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COMPREHENSIVE SOLID WASTE MANAGEMENT PLAN

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FINAL COMPREHENSIVE SOLID WASTE MANAGEMENT PLAN

EXECUTIVE SUMMARY

Nearly 50,000 tons of waste and recyclables are collected in New York City each day. Roughly 25% of that total is generated by the City's residents and institutions—waste that is directly managed by the Department of Sanitation (DSNY). The remainder is privately managed and generated by the City's businesses or through construction activities. The system necessary to handle this volume of waste is vast and complex, involving a network of City employees, garages and specialized vehicles, as well as a far-flung array of private haulers, transfer stations and disposal companies.

For years, this complex network converged at the Fresh Kills Landfill in Staten Island. But with the phasing out and ultimate closure of that landfill in 2001, a new network replaced the old: with no remaining in-City disposal options, both residential and commercial waste had to find another home. The result was a new, predominantly truck-based system that relied on a combination of local, land-based private transfer stations and disposal of waste in neighboring states.

This system, while meeting the immediate needs of both commercial and residential waste streams, is unsustainable as a cornerstone of any long-term disposal plan. Perhaps most importantly, the heavy reliance on trucking has impacts on the environment and on local communities along major truck routes. In addition, the costs of this system are rising as nearby landfills fill up and the City is forced to rely on long-haul trucking to more distant landfills.

The Final Comprehensive Solid Waste Management Plan, September 2006, (SWMP) presented here offers a framework for dramatically reducing the number of truck trips and miles associated with disposal of New York City's waste. Simultaneously, it establishes a cost-effective, reliable, and environmentally sound system for managing the City's waste over the next 20 years.

This SWMP does more than simply address the direct challenges of *residential waste* after the closure of Fresh Kills Landfill. Reflecting input from a broad coalition of interests, it proposes meaningful and groundbreaking changes to the City's *recycling* program. Equally importantly, it breaks new ground by recognizing *commercial waste* management as an important public policy

issue and takes concrete steps to begin addressing concerns related to it. Taken together, the three sets of initiatives outlined here—in residential waste management, residential recycling and commercial waste management—will usher in a new era of solid waste stewardship and planning in New York City.

As an introduction to the SWMP, it is important to understand the framework and principles that have guided its development. Specifically, the SWMP attempts to:

- **Recognize the environmental issues surrounding waste:** This SWMP aims to dramatically reduce the number of truck trips and truck miles involved in waste export and to address the traffic, air and noise issues that result from the current truck-based system.
- **Treat each borough fairly:** This SWMP recognizes that—for both commercial waste and DSNY-managed waste—responsibility for the City's waste management system should be allocated equitably throughout the City, in each of the five boroughs.
- **Rely on sound business principles to increase efficiency and reduce cost:** This SWMP uses commercial competition, long-term contracts and containerization technology to control costs, leverage private investment and ensure efficiency for the system as a whole.
- **Be realistic and be able to be implemented quickly:** This SWMP recognizes the need to move swiftly beyond the status quo. To do so, this SWMP takes advantage of existing public and private infrastructure where possible.
- **Look forward, allowing for future innovation:** Although committed to a plan that can be implemented today, the City recognizes that future developments in technology could significantly enhance the management of solid waste. Toward this end, the SWMP outlines a number of studies and pilot projects that will provide the analytical foundation to modify or improve upon its component parts over the next two decades.
- **Be reliable:** The management of waste is critical to the City's physical health and economy. The system needs the flexibility to deal with day-to-day and seasonal changes in waste composition and volume, and must have the required redundancy should one or more of the system's components fail.
- **Be built collaboratively:** This SWMP has benefited from input from community groups, elected officials, environmental advocates and the private sector; and it anticipates that they will continue to participate in its implementation.
- **Maintain service standards:** DSNY provides a high level of service to the City's residents. This SWMP must enable DSNY to maintain or improve current service levels.

AN OVERVIEW OF THE SWMP

Although they have evolved in different ways over the last decade, the systems for managing residential waste, residential recyclables and commercial waste are interdependent. This SWMP recognizes this interdependency and sets out an ambitious strategy to weave together the systems when appropriate, primarily in the context of existing sites and physical facilities owned by both public and private entities.

A brief overview of initiatives on each of the three areas follows. More detailed information about these initiatives, as well as descriptions of the City's specific proposed actions and current programs, are provided in subsequent sections of this SWMP.

RECYCLING

The "reuse" of materials from the City's waste stream has long been a component of the City's solid waste management practices—from the use of material as fill for airports, parks and other building projects to the collection of scrap metal for the war efforts. Despite the unique challenges of recycling in the New York City environment—including the prevalence of high-rise, multi-family dwellings—New York City is a leader in recycling among other large American cities. This SWMP bolsters that leadership position by outlining aggressive but realistic recycling diversion goals, by identifying new recycling education initiatives and by committing to new in-City processing facilities.

The cornerstone of the City's recycling efforts is its curbside program, which currently includes the collection of paper as well as metal, glass and plastic (MGP). The stabilization and strengthening of the existing curbside program, primarily by reducing the program's cost, is the most significant new recycling initiative outlined in this SWMP.

To permanently lower the cost of the program, and to reduce its vulnerability to budget cutbacks, the City intends to commit to a long-term (20-year) contract with the Sims Hugo Neu Corporation for the processing and marketing of MGP, in addition to certain amounts of paper. As with the City's primary, mixed-paper contract with Visy on Staten Island, the long-term

contract for MGP: shifts market risk for commodity prices to the private sector; attracts the investment of millions of dollars of private capital in the infrastructure needed to process and export these recyclables; and gives our private-sector partners the commitments they need to be able to effectively market these materials.

