost, additional disposal capacity within the City may not be developed at that time **There will be a need to make sure that sufficient MRF and composting capacity to handle the recyclable and organic material collected by the City is available. These processing facilities could be either City-owned or privately owned. The recycling and composting entries in this implementation plan for the years after FY 1996 are based on the assumption that the projections for diversion of the waste stream are met and stabilize and that there is composting of institutional, commercial and, in low density areas, residential organic waste. In addition, the City will need to decide at what point in the future to begin in earnest the effort to develop capacity to replace Fresh Kills.**

If the ability to export and/or landfill waste in the year 2000 is likely to be less than is now anticipated, the shortfall in that capacity could be made up with increased reliance on any other element or combination of elements in the system. Consistent with the State hierarchy, **redoubled efforts to increase the level of** waste reduction, recycling and composting would be the preferred methods of responding to such a shortfall. **If exports of waste are restricted, a less desirable alternative would be to increase the use of the Fresh Kills landfill. If the loading capacity at Fresh Kills is limited, an alternative would be to rely more heavily on the export of waste. These two alternatives are not the preferred course of action, but it is**

possible that the City could pursue one or both of these alternatives and still reduce the current rate of landfilling and export.

An important part of this analysis will be an evaluation of the trade-offs between the different components of the solid waste management system. The Fresh Kills landfill is a valuable resource that should not be squandered. With this in mind, the Department will look carefully at how the schedule for increasing the recycling diversion rate or for developing other disposal capacity will affect the life of the landfill.

In FY 1997, the City will develop a new set of predictions for how the City's waste stream will be handled in the year 2002.

~~FY 1998-2001~~

~~Implementation in this four year period will depend in large measure on the decisions made in FY 1997, as well as legislative developments, new technologies, market maturity and the effectiveness of the programs already initiated. For these reasons, the following entries list, in some instances, alternative courses of action:~~

~~Continue to evaluate emerging collection/processing technologies.~~

~~Construct a second Queens MRF and whatever additional MRF capacity is needed and/or contract for private capacity as needed.~~

~~Construct one to three new in-vessel composting facilities depending on whether the System A or System B composting program is selected in FY 1997.~~

~~Develop additional waste disposal capacity as needed.~~

~~Develop out-of-state disposal capacity if feasible.~~

FY 2002 and FY 2007

FY 2002 and FY 2007 will be key years in the decision tree. In each of these years, the City will repeat essentially the same analysis as in FY 1997 and will generate predictions for how the solid waste management system will develop over the ensuing five years.

In FY 2002 and every five years thereafter, the Department will evaluate whether there is a continued need to continue operation of the Southwest Brooklyn incinerator and will report

to the City Council on whether the incinerator should continue to operate.

19.1.2 Sludge Facilities.

FY 1992

- Planning/development for long-term-plan facilities.
- Start facility operation -- substantial completion of construction for dewatering facilities capable of processing 100 percent of the City's sludge.

FY 1994

- Start facility construction of long-term-plan facilities.

FY 1998

- Start facility operation -- substantial completion of construction of long-term-plan facilities.

19.1.3 Medical Waste Facilities.

19.1.3.1 City-Wide Regulatory and Policy Initiatives.

FY 1992

- Establish a filing/regulatory system for non-incineration treatment and processing facilities.
- Form a medical-waste advisory committee.

FY 1993

- Amend designations of recyclable materials.
- Establish waste-acceptance criteria for the Department of Sanitation.
- Modify the current systems of fines and suspensions for violators of Local Law 75 for permitted waste generators.
- Modify the current State solid-waste-management-plan filing requirements and establish a waste-generator permit system.
- Modify, integrate, and standardize infectious waste, recyclables, and regulated-medical-waste containerization

and internal-transport mechanisms.

- Extend licensing by the Department of Consumer Affairs for the collection of these wastes: wet waste; treated, ground, segregated plastic medical apparatus; dry recyclables; glass and metal; and pathological, hazardous, radioactive, and regulated medical waste.
- Allow Sanitation-Department collection of waste from certain small-quantity private generators of non-regulated medical waste.
- Provide funding for education and monitoring programs.

FY 1994

- Discontinue Department-of-Sanitation collection service to non-permitted generators.
- Develop pathological-waste generation and emissions data, and evaluate management options.
- Promote implementation of the recommended management techniques.
- Promote the development of emissions standards by the New York State Department of Environmental Conservation.

19.1.3.2 Specific Measures to be Taken at Health and Hospitals Corporation Facilities.

FY 1993

Planning and education:

- continue waste audits.
- control unused product discards.
- institute departmental accountability for waste-generation costs.
- develop product-purchasing evaluation criteria.
- coordinate collection between Materials Management and Housekeeping.
- implement waste-education programs in each facility.

Waste segregation and recycling:

- o Set up equipment for baling corrugated cardboard at each facility.
- o Establish office-paper recycling programs.
- o Establish separate collection programs for glass and metal and for kitchen and food-service waste.
- o Implement battery-exchange programs.
- o Establish separate collection of I.V.- and other tubing, sharps, apparatus, and other PVC items.
- o Replace containers for collecting disposable sharps.

Waste-prevention and reduction:

- o replace paper towels by air dryers.
- o replace disposable food-service cookware.
- o replace disposable linens.
- o Set up equipment at each facility for grinding and disinfecting I.V.'s, sharps, and apparatus.

~~19.1.4 Harbor Debris Facilities.~~

~~The equipment required for processing harbor debris prior to incineration will be developed at one of the City's existing waterside sites.~~

19.1.4 Dredge Spoils Facilities.

Alternative technology assessments and implementation of processing capability for a dredge-spoils dewatering system to handle spoils generated by the Department of Sanitation in its dredging operations.

FY 1993

- o Technology Assessment

FY 1994

- o Start facility development

FY 1995

- Dredge Spoils System Operational

19.2 Administrative Structures -- The Department of Sanitation.

The Department of Sanitation is an organization in transition. The agency's organizational chart is included as Figure 19.2-1. In anticipation of the implementation of this plan, the Recycling Office has been elevated in status to a separate bureau -- the Bureau of Waste Reduction, Re-use and Recycling (BWRRR) -- and is now headed by an assistant commissioner. The operating budget for FY 1993 will enable the BWRRR to expand from a staff of 54 to 69. In recognition of the importance of the waste reduction program, a new Unit of Waste Reduction and Re-use was established this year.

A new assistant commissioner has also been appointed to coordinate the plan's implementation.

The Department will also be creating a new position, Director of Economic Development, as part of an effort to attract to the City and to foster development of companies involved in the recycling business.

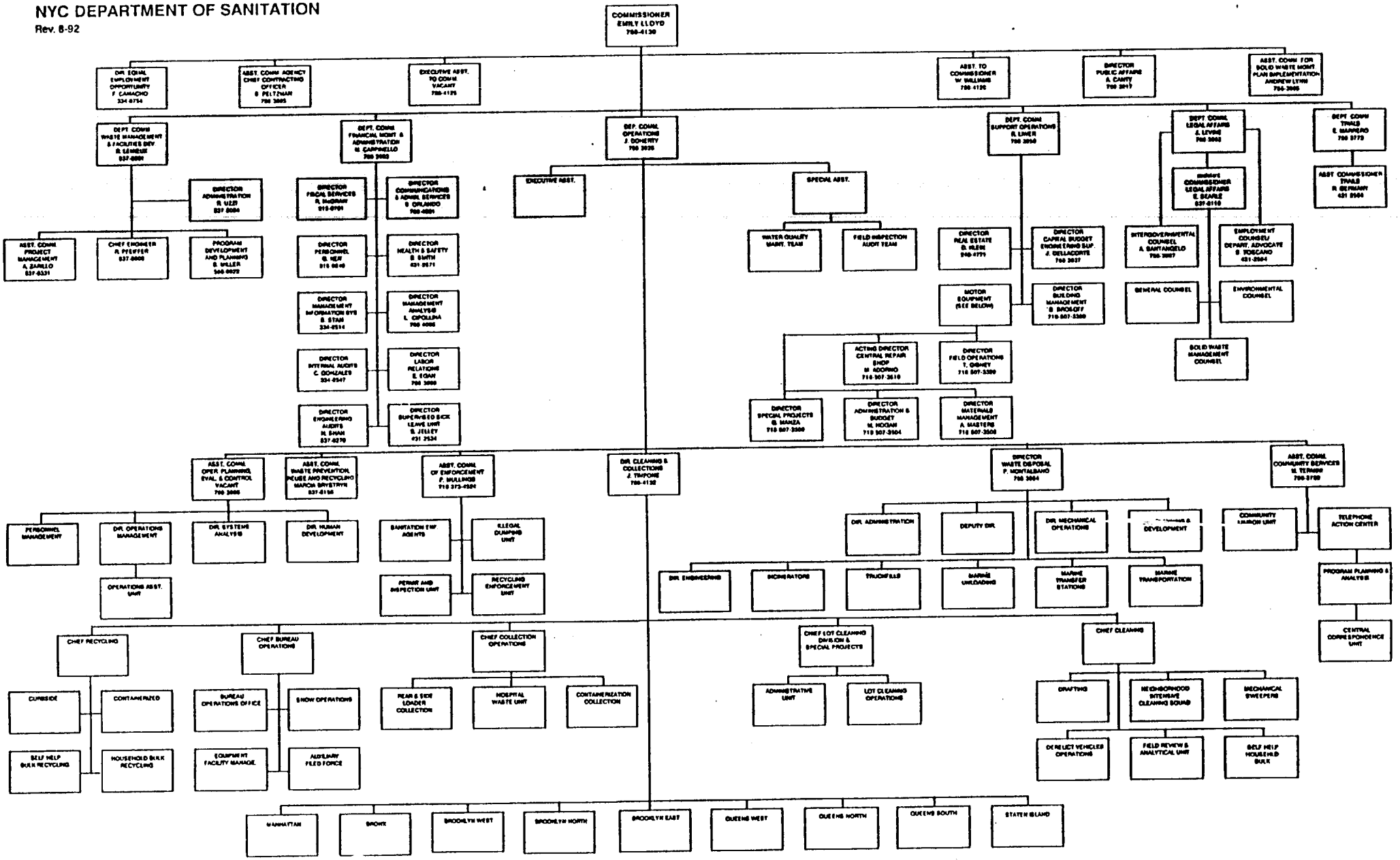
While the Department's collection and cleaning functions are well defined, the Department must refine its structure so that it can perform effectively the new and complex waste disposal responsibilities outlined in this plan. The needs that a refined organizational structure must serve are clear.

Paramount among these is coordination between the BWRRR and the Bureau of Waste Management and Facilities Development on long-term planning, as well as facilities development, pilot-project development, business development, and the oversight and monitoring of this plan's implementation.

The Bureau of Cleaning and Collection (BCC) has put in place procedures to ensure that recyclables are collected in a manner that minimizes contamination and maximizes participation. In addition, recycling information will be integrated into uniform force training program.

In addition, the Department needs to develop a more sophisticated analytic capacity -- one which will enable it to

Figure 19.2-1: New York City Department of Sanitation: Organization Chart



plan more effectively, and to better evaluate its performance. There is some overlap between the Department's various analytic units. A reorganization designed to coordinate or consolidate the monitoring of existing operations with the development of analytic models is a possibility.

The successful implementation of this Plan will depend on an integrated public outreach effort. The BWRRR, with the assistance of the Borough Presidents and the local City Councilmembers, will be hiring a part-time person in each community district to organize the recycling effort and to educate people about recycling. The focus will be on developing a grassroots network people active in each neighborhood to promote recycling. The outreach will focus on involving first block associations and then individuals in each large residential building in this effort.

Currently, outreach is undertaken by the BWRRR and the Community Liaison Unit. The former focuses on the promotion of recycling, while the latter has historically concentrated on other sanitation issues. Closer coordination will also improve the effectiveness of both operations.

19.2.1 Department of Sanitation Responsibilities.

The administrative structures outlined above must be redesigned where necessary to facilitate the implementation of the following programs outlined in the plan:

In the area of waste prevention, the Department of Sanitation will issue rules forbidding the collection of grass clippings by the Department of Sanitation; as well as rules for institutional waste audits, for backyard composting, and, for user-fee implementation, if the City adopts user fees. The Department will also be responsible for the development of an aggressive consumer education program.

The Department of Sanitation's recycling responsibilities are central to this plan. It must implement the citywide high-quality recycling program -- including collection and facilities development -- as well as support public information programs and market-development initiatives outlined in Chapter 16.2. In addition, it is responsible for developing the organics collection programs and composting facilities described in Chapter 16.3.

The development of the Brooklyn Navy Yard waste-to-energy facility, as well as the planned upgrade of the Southwest Brooklyn incinerator, falls within the responsibilities of the

Brooklyn incinerator, falls within the responsibilities of the Department of Sanitation. Similarly, the Department is responsible for upgrading of the Fresh Kills landfill pursuant to DEC consent order and applicable permit requirements. It also is responsible for taking steps to investigate the availability of out-of-city disposal capacity, and to procure and develop the capacity required. Further, the Department of Sanitation is responsible for developing replacement transfer system capacity to service the Bronx, ~~developing a facility on a waterfront site with equipment capable of processing harbor debris through incineration~~ and also developing a facility capable of handling dredge spoils from its own operations.

The Department of Sanitation does not anticipate problems in recruiting and/or making available from existing personnel the staff necessary to carry out this plan; in general, such staff will be paid through the City's general operating budget.

19.2.2 Coordination Among City Agencies.

The responsibility for the successful implementation of this plan rests not only with the Department of Sanitation, however, but with other City Agencies as well. The forging of these cooperative links is critical.

19.2.2.1 Waste Prevention.

In this area, a number of agencies share responsibility: The Department of General Services, in conjunction with the Department of Sanitation, must assume responsibility for establishing procurement procedures that reduce the City's waste-stream, including such measures as shipping-waste reduction, packaging reduction, use of reusables, procedures for repairing, rather than discarding, City equipment (as described in detail in Chapter 16.1);

The Department of Consumer Affairs, in cooperation with the Department of Sanitation, will be responsible for developing rate structures that will provide shared incentives between commercial-waste haulers and generators for volume reduction, and for mechanisms to encourage waste reduction practices--such as audits and rate enforcement mechanisms (as also described in detail in Chapter 16);

The Health and Hospitals Corporation will be responsible for implementing at its facilities the majority of the waste-prevention initiatives outlined in the medical-waste report;

The Office of the Deputy Mayor for Economic Development, in cooperation with the Sanitation Department, will be responsible for facilitating the development of re-use centers.

The Department of Sanitation will work with the Board of Education in an effort to make schools a model for waste prevention and recycling.

19.2.2.2 Recycling Programs.

The Department of General Services, in conjunction with the Department of Sanitation, will be responsible for establishing procurement procedures to encourage the development of markets for secondary materials.

The Office of the Deputy Mayor For Economic Development will be responsible, in concert with the Department of Sanitation, for developing strategies to encourage the regional siting of industries utilizing secondary materials.