A significant element of this new arrangement will be the development of an MGP processing facility in the City. The SWMP proposes development of such a facility at the 30th Street Pier in the South Brooklyn Marine Terminal. The new processing plant will be primarily barge-fed from Hugo Neu Corporation sites in Queens and the Bronx and a potential DSNY location in Manhattan; recyclable materials from Brooklyn will be delivered directly by DSNY trucks. (Recyclables from Staten Island will likely continue to be trucked to the Sims Hugo Neu Corporation's facility in New Jersey.) Processed materials will leave the plant by barge.

In addition to this long-term contract, DSNY is committed to a number of other initiatives that will strengthen, expand and grow its recycling and prevention efforts. Those efforts include working with the City Council to set percentage targets for recycling, using market research to enhance public education on recycling, establishing a Composting Siting Task Force, establishing an Office at the Council on the Environment of New York that will perform recycling, waste prevention and composting outreach and education, developing a recycling education and export center in Manhattan, developing a public space recycling pilot and targeting specific components of the waste stream, like plastics, electronics, Household Hazardous Waste (HHW) and yard waste.

Through the above-outlined initiatives, the City is committing to achieving a 25% diversion of recyclables through its curbside program by 2007. Though ambitious—representing a substantial increase over current diversion rates—this SWMP includes the steps required both to meet this new diversion goal and to eventually set even more ambitious ones. Moreover, by putting the curbside program on solid economic footing, this SWMP ensures that the City will realize significant cost savings, over $20 million a year. Finally, by establishing a largely water-borne network for transportation of recyclables within and from the City, this SWMP minimizes the truck-traffic associated with the City's recycling efforts.

RESIDENTIAL WASTE

The City began to phase out use of the Fresh Kills Landfill in 1997, with the intention of addressing the inequity of a system that burdened one community with the disposal of all the City's residential waste. In the years leading up to its closure in 2001, with no alternative in-City disposal capacity, DSNY entered into short-term, interim contracts with private companies for the disposal of 100% of the residential waste stream—over 12,000 tons per day.

While the closure of the Fresh Kills Landfill relieved Staten Island of its unequal burden, it had far-reaching operational and physical consequences. Disposal of residential waste at Fresh Kills Landfill had historically relied on a network of in-City Marine Transfer Stations (MTS), where locally collected waste was transferred to barges and moved by water to the landfill. By contrast, the interim system relied heavily on long-haul trucks as the primary means for transporting the City's waste from local transfer stations serving DSNY vehicles to final destinations out of state.

The City has long recognized the importance of moving quickly to develop a more permanent system of waste export, to address both the rising costs of nearby landfill disposal as well as the environmental impact of the current truck-dependent system. In July of 2002, Mayor Bloomberg announced a plan to establish a system that would take advantage of the City's waterways and existing infrastructure. The plan called for the physical conversion of the City's MTS network, to enable waste to be containerized on site, making it suitable for long-haul disposal.

The long-term export components of the SWMP outlined here build on the Mayor's previously announced plan, ensuring that the primary goals of the original plan are met, but offering an expedited timeframe, a lower cost and reduced reliance on the complex facility conversions outlined initially. At its heart are the two main principles of the Mayor's earlier plan: the containerization of waste and the long-distance export of that waste in containers by barge or rail.

The improvements outlined here stem largely from the identification of existing private infrastructure to be used in lieu of certain MTS facilities. To evaluate the cost and feasibility of using private sites for transfer, DSNY issued Requests for Proposals (RFPs) for disposal of waste

from the Bronx and Greenpoint wastesheds. These RFPs required all waste to be containerized and exported by barge or rail. Concurrently, DSNY issued an RFP to solicit proposals on transport and disposal of containerized waste at the converted MTSs. The City also began evaluating the possibility of continuing to rely on available capacity at nearby waste-to-energy facilities.

These steps were instrumental in the development of the program outlined below:

Brooklyn	▪ For the Brooklyn wasteshed formerly served by the Greenpoint MTS, enter into a long-term contract with one or two private transfer stations for truck-to-rail or truck-to-barge disposal. ▪ For the Brooklyn wasteshed formerly served by the Hamilton Avenue MTS, develop a City-owned converted MTS on the same site, where waste will be received, containerized and exported by barge. ▪ For the Brooklyn wasteshed formerly served by the Southwest Brooklyn MTS, develop a City-owned converted MTS on the same site, where waste will be received, containerized and exported by barge.
Bronx	▪ For the entire Bronx wasteshed, enter into a long-term contract with one or two private transfer stations for truck-to-rail disposal.
Manhattan	▪ For the Manhattan wastesheds formerly served by the West 135th Street MTS and the West 59th Street MTS, enter into a long-term service agreement with the Port Authority for the use of the Essex County Resource Recovery Facility in Newark, New Jersey to receive and process waste. ▪ For the Manhattan wasteshed formerly served by the East 91st Street MTS, develop a City-owned converted MTS on the same site, where waste will be received, containerized and exported by barge.
Queens	▪ For the Queens wasteshed formerly served by the Greenpoint MTS, enter into a long-term contract with a private transfer station for truck-to-rail or truck-to-barge disposal. ▪ For the Queens wasteshed formerly served by the North Shore MTS, develop a City-owned converted MTS on the same site, where waste will be received, containerized and exported by barge.
Staten Island	▪ For the entire Staten Island wasteshed, complete construction of the Staten Island transfer facility to be used for receipt, containerization and truck-to-rail disposal. A long-term contract for rail transport and disposal services was awarded to Allied Waste Services, Inc. in June 2006.

For the four wastesheds that will be served by City-owned MTSs, the City will enter into 20-year service agreements with one or more private waste management companies to accept the containerized waste, transport it by rail or barge and dispose of it. Because the City has determined that it would be in its best interests to seek proposals that enable DSNY not to rely on a single facility to handle containers from the MTSs, provided that the use of more than one transloading facility is operationally and technically feasible. As a result, in contracting with a vendor or vendors to handle the City's MTS containerized waste, DSNY has issued a request for Best and Final Offer (BAFO) that seeks proposals on alternative facilities at which waste from the MTSs can be transloaded and, subject to certain limitations, DSNY has agreed to not contract to transload annually more than 75% of the containers generated at the MTSs at any single in-city transloading facility.