The Department of Sanitation will work with the Housing Authority to improve recycling in its housing developments.

19.2.2.3 Composting Programs.

The Department of Parks and the Department of Transportation, along with the Department of Sanitation, will be responsible for devising uses for municipal compost;

The Department of Correction, along with the Department of Sanitation, will be responsible for developing a pilot on-site food-waste composting facility on Riker's Island.

19.2.2.4 Sludge Facilities.

The Commissioner of the Department of Environmental Protection is responsible for implementing the measures outlined in the sludge-management plan. The Sanitation Commissioner will cooperate on possible co-composting programs, using sludge in Sanitation-Department in-vessel facilities if they are developed and if DEP needs additional capacity; the Sanitation Commissioner will also provide refuse-derived bulking materials needed for sludge compost, as is feasible.

19.3 Legislative Initiatives for Plan Implementation.

This section identifies the laws, rules, regulations and ordinances relevant to the implementation of this Plan and provides the information required by 6 NYCRR Part 360-1.9 (f)(6) and 360-15.9(1).

19.3.1 Federal/State Waste Reduction and Recycling Proposals.

19.3.1.1 Market Development.

Federal legislation is necessary to further the development of recycling markets for recyclable materials collected in accordance with this plan, and the Department is actively lobbying for the incorporation of market development provisions in the Resource Conservation and Recovery Act. One such proposal, offered by Senator Baucus as part of his overall RCRA reauthorization bill (S. 976) would establish annual recycling utilization rates for manufacturers, importers, and distributors of packaging and paper products. This amendment addresses the demand side of the recycling equation by creating a demand for the recyclable materials collected by municipalities. It also recognizes that industry must share responsibility for the products and packaging that it introduces into the waste stream.

Other constructive RCRA amendments are those which direct the development of a national recyclable materials data base to provide information to municipalities on available recycling technologies and markets, and which require federal purchasing of materials with recycled content. Such proposals are contained in S. 102 of 1991 (Senator Gore)/H.R. 2749 of 1991 (Congressman Sikorski)("The National Recyclable Commodities Act"), and in Congressman Collin's Draft bill in 1991 ("The National Recycling Markets Act"). These market-development-oriented amendments will advance the treatment of recyclable materials as commodities rather than as solid waste, and will stimulate recycling markets by harnessing the tremendous purchasing power of the federal government. While a number of states and localities have begun to institute purchasing preferences for materials containing recycled content, the federal government, which constitutes a considerable market for these materials, has not been aggressive enough in this area. Accordingly, legislation which requires the federal government to engage in more aggressive purchasing of materials containing recycled content is critical to the growth of recycling markets. Additionally, the creation of a centralized national data base for recyclable materials would permit municipalities to more easily exchange and obtain information regarding available recycling technologies and markets.

19.3.1.2 Product and Packaging Reduction.

In order to implement the waste-reduction initiatives in this plan and to foster waste reduction nationwide, the City will continue to urge the passage of RCRA amendments to address the issues of excess products and packaging. Individual, local initiatives directed at excess products and packaging, such as prohibitions on nationally distributed packaging, are bound to conflict, and to be merely piecemeal approaches. Accordingly,

national product and packaging standards or guidelines are necessary in order to motivate businesses to develop environmentally responsible approaches to product and packaging design.

The City supports the establishment of the following federal product and packaging hierarchy (in order of priority): i) no packaging; ii) reduction in the product to packaging ratio; iii) returnable, refillable or reusable products and packaging; and iv) recyclable products and packaging or products and packaging composed of recycled content. This hierarchy would be promulgated by a national product and packaging review board which would be established by the United States Environmental Protection Agency. The board would be composed of representatives from government, environmental groups and the packaging industry, and would be responsible for adopting product and packaging guidelines or standards in accordance with the hierarchy.

19.3.1.3 Source-Separation and Recycling Program Implementation Requirements.

The Solid Waste Management Act of 1988 amended Section 120-aa of the General Municipal Law ("Section 120aa") to require that municipalities adopt by September 1, 1992, "a law or ordinance to require that solid waste which has been left for collection or which is delivered by the generator of such waste to a solid waste management facility, shall be separated into recyclable, reusable or other components for which economic markets for alternate uses exist." The section's statement of legislative findings, which precedes this requirement, refers to adoption of "a local law or ordinance to require the source separation and segregation of recyclable or reusable materials from solid waste." The following discussion briefly addresses source separation, as well as implementation of the City's recycling law, Local Law 19 of 1989, in the context of Section 120-aa.

Local Law 19 was enacted to establish the City's mandatory recycling program. Among other things, Local Law 19 currently provides for: the source separation of recyclable materials from residential solid waste, pursuant to a phased-in program; the source separation of private carter-collected waste, unless generators of the latter category of waste arrange for lawful collection for recycling, reuse or sale for reuse (i.e, commercial generators may opt for post-collection separation); and source separation or post-collection separation of City agency waste (rules promulgated pursuant to Local Law 19 require source separation of City agency waste).

In the comments which DEC sent the City on the draft Solid Waste Management Plan, DEC asserted that the draft plan did not

demonstrate compliance with Section 120-aa. DEC pointed to two factors upon which it based its conclusion that the Plan (and Local Law 19) were not in accord with Section 120-aa. First, DEC stated that full implementation of the City's recycling program would not occur until September 1994. (DEC interprets Section 120-aa to require implementation of a local recycling law, not mere adoption, by September 1, 1992.) Second, DEC stated that Section 120-aa requires source separation for all waste streams, including commercial waste. In its comments, DEC asserted that "the draft plan was seriously flawed unless the City can comply with the current law or the law is changed". It, however, went on to say that it would work with the City to amend Section 120-aa if the legislation contained appropriate safeguards.

In the draft Plan, the City stated its belief that the Plan and Local Law 19 are in accord with Section 120-aa because they provide for the source separation of residential waste and for a phased-in recycling program. We stated that the Plan and the local law thereby ensure that the policy goals of Section 120-aa are achieved. Nevertheless, after receiving DEC's comments, the City worked closely with DEC and the state legislature in an effort to address DEC's concerns legislatively. The terms of a bill were agreed to by the City and DEC, and the City had this bill introduced in both houses.

The proposed bill would have amended both Section 120-aa and Environmental Conservation Law Section 27-0107 to provide the City with flexibility in its recycling program if DEC found that the City's Plan either conformed to Section 120-aa's requirements or met certain other requirements, including requirements that the City demonstrate that it would i) achieve the goals of the state's solid waste management hierarchy, ii) provide for mandatory separation of recyclables by September 1, 1994, either prior to or following collection, iii) provide for post-collection separation of only commercial, institutional, and industrial waste, iv) establish reporting requirements for waste which is separated post-collection; and vi) provide the financial commitment necessary (as demonstrated in the four year financial plan) to achieve citywide mandatory recycling by September 1, 1994.

This legislation was not enacted before the close of the 1992 state legislative session. The City does not intend to reintroduce this bill next session for two reasons. First, the City has now committed in this Plan to expand its residential recycling program citywide in 1993 -- clearly within a reasonable time after the date by which Section 120-aa requires adoption of a local recycling law. Therefore, we do not believe it is any longer necessary to seek legislative relief from, or clarification of, the date contained in Section 120-aa.

Second, as to post-collection separation in the commercial sector, the City believes that legitimate concerns regarding the contamination and marketability of recyclables where absolutely no source separation occurs were raised by state legislators and others in response to the City's state legislative proposal. The City believes, however, that Section 120-aa would permit the City to provide commercial generators flexibility to utilize post-collection separation, so long as materials are source separated when necessary to minimize contamination and maximize marketability. Because Local Law 19 does not currently permit the City to require any source separation by commercial generators, the City is seeking an amendment to Local Law 19 (Section 16-306 of the City Administrative Code) that will require the adoption of rules providing for commercial source separation where necessary to minimize contamination and maximize marketability of designated recyclable materials. The source separation requirements will have to be in effect by July 1, 1993. The draft text of that local law is as follows:

~~16-306 Private carter collected waste. The commissioner shall, within nine months of the effective date of this chapter, adopt and implement regulations rules designating recyclable materials that constitute in the aggregate at least one-half of all solid waste collected by private carters. Generators of private carter collected waste shall source separate the designated materials unless they arrange for lawful collection for recycling, reuse or sale for reuse by private carters or persons other than private carters. Where a generator of private carter collected waste has arranged for lawful collection for recycling, reuse or sale for reuse by private carters or persons other than private carters, such arrangement shall constitute an affirmative defense to any proceeding brought against the generator pursuant to section 16-324 of this chapter. The As soon as practicable, the commissioner shall adopt and implement rules requiring that by July 1, 1993, generators of private carter collected waste source separate the designated materials in such manner and to such extent as the commissioner in his or her discretion determines to be necessary to minimize contamination and maximize the marketability of such materials. As soon as practicable, the commissioner of consumer affairs in consultation with the commissioner shall promulgate regulations rules requiring private carters, by July 1, 1993, to provide for the collection of, and ensure the continued separation of, designated materials source separated pursuant to this section, provide for the separation of all other designated materials, and provide for post-collection separation and recycling of all the designated materials if, provided, however, that~~

~~generators do not otherwise source separate and recycle the designated may arrange for the recycling, reuse or sale for reuse of designated materials that have been source separated, by persons other than private carters.~~

~~Unconsolidated provision: Notwithstanding any other provision of this local law, this local law shall not be deemed to render invalid any rule promulgated by the commissioner or the commissioner of consumer affairs prior to the effective date of this local law.~~

Section 1. Section 16-306 of the administrative code of the city of New York, as added by local law number 19 for the year 1989, is amended to read as follows:

16-306 Private carter-collected waste. a. The commissioner shall [, within nine months of the effective date of this chapter,] adopt and implement [regulations] rules designating recyclable materials that constitute in the aggregate at least one-half of all solid waste collected by private carters, and additional materials if the commissioner determines that economic markets exist for them. [Generators] Pursuant to subdivision b of this section, such rules shall require generators of private carter-collected waste to source separate some or all of the designated materials and to arrange for lawful collection for recycling, reuse or sale for reuse by private carters or persons other than private carters of such source separated materials. With regard to designated materials that are not required by such rules to be source separated, generators of private carter-collected waste [shall] may source separate [the] these designated materials [unless they] and, in any event, shall arrange for their lawful collection for recycling, reuse or sale for reuse by private carters or persons other than private carters. [Where] If a generator of private carter collected waste has source separated the designated materials in accordance with the rules and arranged for the lawful collection for recycling, reuse or sale for reuse by private carters or persons other than private carters of such source separated materials and, with regard to designated materials that are not required by such rules to be source separated, arranged for lawful collection for recycling, reuse or sale for reuse by private carters or persons other than private carters, such arrangement shall constitute an affirmative defense to any proceeding brought against the generator pursuant to section 16-324 of this chapter.

b. The rules promulgated pursuant to subdivision a of this

section shall require that generators of private carter-collected waste source separate the designated materials in such manner and to such extent as the commissioner determines to be necessary to minimize contamination and maximize the marketability of such materials. However, in promulgating such rules the commissioner shall not require source separation of a material unless the commissioner has determined that an economic market exists for such material. For the purposes of this section, the term "economic market" refers to instances in which the full avoided costs of proper collection, transportation and disposal of source-separated materials are equal to or greater than the cost of collection, transportation and sale of said materials less the amount received from the sale of said materials. The commissioner of consumer affairs, in consultation with the commissioner, shall [promulgate regulations] adopt and implement rules requiring private carters to provide for the collection of, and ensure the continued separation of, designated materials that have been source separated, provide for the separation of all other designated materials and provide for [post-collection separation and] recycling of all the designated materials [if], provided, however, that generators [do not otherwise source separate and recycle the designated] may arrange for the recycling, reuse or sale for reuse of designated materials by persons other than private carters if the designated materials have been source separated.

Section 2. Notwithstanding any other provision of this local law, this local law shall not be deemed to render invalid any rule promulgated prior to the effective date of this local law by the commissioner or the commissioner of consumer affairs.

Section 3. The rules required to be promulgated by the commissioners of sanitation and consumer affairs pursuant to section 16-306 of the administrative code, as amended by this local law, shall be promulgated on or before July 1, 1993 and shall take effect no earlier than July 1, 1993.

Section 4. This local law shall take effect immediately.

This legislation has been introduced and was the subject of a hearing of the City Council Environmental Protection Committee on October 5, 1992. A second committee hearing is scheduled for October 16, 1992, and the committee could vote out the legislation at that time. Final action on the legislation by the Council could occur as early as October 22, 1992.

In summary, in view of the City's commitment to implement

residential recycling citywide in 1993, and its commitment to seek an amendment to Local Law 19 requiring source separation where necessary in the commercial waste stream, the City believes this Plan now provides assurances that the City's recycling program will be in conformance with Section 120-aa.

19.3.1.4 Enhancement and Expansion of Returnable Beverage Container Legislation.

The City should continue its support of legislation to expand the scope and improve the effectiveness of the Returnable Container Act. Specifically, the City has previously proposed that: i) the Act be expanded to cover wine and liquor bottles; ii) the returnable container deposit be increased to enhance the incentive to return containers; iii) maximum penalties for violations of the Act by merchants be increased from $500 to $1,000 per day; and iv) the City be given the authority to enforce the Act within its borders. In addition, the City supports the recommendation of the Moreland Commission on the Returnable Container Act that money from unclaimed deposits be remitted to the State for use in funding solid-waste-management programs. The Department also supports the enactment of a similar returnable container system on the national level or an amendment to the State act to permit the City to adopt and administer a local returnable container system, including a system whereby the City would recover unclaimed deposits.

The analysis of deposit legislation conducted for this plan (which is presented in Appendix Volume 4.1) generally supports the conclusions of the Moreland Commission on the Returnable Container Act, which found the Act to be a critical part of the State's solid waste management program, reducing litter by about 72 percent and the solid waste stream by about 5 percent by weight and 8 percent by volume. Moreover, the analysis conducted for this plan suggests that deposit systems are effective ways of improving downstream processing of recyclables, and of increasing the quality of recycled materials. For example, removing glass prior to collection is beneficial because broken glass tends to contaminate loads destined for recycling or composting and nonrecoverable shards create additional waste at recycling processing facilities. As to unclaimed deposits, the Moreland Commission found that these deposits amounted to at least $84.4 million. The City's overriding goal, of course, is to increase the effectiveness of the Act, thereby reducing the amount of unclaimed deposits. However, when deposits do remain unclaimed, the City believes that the apparent windfall to bottlers is unjustified. Instead, unclaimed deposits should be paid to the State for use in funding solid-waste-management programs. If the State authorizes the City and the City adopts a local bottle bill, the City should recover the unclaimed deposits.