DSNY will establish Community Advisory Groups that will exist for ten years in the respective Community Districts that host Converted MTSs. These groups will represent community boards, environmental and environmental justice organizations, business organizations, property owners, other local community groups and concerned members of the general public and will advise the Mayor and other elected officials on the development, construction and operation of the Converted MTSs.

These actions will ensure that the City's residential waste will no longer be dependent on a land-and truck-based transfer and disposal network. By moving to a system built around barge and rail export, many of the system's current community impacts will be eliminated. At the same time, as landfill capacity in neighboring states continues to dwindle, forcing the City to rely on longer-range export, a rail- and barge-based system will ensure reduced transportation costs and better long-term economics for the system as a whole. Finally, because this SWMP requires fewer MTS conversions, it will require a lower investment of City capital and can be implemented on an expedited timetable.

COMMERCIAL WASTE

Commercial waste disposal is as significant in terms of volume and complexity as its residential counterpart, though the degree of interrelationship between the collection of commercial and residential waste in the City has varied over time. Through the first half of the 20th century, there was hardly a distinction between the two: DSNY collected and disposed of all City waste, commercial and residential. The current division of labor—with DSNY taking responsibility for residential waste and private haulers for commercial waste—was established in the late 1950s. But because private haulers took advantage of the low-cost option of disposing at the City's landfills, both residential and commercial waste continued to depend on the same ultimate disposal location.

During the late 1980s, concerns about preserving capacity at the Fresh Kills Landfill caused the City to dramatically raise rates for private haulers to tip there. With the economics of their business changed dramatically, these private haulers began building up a network of in-City transfer stations, points from which waste from local collection trucks was transferred to long-haul trucks for export outside of the City. With the establishment of this all-private system, the City's commercial and residential waste was completely segregated for the first time.

The closure of the Fresh Kills Landfill in 2001 once again resulted in the commingled disposal of commercial and residential waste, only now the relationship was reversed. Where the private haulers once relied on the City's disposal infrastructure at the Fresh Kills Landfill, the City was now to be reliant on the transfer stations and landfills of the private sector. As the phased closure of the Fresh Kills Landfill was achieved, from 1997 to 2001, DSNY-managed waste was injected into the private system of transfer stations, landfills and waste-to-energy facilities.

With the addition of the DSNY-managed stream, traffic from trucks serving existing private transfer facilities grew. This growth in traffic occurred mainly in a small number of communities that, as a result of the City's industrial zoning requirements and transportation logistics, were home to the greatest share of transfer stations. The quality of life in these communities was affected as a result.

This SWMP proposes three broad categories of action to address these commercial waste issues by: improving conditions at and around the transfer stations that currently serve as the lynchpin of both public and private networks; facilitating the private commercial waste industry's transition from a network that is heavily reliant on trucks to one that relies primarily on barge and rail; and developing a sound approach to redistribute private transfer capacity from a small number of communities that have the largest proportion of the system's impacts. To meet those three goals, DSNY will undertake the initiatives described below.

First, to improve conditions in and around private transfer stations, the City proposes three major initiatives:

To improve conditions at the stations themselves, DSNY has amended its existing rules governing their operation and maintenance. More stringent operation and maintenance requirements as well as additional enforcement measures minimize the environmental impacts of transfer station operations. As an example, the amendments for the first time place restrictions on air emissions coming from stationary equipment and non-road vehicles operated at transfer stations and also require installation of state-of-the-art odor control equipment at all putrescible transfer stations. Enforcing these new rules will require additional funding, and as a means of obtaining this funding, DSNY proposes to increase the permitting fees that transfer stations pay. Increased fees will fund the hiring of new personnel with technical expertise as well as the training of inspectors to issue violations for unlawful air emissions.

To improve conditions around the stations, DSNY has amended the siting regulations for private waste transfer stations. For the first time, these rules place restrictions on both the siting of new solid waste transfer stations and the expansion of existing facilities, taking into account appropriate buffer zones between transfer stations and sensitive locations such as residential districts, parks and schools. These new rules also limit the number of transfer stations that can be located in M1 areas in any given community district and they will encourage the development of transfer stations that export waste by rail or barge.

Also as a means of improving conditions around transfer stations, and as a direct result of community input received during the environmental review of this SWMP, DSNY proposes specific actions to address issues related to truck traffic. Although the majority of the commercial waste transfer stations are well buffered from conforming residential uses, the truck traffic generated by these facilities often passes through residential areas, even when those trucks are using designated truck routes. DSNY will work with the Department of Transportation to conduct a traffic analysis to study the feasibility of redirecting truck routes in key affected communities away from commercial thoroughfares that pass through these residential areas. To help develop and evaluate alternative truck routes, community advisory groups will be established and industry representatives and the City Council will be consulted.

Second, because the transition from a truck-based commercial waste network to a barge- and rail-dependent system is a critical component of an environmentally responsible Solid Waste Management Plan, the City commits to using its existing waterfront infrastructure as well as the leverage of its own long-term contracts to support that shift. In Manhattan, where over 40 percent of the City's commercial waste originates but no private putrescible transfer stations are located, the DSNY proposes to issue a procurement to assess the feasibility of providing its West 59th Street MTS for use by the private sector as a transfer station for commercial waste. In addition, the City will evaluate ways to encourage the movement of commercial waste through the MTSs that will be converted as part of the long-term export plan outlined earlier. And in areas where long-term export contracts with private transfer stations will eliminate the need to convert an existing MTS, DSNY will encourage those private facilities to export all waste—not just the City's waste—by barge or rail.