19.3.1.5 Fee System for Encouraging the Return of Waste-Tires.

Section 16-310 of the New York City Administrative Code requires that the City's Sanitation Commissioner establish a citywide deposit system or reclamation program for waste tires, to ensure their proper disposal in the event that no similar state or federal legislation has been enacted. As landfill space continues to be depleted, and municipalities work to bring landfills into compliance with increasingly stringent environmental standards, the disposal of waste tires becomes more and more difficult. Waste tires tend to rise and break through the landfill cover, thereby exposing refuse and creating leachate, litter and vermin problems. Additionally, increased numbers of waste tires are illegally disposed of in large waste piles at unregulated sites which pose serious fire hazards.

Because of the problems associated with waste tires, the City recommends that comprehensive waste-tire-management legislation, which provides a safe and efficient method to divert waste tires from the waste stream and also provides for the proper management of segregated waste tires, be enacted either at the state or federal level. Specifically, the City recommends that the State create a vehicle-tire surcharge system whereby tire retailers would charge consumers a surcharge on every vehicle tire purchased in New York State unless a waste tire is returned at the time of the purchase or shortly thereafter, in which case the surcharge would be refunded. The fee would apply to vehicle tires purchased from merchant-retailers, as well as tires purchased as part of the sale of a vehicle from an auto dealer. Retailers would be required to remit all un-refunded fees to the State for deposit into a state solid waste management fund. The fund would be used exclusively for tire pile clean-up and to establish waste tire recycling and disposal programs. Additionally, the City recommends that this legislation be modelled after the Returnable Container Law, i.e., it should not prohibit the disposal of waste tires in landfills but instead encourage their segregation and the concomitant development of recycling markets.

19.3.2 Local Waste-Reduction and Recycling Proposals.

19.3.2.1 Possible Amendments to Local Law 19 (the "mandatory recycling law").

In general, Local Law 19 should be amended to reflect the contents of this plan. Specific changes that should be made include:

Recycling requirements for private-carter-collected solid waste (section 16-306). This section requires the Sanitation

Department to promulgate rules that designate at least 50 percent of the commercial waste stream as recyclable, and that require waste generators to arrange for either source-separated collection or post-collection separation of recyclable materials, and requires the Department of Consumer Affairs to promulgate rules that require carters to provide post-collection separation services. This plan proposes that this section be amended in a manner consistent with GML 120-aa, as described in section 19.3.1.2.

Yard waste (section 16-308). This section requires separate collection of yard waste in designated areas of the City that generate a substantial amount of this material during fixed periods in the spring and fall, requires City agencies that generate a substantial amount of yard waste to provide for its composting, and forbids the Department to accept yard waste for disposal at its facilities during the periods when yard waste is separately collected. This plan proposes amendments to change, or possibly eliminate, requirements for a spring yard waste program because spring yard waste is predominantly grass clippings, and this plan has proposed that, as a waste prevention measure, grass clippings be prohibited from being placed out for collection. Requirements for a yard waste program during the peak leaf season should be retained, although amendments will be sought to change the specified collection dates to maximize the program's efficiency. In addition, because of the City's fiscal situation, citywide implementation of the program will be unable to occur as quickly as was anticipated. The current fiscal plan anticipates that yard waste will be collected citywide by late 1995.

Batteries (Section 16-310). This section requires the establishment of citywide deposit or reclamation systems for batteries and tires. Lead-acid batteries are already subject to a statewide deposit and reclamation system. Recent State legislation mandates the reduction of certain toxic constituents in other batteries, thus reducing the danger posed by inclusion in the waste stream and starting in fiscal year 1995, dry-cell batteries will be collected at curbside as part of the high-quality recycling program. In the interim period the household hazardous waste program provides a safe disposal method for batteries. For these reasons, the plan is proposing that the requirement for local battery deposit or reclamation programs be deleted.

City purchase of recycled products (section 16-322). This section requires the Department of General Services to make changes to procurement specifications and practices to encourage the use of secondary materials, and establishes a 10 percent price preference for paper products, and authorizes a five percent price preference for non-paper products, containing recycled content.

The Department will work with the Department of General Services on appropriate legislation to implement a recent amendment to General Municipal Law Section 104-a, which authorizes municipalities to grant a ten percent price preference in the awarding of public contracts to vendors of all recycled products, as opposed to just paper products. The amended law also authorizes a fifteen percent price preference for any recycled product if at least fifty percent of the materials used in making it come from the New York State waste stream. This plan proposes an additional requirement that DGS also review specifications to encourage waste-prevention in City purchasing practices.

Enforcement (section 16-324). This section, among other things, establishes a schedule of fines for all recycling violations, and authorizes the department to conduct lawful inspections to ensure compliance with recycling requirements. This plan proposes that amendments be made which increase the fine schedule for private carters and transfer stations, and that explicitly include the right of entry to inspect common areas of buildings to ensure that owners, managers, and tenants have complied with recycling requirements.

19.3.2.~~3~~2 Rules to implement the recycling program and enhance economic markets.

Many aspects of the proposed recycling program will require promulgation of implementing rules. To ensure minimum contamination, maximum marketability, and maximum recovery of recyclables originating in commercial sector garbage, the Department will need to amend its commercial recycling rules to require commercial generators to source separate certain components of the waste stream. This proposal is described in detail in section 19.3.1.3. In addition, existing commercial recycling rules should be amended to require that the additional separation of other designated recyclables occurs only at solid waste management facilities which are operating, where applicable, pursuant to a valid permit or order issued by DEC and/or DOS, or which are otherwise lawfully operating (i.e., outside of NYS). Further, commercial recycling rules, existing putrescible transfer station rules, and draft non-putrescible transfer station rules, should be amended to require transfer station operators in New York City to separate designated recyclables (not required to be source-separated) at their facilities, and consideration will have to be given, in certain instances, to the allowance of outside storage of non-putrescible recyclables at stations which are permitted to handle putrescible waste. The maintenance of records of materials separated and their ultimate disposition is already required by existing and published draft transfer station rules.

The formal process of promulgating commercial source

separation rules, which should take no more than six months from start to finish, can only begin after City Council amendment of Local Law 19 permitting DOS to require commercial source separation. However, DOS will begin drafting rules to require source separation of certain elements of commercial waste as soon as this Plan is delivered to DEC. The promulgation process for rules requiring that any post-collection separation occur only at lawfully operating facilities and requiring that city transfer stations separate recyclables on site will begin upon delivery of this Plan to DEC. A draft of rules regulating certain non-putrescible transfer stations (stations receiving construction and demolition debris, fill material, and scrap metal) has been published. Revision of those draft rules reflecting the changes noted above will be made in conjunction with changes made in response to public comment received on the draft. A public hearing on the draft was held on July 10, 1992. The Department expects that the final rules will be promulgated within ninety days of this plan's delivery to DEC. Revision of existing commercial recycling and putrescible transfer station rules to accommodate the changes described above should be accomplished within four to six months of the Plan's delivery to DEC. DOS will provide DEC with frequent updates of its progress in amending these rules.

The Department's residential recycling rules will be amended to permit generators to place certain recyclables out in bags. The Department's residential, city agency/institutional, and commercial recycling rules will have to be amended to expand the designation of targeted recyclable materials. The Department has already distributed for informal comment proposed amendments to its residential recycling rules to, among other things, permit the use of bags for recyclables. The Department will begin the promulgation of other necessary rule amendments approximately four to six months before the anticipated program change.

With regard to enhancing economic markets, the Department will work with the Department of General Services on appropriate legislation to implement a recent amendment to General Municipal Law §104-a, which authorizes municipalities to grant a ten percent price preference in the awarding of public contracts to vendors of recycled products, as opposed to just paper products. (Local Law 19 currently establishes only a five percent price preference for non-paper products.) The amended law also authorizes a fifteen percent price preference for any recycled product if at least 50% percent of the materials used in making it come from the New York State waste stream.

19.3.2.3 Recycling White Goods.

The Department of Sanitation is examining the best method of

diverting white goods from the municipal solid waste stream to ensure their safe management, including the removal of chloroflourocarbons, and to ensure that they are recycled. One method under consideration is a local law which would prohibit white goods from being disposed of in the City solid waste management system. Such a law might also require the acceptance of used white goods for a fee by retailers or distributors of white goods. The Department's commercial recycling rules already require the recycling of metal components of bulk waste, such as white goods.

19.4 Funding the Plan.

19.4.1 The City Budget.

The funding for this plan will come from the City's capital and expense budgets.

19.4.1.1 Capital Budget.

The capital budget for the Department of Sanitation for fiscal years 1993 was adopted on June 5, 1992. A 3-year plan for fiscal years 1994-1996 was also adopted. The portion of those budgets which pertain to solid waste management is detailed Table 19.4.1-1. The capital budget is funded with the proceeds of the City's general obligation bonds.

Under the implementation schedule in this chapter, the four-year capital plan will be changed to reflect the changes described in this paragraph. The City will use funds allocated for construction of the ashfill to acquire ashfill capacity outside the City. Of the $258.7 million allocated to the upgrading of the existing incinerators, $57 million will be spent on the Southwest Brooklyn facility and the balance will not be spent unless the Betts Avenue and Greenpoint incinerators are upgraded. The acceleration of the recycling program will require increased capital spending on the more rapid acquisition of trucks and development of MRFs. One additional MRF will be constructed in the four-year period, which will require approximately $20 million of additional funding for FY 1994.

Table 19.4.1-1: Capital Budget for Near-Term Implementation Plan ($M).

CAPITAL BUDGET	1993	1994	1995	1996
Recycling Equipment	$5.0	$9.0	$4.6	$21.1
Recycling Facilities	$48.1	$10.0	$20.0	$5.0
Composting Facilities	$1.5	$7.5	$25.0	
Incinerator Upgrades	$72.2	$71.5	$1.0	$114.0
Waste-to-Energy Facility*				$450.0
Fresh Kills Improvements	$93.4	$58.9	$49.2	$16.5
Ashfill	$2.0	$25.0		
Out-of-State Disposal Capacity	$4.0			

Note: All FY 1993 dollars include projected FY 1992 rollovers.

* Funding for the Brooklyn Navy Yard is shown in the Capital Budget as private dollars (P) as it is being funded through independent financing sources.

The City's Ten-Year Capital Solid Waste Management Plan is shown on Tables 19.4.1-1a. This plan was issued prior to the completion of this Solid Waste Management Plan and will be revised in fiscal year 1993 to conform to the implementation schedule in this chapter. Recycling equipment and facilities are included in Item S-136 and S-193 on the table; composting facilities, in Item S-136; incinerator upgrades, in Item S-157; the Brooklyn Navy Yard waste-to-energy facility, in Item S-194; the Fresh Kills landfill improvements, in Item S-197 and S-111; and ash and out-of-state disposal, in Item S-197.

19.4.1.2 Operating Budget.

The operating budget for the Department of Sanitation for Fiscal Year 1993 was adopted on June 5, 1992. A 3-year plan for fiscal years 1994-1996 was also published. The portion of those budgets which pertain to the residential and institutional solid waste management programs described herein are detailed Table 19.4.1-2. The operating budget is funded with monies from the City's general fund. The general fund consists of fees, state and federal subsidies, and tax revenues collected by the City, including real property taxes, income taxes, corporate taxes and sales taxes.

Table 19.4.1 - 1a
Ten-Year Capital Plan

DEPARTMENT OF SANITATION
SUMMARY FY'92-'01

ID#/DESCRIPTION		FY'92	FY'93	FY'94	FY'95	FY'96	FY'97	FY'98	FY'99	FY'00	FY'01	TOTAL
S-009	Construction MTS's	(159)	0	0	0	0	0	0	0	0	0	(159)
S-111	Construction Marine Unloading & Truck Fills Fresh Kill, SI	29,791	38,202	20,890	9,256	6,500	5,806	5,869	5,934	6,003	6,075	134,326
S-129	Equipment	89,495	37,005	54,471	49,880	53,532	68,037	90,302	98,246	82,683	138,287	761,938
S-131	Construction, Reconstr. Modernization to Incin. & Solid Waste Management Infrastructure	311	0	0	0	0	346,000	360,000	0	599,000	0	1,305,311
S-132	Original Improvements, Prep. and Development of Refuse Disposal Areas	(419)	0	0	0	0	0	0	0	0	0	(419)
S-136	Construction, Reconstr. & Modernization of Garages & Other Facilities	25,462	50,656	18,000	47,000	2,000	24,700	1,700	1,900	1,700	1,900	165,018
S-145	Construction Qns 11/13	222	0	0	0	0	0	0	0	0	0	222
S-157	Construction APC & Other Improvements, Incin.	18,311	56,640	71,500	1,000	114,000	1,000	1,000	111,000	1,000	1,000	376,451
S-172	Construction SI 3 & Boro Repair Shop	8	0	0	0	0	0	0	0	0	0	8
S-182	Original Install. of Auto Fuel Dispensing System DOS Facility	1,209	1,210	1,210	0	1,227	1,000	1,000	0	0	0	6,856

Table 19.4.1 - 1a
Ten-Year Capital Plan
(continued)

DEPARTMENT OF SANITATION
SUMMARY FY'92-'01

ID#/DESCRIPTION		FY'92	FY'93	FY'94	FY'95	FY'96	FY'97	FY'98	FY'99	FY'00	FY'01	TOTAL
S-187	Construction Bklyn 1/4	0	0	0	0	0	0	0	50,000	0	0	50,000
S-188	Construction SI 2	110	0	0	0	0	0	0	0	0	0	110
S-189	Construction Bklyn 8	75	0	0	0	0	0	0	0	0	0	75
S-193	Site Acquisition	500	16,500	10,000	0	5,000	0	0	0	0	0	32,000
S-194	Construction Brooklyn Navy Yard (Private Funds)	0	0	0	0	450,000	0	0	0	0	0	0
S-195	Replacement Salt Sheds	1,000	500	564	0	0	0	0	0	0	0	2,064
S-196	Construction Bronx 6	93	0	0	0	0	0	0	0	0	0	93
S-197	Original Improvements to Landfills, to meet State Reglations (State Funds)	33,981	44,000	63,000	39,951	10,000 6,000	15,000 24,000	15,000	170,000	15,000	15,000	420,932
S-199	Construction Bklyn 17/18	291	0	0	0	0	0	0	0	0	0	301
S-204	Construction Bronx 12	533	0	0	0	0	0	0	0	0	0	533
S-205	Construction Bklyn/Qns Borough Repair Shop	50	300	0	0	0	0	0	0	0	0	350
S-206	Construction Queens North Borough Repair Shop	643	0	0	0	0	0	0	0	0	0	643
S-210	Construction Queens 13B	409	0	0	0	0	0	0	0	0	0	409

Table 19.4.1 - 1a
Ten-Year Capital Plan
(continued)