Finally, the City will seek to limit or redistribute commercial waste capacity from communities with the greatest number of transfer stations, once a portion of the MTS infrastructure can be made available for commercial waste. Because the MTS conversions will have the effect of creating significant new putrescible capacity across the City, capacity can be reduced in targeted areas without straining the system. To achieve this proposal, DSNY will work with community groups, the industry and the City Council.

For the first time since responsibility for commercial waste was shifted to the private sector, the City is proposing a coordinated and comprehensive approach to addressing the environmental issues associated with the current system of managing commercial waste. By committing not just to increased regulation and planning but also to the use of City-owned infrastructure, this SWMP will ensure that the impacts of the commercial waste system are more evenly distributed throughout the City and that private waste transfer stations, wherever they may be located, will have a reduced impact on their surrounding communities.

OTHER INITIATIVES

DSNY is also committed to a number of other initiatives that span the three areas outlined above. These initiatives include taking important steps to continue to improve the environmental performance of its fleet, evaluating alternative waste disposal technologies, and conducting the research required to better understand the composition of the City's waste stream.

DSNY is a national leader in municipal alternative fuels research and testing, and is currently ahead of both federal and City schedules in converting its entire fleet to ultra-low-sulfur diesel (ULSD). In 2001, DSNY was the first City agency to pilot the use of ULSD and it is now proud to be the first City agency to provide ULSD to its entire fleet. As another example, DSNY recently procured 26 new compressed natural gas (CNG) collection-trucks.

DSNY has also evaluated the costs and benefits of other fuel and technology alternatives for use in its fleet vehicles, including biodiesel, fuel cells, propane, ethanol, methanol, and hybrid electric vehicles. While none were deemed to be as immediately promising and cost-effective as the clean diesel and natural gas options, DSNY will continue to assess these new technologies as they evolve.

In addition to its efforts to improve the environmental performance of its fleet, the City has also committed to the ongoing, long-range planning that a comprehensive solid waste management framework requires. Towards that end, the City recently conducted a research project to study

the viability of composting, and performed an evaluation of other new and emerging waste management technologies, including gasification and anaerobic digestion. While this study concluded that no one technology is ready to handle the entirety of the City's waste stream in the near term, a Phase II investigation is underway and appropriate pilot projects are being identified.

The City does not permit the use of commercial food waste disposals. However, because of the potential of food waste disposals to reduce the amount of putrescible commercial waste, the City of New York Department of Environmental Protection, with support from DSNY and the New York City Economic Development Corporation, will undertake a study of the costs and benefits of a limited use of food waste disposals in a defined area of the City.

Finally, the City is in the process of updating its existing waste composition data, and undertook a comprehensive, four-season waste characterization sort during 2004 and 2005. The level of detail and range of waste streams examined is unprecedented among municipal waste characterization studies in the United States. As a result of this study, the City will be able to: determine whether additional materials may be appropriate for recycling; improve public education efforts; inform DSNY operations, including equipment procurement, facility construction, and collection route structure; and provide an understanding of how the City's waste stream has changed over the past decade. The report is expected to be available in FY 2007,

SUMMARY

As a whole, this SWMP outlines a new framework for waste management in New York City. As its starting point, it sets ambitious recycling goals and, by establishing the systems and public education necessary to reach those goals, ensures that the City will be putting an increasing percentage of its waste stream to beneficial use. In doing so, New York will not just be exporting in a manner that is cost-effective, environmentally responsible, and sensitive to its local communities: it will simply be exporting less.

Equally as important, this SWMP eliminates the City's reliance on a network of land-based transfer stations and long-haul trucking to export residential waste, and in doing so begins to address the community impacts of the current network. But the SWMP goes further: by taking bold actions with respect to commercial waste, it seeks to eliminate the impact of trucks wherever possible. In doing so, this SWMP begins to address the larger challenge of the City's waste system as a whole, public and private, and offers a new standard by which the City will measure its progress.

RECYCLING

Initiatives

- Institute a 20-year contract for MGP stream, including the construction of a privately financed processing facility at South Brooklyn Marine Terminal.
- Pilot expansion of the MGP Program to include more plastic types.
- Enhance waste prevention programs.
- Enhance composting initiatives.
- Work with the City Council to set percentage diversion goals for recycling.
- Use market research to enhance public education on recycling.
- Develop a public space recycling pilot and an electronics recycling legislative initiative.
- Develop an HHW program.
- Establish a recycling education and export center at the Gansevoort Peninsula or at an alternative Manhattan MTS site
- Establish a Composting Facility Siting Task Force
- Establish the Council on the Environment Office on waste prevention, composting and recycling outreach and education.

Goals

- A 25% diversion of residential recyclables (through DSNY's curbside collection program) by 2007.
- A 70% recycling diversion rate for the City's combined residential and commercial waste stream by 2015.
- Greater awareness of, and participation in, recycling efforts.
- A stable, 20-year, curbside program for collecting recyclable paper and MGP.
- An infrastructure for processing, marketing and exporting recyclables.
- Utilization of the City's waterways, not long-haul trucks, for the transportation of recyclables.
- A reduction in the price for processing MGP from the curbside program, from the over $100 per ton proposed in 2002 to about $53 per ton.
- New jobs and economic development along the Brooklyn waterfront.

RESIDENTIAL WASTE

Initiatives

- Pursuant to already-issued RFPs, negotiate agreements for the private export of containerized waste by barge and rail in the Bronx and in the Brooklyn and Queens wastesheds formerly served by the Greenpoint MTS.
- Pursuant to an already-issued RFP, negotiate agreements for the private transport and disposal of containerized waste from the converted MTSs.
- Begin operation of the Staten Island transfer station and implement the long-term service contract awarded to a vendor in June 2006 for the transport and disposal of containerized waste from that facility.
- Based on parameters established under an existing interim contract with the Essex County resource recovery facility, negotiate a long-term government-to-government agreement with the Port Authority for the use of disposal capacity at that facility.
- Move forward on the design (currently 90% completed), land use approvals, permitting and conversion of the East 91st Street, North Shore, Hamilton Avenue and Southwest Brooklyn MTSs.
- Establish Community Advisory Groups for the Converted MTSs.
- Through the BAFO request, seek proposals on alternative facilities at which containerized waste from the MTSs can be transloaded.

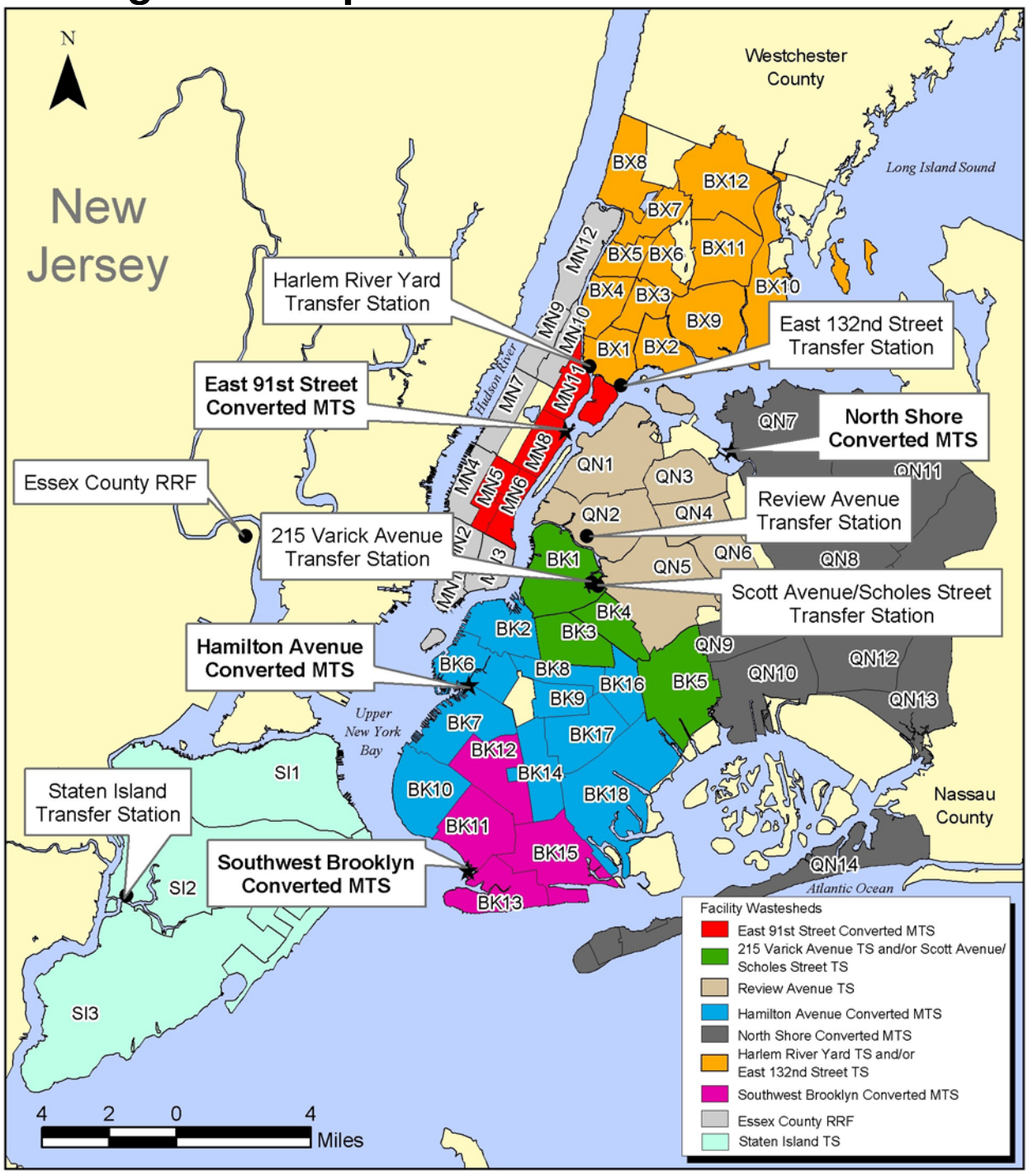
Goals

- Eliminate the use of long-haul trucks for the transport of DSNY-managed waste.
- Stabilize the long-term economics of waste export.
- Reduce the capital cost of the original MTS reactivation plan.
- Expedite move away from interim contracts.
- Provide multiple disposal options, including multiple landfills and a resource recovery facility.
- Maximize transportation flexibility via a shift to containerization.
- Promote the participation of Converted MTS host communities.
- Ensure equitable distribution of waste handling facilities across the City.

COMMERCIAL WASTE

Initiatives
▪ Redistribute/limit capacity in the communities with the greatest concentration of transfer stations. ▪ Implement new siting regulations. ▪ Enforce new operational regulations. ▪ Perform a traffic analysis to reduce transfer trailer traffic on selected truck routes. ▪ Increase and restructure fees associated with transfer station permits, with proceeds to be used for training and enforcement of new regulations. ▪ Issue a procurement to assess the feasibility of providing the West 59th Street MTS for commercial waste and continue to seek new transfer station sites in Manhattan. ▪ Leverage DSNY export contracts for barge and rail export of commercial waste. ▪ Conduct a Commercial Food Waste Disposal Study
Goals
▪ Expansion of barge and rail export of commercial waste. ▪ Redistribution of commercial waste flow. ▪ Reduction in noise, odor and dust conditions at private waste transfer stations. ▪ Enhancement of DSNY-enforcement of private transfer stations. ▪ Minimize truck trips associated with disposal of Manhattan's commercial waste. ▪ Lessen impact of truck routes serving transfer stations. ▪ Understand the potential costs and benefits of a limited use of food waste disposals. ▪ Limit siting of new facilities in communities with the greatest concentration of transfer stations.