DEPARTMENT OF SANITATION
SUMMARY FY'92-'01

D#/DESCRIPTION		FY'92	FY'93	FY'94	FY'95	FY'96	FY'97	FY'98	FY'99	FY'00	FY'01	TOTAL
-211	Construction Queens 5/5A	34	0	0	0	0	0	0	0	0	0	34
-214	Construction Manhattan Borough Repair Shop	1,060	0	0	0	0	0	0	0	0	0	1060
-215	Construction Bklyn 7/10	2	0	0	0	0	0	0	0	0	0	2
-216	Construction & Reconstr. MTS's	3,874	9,800	5,000	3,000	3,000	2,153	2,185	2,217	2,252	2,288	35,769
-222	Purchase Electronic Data Processing Equipment	1,240	0	0	250	1,600	1,000	0	0	375	0	4,465
-223	Construction Bronx 9 & Borough Repair Shop	0	0	0	0	0	0	0	0	0	0	0
227	Construction Bklyn Borough Repair Shop	0	0	0	0	0	0	0	0	0	0	0
228	Construction Bronx 1/2	0	0	0	0	0	0	0	0	0	0	0
231	Construction Queens 7/11B	0	735	0	0	0	0	0	0	0	0	735
232	Construction Queens 12	0	0	0	0	0	0	0	0	0	0	0
233	Construction Queens 9	0	0	0	0	0	0	0	0	0	0	0
234	Construction SI 1	0	0	0	0	0	0	0	0	0	0	0
241	Construction FMU Facility	200	0	0	0	0	0	0	0	0	0	200
	TOTALS:	208,326	255,548	244,635	150,337	196,859	464,696	477,056	439,297	708,013	164,550	3,309,317
	S-194 (Private)					450,000						
	S-197 (State)					6,000	24,000					

Table 19.4.1-2: Operating Budget for Near-Term Implementation Plan ($M)

OPERATING BUDGET	1993	1994	1995	1996
Waste Prevention	$1.5	$1.5	$1.5	$1.5
Outreach	$9.0	$9.0	$9.0	$9.0
Buyback Centers	$1.23	$1.3	$1.3	$1.3
Composting	$.2	$.2	$.2	$4.8
Curbside Recycling	$35.4	$44.8	$54.2	$63.6
Total Waste Prev & Recycling	$47.4	$56.8	$66.2	$75.6
Incineration	$11.6	$11.6	$11.6	$11.6
Landfill	$33.1	$33.1	$33.1	$33.1

Expanding the curbside collection of recyclables citywide in 1993 and other elements of the recycling program, as provided for in this plan, will require an increase of in excess of $9,000,000 in the operating budget for FY 1994.

Section 19.4.2 Alternative Funding and Administrative Structures.

The Department of Sanitation is evaluating two alternative financing proposals which would secure an independent funding stream for both its capital and operating expenditures. These two proposals are (i) the creation of a Solid Waste Management Authority and (ii) a proposal to amend the New York State Returnable Container Act (the "bottle bill") to allow New York City to collect unredeemed deposits to use for funding of its solid waste management programs. Although both proposals are promising, they require State legislative action which is beyond the City's direct control.

A Solid Waste Management Authority ("SWMA") would be responsible for the planning and administration of all aspects of the management, collection, transportation, processing and disposal of residential and certain institutional solid waste. The SWMA would acquire and finance the facilities and equipment required to provide collection and disposal services. SWMA debt would be serviced through revenues from fees charged for sanitation services.

While this structure needs additional study, particularly in the area of fee structure and fee administration, a SWMA could

provide advantages over an agency structure. The benefits of such a structure would be to: (i) insure that the quality and level of sanitation services would be insulated from annual City budget constraints; (ii) create a more efficient method of expediting program development and construction of solid waste disposal capacity; and (iii) create incentives to manage waste responsibly through quantity-based user fees structured with recycling/reduction credits.

Economic benefits might also result from an authority structure: (i) the overall cost of financing the DOS budget might be lowered as the borrowing rates for the SWMA could be equal or lower than for City General Obligation ("G.O.") bonds; (ii) some of DOS collection and disposal expenses would be removed from the City's operating budget and the City would be relieved from G.O. debt financing and debt service requirements for DOS capital; and (iii) financing savings could result from the SWMA's ability to issue debt outside of New York State constitutional restrictions and outside the auspices of the Local Finance Law which restricts the maturity, structure and credit enhancement of G.O. financing.

Creating a SWMA would require a home rule resolution from the City Council to request state legislation. State legislation would be required to create a public benefit corporation with revenue bonding authority. Pursuant to the State constitutional requirement that the same entity cannot have both rate setting and bond issuance authority (Article 10, Section 5), enabling legislation would create two distinct entities: one which would collect fees and provide solid waste management services and one which would issue debt. Enabling legislation would transfer existing solid waste management assets to the SWMA and delineate various powers, including permitting requirements, zoning requirements and flow control.

A fee structure would be developed based on: the ability to craft volume-based reduction incentives (as technologies develop), citywide uniformity, economic "fairness," ease of implementation, ease of administration and enforceability. Additionally, federal legislation would be introduced to allow the solid waste user fee to be deductible.

The fee structure could include a system for assessing recycling credits. One possible method would be to have the SWMA conduct waste audits upon request to establish whether a building was generating less solid waste and more recyclables than its size would dictate. Waste generation standards would be developed based on the number of units and density area of the property. If the building was exceeding its target, its user fee would be reduced.

The SWMA could receive additional revenues from levying tip fees at various facilities. So long as total system revenues remained adequate to cover system expenses, the SWMA could charge lower tip fees at recycling facilities to create financial incentives for private carters to recycle the maximum amount possible.

The second proposal involves amending Section 27 of the State Environmental Conservation Law (the Returnable Container Act) to permit New York City to retain the unredeemed deposits on beverage containers which are sold in New York City (See also Section 19.3.1.4). This would provide the City with an independent revenue stream that could be specifically earmarked to fund its solid waste programs without additional tax levied dollars. It is estimated that only 50% of all refundable containers are returned. If such an amendment were passed, up to $60 million per year could be made available to the City for solid waste management funding.

CHAPTER 20. PROCEDURES FOR UPDATING THIS PLAN.

20.1 Monitoring Procedures.

Procedures will be designed and implemented to develop and/or monitor the following types of data:

Waste generation and composition. New studies to update the existing one will be required on a regular basis. There are several objectives which future waste generation and compostion studies should serve. They can document waste-prevention impacts. They can determine whether the materials targeted by the recycling and composting programs increase or decrease over time. They can help to design more effective prevention programs if product categories, as opposed to material categories only, are tracked. The existing 1990 generation and composition baseline should be the basis from which waste-prevention progress is measured. Ultimately, measuring waste prevention means measuring how waste-generation rates (either waste per person or waste per employee) change over time. The City can conduct future waste-generation studies using the same subsector residential, institutional and commercial categories that were used in the 1990 study, and thus measure waste-prevention progress on a relatively disaggregated level. Such analyses can determine not only whether the City as a whole is realizing its waste-prevention objectives, but how individual residential, institutional and commercial subsectors are contributing to that outcome. In future composition studies, particular attention should be directed at the identification of product categories that can be used in designing, implementing, and monitoring waste-prevention programs.

Technology developments and use experience. Particularly:

- Post-collection processing systems. Several assumptions have been made throughout this planning process about post-collection processing systems. These include assumptions about the type of material that can be recovered, the percent of each type of targeted material that can be recovered, the marketability of the material, and the equipment and time required to separate each material. In many cases, the experience on which these assumptions were made is not extensive. Several mixed-waste processing systems are currently being developed. The City should design and coordinate a data-collection system for monitoring their operating experience in terms of these issues.

- Bag-breaking systems. As part of the monitoring of post-processing developments, special attention should be given to an evaluation of the bag-opening systems that are currently under development or being used in North America.

Most particularly, the experience with the bag-breaking equipment that is being purchased for use at the East Harlem MRF should be monitored closely.