Long-Term Export Facilities and Wastesheds



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GLOSSARY

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ACRONYMS	
USACE	United States Army Corps of Engineers
BAFO	Best and Final Offer
BIC	Business Integrity Commission
BWPRR	Bureau of Waste Prevention, Reuse and Recycling
C&D	construction and demolition debris
CDs	Community Districts
CENYC	Council on the Environment of New York City
CEQR	City Environmental Quality Review
CNG	compressed natural gas
DEIS	Draft Environmental Impact Statement
DSNY	New York City Department of Sanitation
EBUF	enclosed barge unloading facility
FEIS	The Final Environmental Impact Statement prepared to support the adoption/approval of the New SWMP
FWD	food waste disposals
FY	Fiscal Year
HHW	Household Hazardous Waste
LL 19	Local Law 19 of 1989
LL 74	Local Law 74 of 2000
LL 87	Local Law 87 of 1992
MGP	metal, glass and plastic defined as Recyclables by DSNY
MRF	material recovery facility
MSW	municipal solid waste
MTS	marine transfer station
N/A	Not Applicable
NY	New York State
NYC	New York City
NYCDEP	New York City Department of Environmental Conservation
NYCDOT	New York City Department of Transportation
NYCDPR	New York City Department of Parks and Recreation
NYCEDC	New York City Economic Development Corporation
NYCRR	New York Codes, Rules and Regulations
NYMTC	New York Metropolitan Transportation Council
NYSDEC	New York State Department of Environmental Conservation
PIU	DSNY's Permit and Inspection Unit

ACRONYMS	
RCNY	Rules of the City of New York
RDF	refuse derived fuel
RFEI	Request For Expressions of Interest
RFI	Request for Information
RFP	Request for Proposals
RRF	Resource Recovery Facility
SBMT	South Brooklyn Marine Terminal
SEQRA	State Environmental Quality Review Act
SHN	Sims Hugo Neu Corporation
SWMP	Final Comprehensive Solid Waste Management Plan, September 2006
tpd	tons per day
tpy	tons per year
TS	Transfer Station
ULSD	ultra-low-sulfur diesel
USEPA	United States Environmental Protection Agency
WCS	Waste Characterization Study

DEFINITIONS	
1992 SWMP	The City's first Comprehensive Solid Waste Management Plan, approved by NYS DEC in 1992
1996 SWMP	The update and modification to the 1992SWMP, approved by NYSDEC in 1996
2000 SWMP	The modification to the 1992 SWMP, adopted by the City Council in 2000 and approved by NYSDEC in 2001
Administrative Code	Administrative Code of the City of New York
Alternative(s)	An alternative to the Proposed Action evaluated in the SWMP DEIS
Biosolids, Medical Waste and Dredge Spoils	Waste that is not DSNY-managed Waste, discussed in Attachment V
Bureau of Cleaning and Collections	The DSNY Bureau that collects the residential and institutional components of DSNY-managed Waste, and cleans and removes snow from City streets
Bureau of Planning and Budget's Operations Management Division	The DSNY Bureau that provides budget and planning oversight of DSNY operations
Bureau of Waste Disposal	The DSNY Bureau that manages waste export
C&D debris	Waste from construction-related activity that is defined as Non-Putrescible Waste in the DSNY Rules

DEFINITIONS	
City	New York City
City Council	The legislative body of the City of New York
Commercial Waste	The wastes, including recycled material, generated in the City by business establishments and construction activity and collected by private carters that are respectively defined in the DSNY Rules as Putrescible Waste and Non-Putrescible Waste
Containerized Waste	Waste loaded into intermodal containers that can be carried on rail cars or barges
Converted MTS	One of DSNY's four marine transfer stations that are elements of the Proposed Action and which would be modified to containerize waste for out-of-City export by barge or rail
Curbside Recycling Program or Curbside Program	The collection of source-separated paper and metal, glass and plastic (MGP) designated by DSNY as Recyclables from residences, City agencies and non-profit institutions housed in tax-exempt property
Curbside MGP Program	The collection of metal, glass and plastic Recyclables through the Curbside Program
Curbside Recyclables	Paper and MGP collected through the Curbside Program
CWM Study	The Commercial Waste Management Study mandated by LL 74 and issued by DSNY in March 2004
DSNY-managed Waste	Solid waste that DSNY collects from all residential households in the City, waste collected by other DSNY operations, such as lot cleaning and self-help drop-off, and the institutional waste of City, state and federal agencies and non-profit institutions that DSNY collects and/or for which DSNY arranges disposal
Essex County RRF	Essex County Resource Recovery Facility in Newark, New Jersey
Existing Programs	Ongoing programs approved in the 1992 SWMP, as amended, that will continue under the SWMP
Fill Material	A category of Non-Putrescible Waste defined in the DSNY Rules that is processed and stored at Fill Material Transfer Stations in the City
Fill Material Transfer Station	A facility permitted by DSNY to process Fill Material
Food Center	Hunts Point Food Distribution Center
Fresh Kills Closure Construction and End Use program	The program described in Attachment X of the SWMP

DEFINITIONS	
Golden Apple Awards Program	Encourages waste prevention, recycling and neighborhood cleanup efforts in City schools through cash awards and the recognition of achievements
Interim Export	Short-term DSNY contracts with in- and out-of-City transfer stations and out-of-City disposal sites for export of DSNY-managed Waste
Long Term Export Program	Those SWMP facilities and services that will, to the extent practicable, provide for the containerization of DSNY-managed Waste and its export from the City by barge or rail
Marine Transfer Station (MTS) Conversion Program	The design, permitting and construction activities to develop, at existing MTS sites, facilities to containerize waste for long-term export
Milestones	A schedule of activities to implement the Proposed Actions and New Initiatives
MTS RFP, MTS Containerization RFP	DSNY's Request for Proposals to Transport and Dispose of Containerized Waste from One or More Marine Transfer Stations, issued December 22, 2003
New Initiatives	New activities described in the SWMP that are enhancements to Existing Programs
Non-Putrescible Commercial Waste	Inert waste generated from commercial and residential demolition, new construction and renovation projects, comprised of inorganic materials, some of which are recycled. The non-recycled fraction is processed by the City's Non-Putrescible Transfer Stations for shipment to disposal facilities. This waste is also referred to as construction and demolition (C&D) debris to distinguish it from Fill Material, which is a subset of Non-Putrescible Waste comprised of materials such as excavated fill, stone rubble and road millings that are graded into materials such as sand and aggregate and stockpiled at Fill Material Transfer Stations in the City and reused in other building projects.
Non-Putrescible Waste Transfer Station	A facility permitted by DSNY to process Non-Putrescible Waste
Paper	Material made of paper that DSNY defines as a Recyclable
Proposed Action	An action to be implemented under the SWMP that is subject to environmental review
Public Repositories	The locations identified in Attachment XII where copies of the SWMP are available for public review

DEFINITIONS	
Putrescible Commercial Waste	Material generated by business establishments and collected by private carters in the City that may be delivered to putrescible transfer stations or recycled, which may contain organic matter
Putrescible Waste Transfer Station	A facility permitted by DSNY to process Putrescible Waste
Recyclables	Materials defined by DSNY as recyclable such as Paper and MGP
Rules	Rules of the City of New York
Special Waste	Materials that are a subset of Household Hazardous Waste
Preliminary Waste Characterization	First recyclables and refuse waste characterization since 1989/90 study, based on sorts conducted in May and June of 2004
SWMP	The Final Comprehensive Solid Waste Management Plan for the period 2006 through 2025 prepared pursuant to 6 NYCRR Part 360-15
Visy	Visy Paper (NY) Inc. or Visy Paper Mill located in Staten Island
Waste Prevention and Recycling Program	Activities undertaken by DSNY to cause or promote the prevention, reuse, recycling or composting of waste

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1.0 INTRODUCTION

This Final Comprehensive Solid Waste Management Plan, September 2006, (SWMP) establishes the structure of New York City's (City's) solid waste management for the next 20 years, 2006 through 2025. In doing so, it builds on the ongoing programs to prevent, reuse, recycle and compost waste, among other programs, that have their foundation in the 1992 SWMP, as amended[1] pursuant to the requirements of the New York State Solid Waste Management Act. [2]

As a comprehensive planning document, this SWMP addresses the three distinct but interconnected areas that make up the City's solid waste management system: Waste Prevention and Recycling, Long Term Export and Commercial Waste. Each of these areas is addressed separately in Sections 2.0, 3.0 and 4.0 of this document respectively, and a glossary provides the definition of the terms used throughout.

Within those sections, this SWMP describes Proposed Actions to:

- Improve the City Department of Sanitation's (DSNY's) Curbside Recycling Program through the award of a 20-year processing contract and the development of a new in-City Recyclables processing facility, as well as a Manhattan Recyclables acceptance facility.
- Implement the City's Long Term Export Program through: (i) the development of four Converted Marine Transfer Stations (MTSs); (ii) the award up to five contracts with private transfer stations for barge or rail export of DSNY-managed Waste for disposal; and (iii) an intergovernmental agreement to dispose of a portion of Manhattan's DSNY-managed Waste at a Port Authority waste-to-energy facility in New Jersey.
- Provide the capacity for barge export of Putrescible Commercial Waste from the City at one existing Manhattan MTS as well as the four Converted MTSs.

[1] The state approved the City's first SWMP in 1992. A 1996 SWMP Update and Modification focused on the expansion of recycling. A 2000 SWMP Modification defined the phased closure of Fresh Kills Landfill. In 2002, the 1992 SWMP was extended through October 2004. The 1992 SWMP, as amended, is hereby incorporated by reference to support ongoing SWMP programs.

[2] New York State Environmental Conservation Law (Section 27-0707) and implementing regulations (6 NYCRR Subpart 360-15).

Because these Proposed Actions are subject to environmental review, a Final Environmental Impact Statement (SWMP FEIS) published in April 2005 supports this document. The SWMP FEIS evaluated the Proposed Actions as well as a reasonable range of Alternatives. The DSNY is the lead agency for this FEIS, which is available for public review and comment.[3]

In addition to the Proposed Actions, the Waste Prevention and Recycling and Commercial Waste sections also outline important New Initiatives that are enhancements to Existing Programs. Those New Initiatives include significant improvements to DSNY's Recycling Program and the strengthening of its ongoing regulation and enforcement activities in the Commercial Waste sector. As enhancements to Existing Programs, these New Initiatives continue an array of ongoing solid waste management programs authorized under the 1992 SWMP, as amended. In the case of the proposed New Initiatives for Commercial Waste regulations, these have independent utility and are being implemented separately.

The SWMP also characterizes the City's existing solid waste management system which:

- Recycles or disposes of approximately 15,500 tons per day (tpd) or 4,000,000 tons per year (tpy) of DSNY-managed Waste generated in the City by its curbside and containerized collection and recycling activities in FY 2006;
- Recycles or disposes of approximately 10,000 tpd (3,000,000 tpy) of Putrescible Commercial Waste that was generated, and approximately 6 million to 8.3 million tpy of Non-Putrescible Commercial Waste that was generated, recycled and disposed of in calendar 2003[4]; and
- Provides for the management of Biosolids, Medical Waste and Dredge Spoils and Fresh Kills construction and end use.