- Composting technologies. The preferred plan involves composting relatively large volumes of source-separated organic material. Several large-scale mixed-waste composting systems are being constructed in the United States. The City should evaluate the relative impacts of different composting systems with respect to land requirements, composting time, front-end and back-end inorganic separation systems, and market uses. The progress of each of these facilities should be closely monitored by the City as it designs its first organics composting facility.

- Air-pollution-control technologies.

- Ash re-use technologies.

Legislative and Regulatory Developments, particularly:

- Concerning compost systems and the use of compost products.

- Air-pollution controls.

- Use of dewatered dredge spoils.

- Packaging requirements, especially the CONEG source reduction legislation and the MassPirg Recycling Initiative.

- Federal and state secondary-materials-content requirements.

Demographic and Economic Conditions.

- Compare actual vs. projected demographic and economic variables over time and assess the impacts that changes between actual and projected variables have on the overall solid-waste-management system.

Effectiveness of Program Implementation

- Participation and capture rates and residue rates in recycling and composting programs.

- Public-opinion polling to generate information on perceived ease of participation, attitudes and understandings, effectiveness of public information, effectiveness of program design.

Markets.

- Demand levels, prices, grade/specification requirements, technology developments in end-user manufacturing processes. As noted in Chapter 8, increasing market demand will be a central requirement for not only New York City but the entire Northeast, especially with respect to paper, textiles, and plastics. In order to positively affect industry decisions concerning these issues, the City must monitor industry developments associated with them.

20.2 Research and Development Programs.

Research-and-development programs that are designed to maximize the probabilities for successful implementation of programs that match the City's preferred waste-management-system trajectory will be established. In particular, these programs will be designed to test the following system components:

Collection requirements:

- two-compartment compactors: A key finding of this plan is that better collection methodologies will be essential for making the Paper-Textile/Glass-Metal-Plastic High Quality program and the Organics/Refuse program cost-effective; at this point, the use of a two-compartment compacting truck offers more promise than do any other vehicles that have been tested to date. The assumptions that have been made about the use of this truck, which will need to be tested, concern maintenance costs, collection efficiencies, useable volumes, and compaction ratios for different types of material. The City is currently acquiring 10 dual-compacting collection vehicles (with an option to buy 20 more), which will be used to conduct tests to address these issues.

- semi-automated collection systems: Using semi- or fully automated collection systems will be especially important for collection programs in high-density residential and institutional sectors.

- techniques for reducing noise and air emissions.

- collection/relay alternatives: Preliminary findings from this planning process indicate that maximizing the amount of time the collection vehicle stays on the route is an important determinant of cost efficiency. One way of doing this is by returning full trucks to the garage, taking

empties back on the route, and then dumping full trucks during a second, evening shift. Establishing the conditions under which additional truck purchases more than offset additional operating expenses will be a central aspect of minimizing the dual-compacting collection program costs.

Public-information strategies.

Designation of new materials for the recycling and composting programs.

Post-collection processing technologies for recyclables.

Re-use centers: Many non-profit organizations now operate re-use centers in the City. One element of the proposed waste-prevention program involves determining whether and how to expand the existing re-use centers, and whether new forms of re-use centers need to be developed. This research might profit from the establishment of a joint committee of City officials and existing re-use center operators. The research agenda could include the following questions: what are the materials in the waste stream that should be targeted for collection and/or drop-off at the re-use centers; how can re-use centers be encouraged to also repair durable and semi-durable goods; how can markets for the recovered products from re-use centers be expanded, and what role, if any, should the City play in subsidizing, owning, and/or operating an expanded network of re-use.

Buy-back centers: Unresolved questions surrounding the development of a Citywide network of buy-back centers include: how should ownership and operation of the facilities be structured; how can the buy-back centers be structured so that they complement rather than compete with the curbside-collection program for recyclables; and how should the issue of scavenging from curbside material be addressed. The feasiblility of having buy-back centers also served as Household Hazardous Waste drop-off facilities also needs to be researched.

Drop-off systems for recyclables, such as "igloo" systems: Igloo programs could serve either of two functions in the proposed recycling program. They could be set up throughout the city and used to collect glass, thus allowing all other materials to be collected in one bag and eliminating the need for the dual-compacting collection vehicles for the recycling program, although preliminary analysis of this issue suggests that it would be unlikely that a sufficient proportion of the glass could thus be eliminated from the residential waste stream to substantially eliminate the potential for glass-contamination of

paper in a one-compartment compacting truck. A use of igloos that is more likely to be effective would be for the collection of multiple materials from locations with heavy pedestrian or automobile traffic. A research agenda needs to be developed to test both of these potential uses for an igloo-type drop-off system.

Quantity-based user fees: The expansion of the use of quantity-based user fees (the euphonious "Q-BUFs") is one of the central recommendations of the waste-prevention program. Specific programs for implementing Q-BUFs at the residential, institutional and commercial level need to be developed. The major questions which this research needs to answer are described in the waste-prevention report. (Appendix Volume 4.1)

In-vessel composting systems, both large-scale and small-scale (on-site): The preferred plan proposes composting significant quantitities of source-separated organic MSW and sludge. The composting facilities that would process MSW are likely to be sized at between 600 and 1800 tons per day. The high range of these facility sizes is larger than any existing facilities in the U.S. The City needs to establish what impact, if any, this increased size will have on the existing compost technologies. It may also be appropriate to compost some portion of this material in small, decentralized facilities. The City is currently developing a compost facility at Riker's Island for the correctional facility's organic waste stream. This project should be designed to test the viability and cost-effectiveness of small-scale composting systems for large residential complexes or other types of institutional and commercial establishments.

Landfills:

- Techniques for landfill mining.
- Speeding the degredation/decomposition of wastes through techniques such as leachate re-circulation.
- Off-shore landfill-island techniques.

20.3 Public Consultation.

Another procedure for updating this plan will be regular consultation with public bodies, including the Citywide Recycling Advisory Board, governmental agencies, elected officials, and environmental and civic groups.

20.4 Schedule for Updating this Plan.

This plan will be updated every two years. Updates will report progress on planned programs, and present analytical data on the variables that will be monitored, results from the research-and-development programs, updated timelines and decision trees which identify currently-preferred implementation paths, and report environmental data from the monitoring of newly developed and existing waste-management facilities.

20.5 Council Review of Modifications to Plan

Before a modification to this Solid Waste Management Plan that involves the addition or deletion of a facility, or the alteration or discontinuation of any program in the plan that would affect 10 percent or more of the waste stream, is submitted by the Commissioner to the State Department of Environmental Conservation, the Commissioner shall notify the Council, the Council may, within thirty days of the first Stated Council Meeting after such notification, pass a local law which either grants or denies the authority for the submission of such modification. In the event that the Council passes a local law which denies the authority for the submission of such modification and the Mayor disapproves such law, such proposed modifications shall not be submitted until either two-thirds of all the members of the Council have voted whether to repass such local law, or the period within which such repassing may occur has expired, pursuant to section thirty-seven of the Charter. In the event that such local law is repassed by a two-thirds vote of all the members of the Council, such proposed modification shall not be submitted. In the event the Council does not pass a local law within such thirty-day period, which either grants or denies authority for submission of such modification, such modification may be submitted.

20.6 Financing Mechanisms.

In the next update of this plan, the City will provide an evaluation of the financing options cited in Chapter 19 (e.g., a solid-waste-management authority and the use of unredeemed "bottle bill" deposits or other revenue sources as dedicated funding mechanisms) and present its conclusions as to whether to proceed with one or more of these measures, and if so, how it will do so.

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