Section 5.0 describes significant planning initiatives that DSNY is engaged in, including pilot programs and studies.

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[3] The FEIS was mailed to Involved Parties, and is available for public review on DSNY's website nyc.gov\sanitation and at Public Repositories in Attachment XII. It can be obtained from DSNY Bureau of Long Term Export by calling (917) 237-5520. The FEIS was prepared in accordance with the requirements of the State Environmental Quality Review Act (SEQRA) regulations (6 NYCRR Part 617) and the City Environmental Quality Review (CEQR) procedures in Executive Order 91 of 1977, as amended, and Section 6, Title 62 of the Rules of the City of New York (RCNY).

[4] As reported in the Commercial Waste Management Study, March 2004.

In addition to those main sections, there are a number of attachments to this document:

- Attachment I, "Planning Unit," provides current and relevant socioeconomic, demographic and institutional data for the City.

- Attachment II, "DSNY-managed Waste Quantities and Projections for the Plan Period," provides a narrative and tabular summary of historical waste generation for the fiscal years 2002 through 2006, projects future waste growth through the fiscal year 2026, outlines the planning period of the SWMP and projects the diversion rate for DSNY-managed Waste recycled.

- Attachment III, "Waste Characterization Activities," reports on the various composition studies, dating back to 1990 and continuing forward into the future, that inform DSNY's ongoing planning.

- Attachment IV, "Commercial Waste Quantities and Projections for the Plan Period," provides a narrative and tabular summary of historical waste generation for the years fiscal years 2002 through 2006 and projections of future waste generation for fiscal years 2007, 2010, 2015, 2020 and 2026.

- Attachment V describes the management of Biosolids, Medical Waste and Dredge Spoils, materials managed separately from municipal solid waste (MSW).

- Attachment VI summarizes the status of existing Recycling Programs, including a summary of public education activities, water prevention coordinator initiatives and special waste management programs.

- Attachment VII discusses the rationale for amending Local Law 19 of 1989 (LL19).

- Attachment VIII reports on DSNY's refuse and recyclables collection operations and Interim Export contracting, provides the certification of disposal capacity required under Part 360-15.11 and provides updates on certain other DSNY programs.

- Attachment IX summarizes the status of Existing Commercial Waste Programs, identifies the City's currently permitted Putrescible, Non-Putrescible and Fill Material Transfer Stations and describes DSNY's regulatory role in the Commercial Waste sector, in addition to reporting on the Commercial Waste Management Study (CWM Study), completed in March 2003.

- Attachment X describes the status of Fresh Kills Closure Construction and End Use program as of FY 2006.

- Attachment XI presents an economic analysis of the SWMP as required in NYSDEC's regulations governing comprehensive solid waste planning (6 NYCRR 360-15.9).
- Attachment XII is a list of Public Repositories where the FEIS and the permit applications for the Converted MTSs are available for public review.

2.0 WASTE PREVENTION AND RECYCLING

2.1 Introduction

This section provides recent background on the recycling program and describes the Proposed Actions for Recycling, identifying the new facilities and services that would be developed as well as existing facilities that would continue to provide service. It also describes the New Initiatives that would be undertaken under Existing Programs and refers the reader to Attachment VI, which provides more detailed information on Existing Programs for recycling and waste prevention.

2.2 Background

The City's waste prevention and recycling programs have evolved dramatically from their inception in the 1980s. Recycling had its origins in fledgling voluntary programs that initially served only a small portion of City residents, and was transformed into a comprehensive and rapidly maturing enterprise. Over the years, DSNY established an array of programs to promote reduction, reuse and recycling of wastes generated by residents, businesses, government agencies, schools and institutions.

Through Fiscal Year 2006, DSNY collected and recycled metal, glass and plastic (MGP) and Paper materials sufficient to divert 16.5% of the City's residential and institutional (curbside/containerized) waste stream from disposal. The program flourished in many respects, and compared favorably with other major cities throughout the United States. (See Appendix A for "New York City Recycling in Context.")

On July 1, 2002, the City's recycling program incurred budget cuts in the aftermath of the events of September 11 and the subsequent economic recession. This resulted in the temporary suspension of glass and plastic recycling, and as a result diversion rates suffered. However, plastic and glass recycling were restored in Fiscal Year (FY) 2003 and FY 2004, respectively, and funding for composting and other services was restored in FY 2005. A program that provides weekly pick up of Paper and MGP to every household in the City is now in place.

To implement this priority, cost-effective waste prevention and recycling programs are now an even greater priority. To reflect this priority, this SWMP outlines a series of actions and initiatives that will redouble the City's commitment to its current recycling program and set ambitious new goals to

keep the City moving on a path towards even greater diversion in the future. Specifically, based on new waste composition data, DSNY recommends that the City set a 70% diversion goal for the combined Commercial and DSNY-managed Waste stream to be achieved by 2015.

As a foundation upon which to build the programs that will achieve this goal, the City will commit to a 20-year contract for processing MGP. This long-term commitment will facilitate the development of state-of-the-art processing infrastructure in the City, which in turn will generate the consistent streams of materials necessary to foster reliable secondary materials markets. The 20-year contract also ushers in a new era of waterborne transportation of Recyclable materials, mirroring the transportation goals of this SWMP as a whole.

This section begins by describing the Proposed Actions, or actual facility development that will occur over the planning period with regards to recycling. It then goes on to present New Initiatives under development or being planned to maintain and enhance the City's prominence as a national leader in waste prevention, recycling and composting. It also provides an update of activities in these areas that have occurred subsequent to the issuance of the 2000 SWMP Modification. For a description of the background and current status of these programs, please refer to Attachment VI.

2.3 Proposed Actions – Recycling

To address the City's specific goals and priorities for increased diversion, cost stability, expanded markets and private sector involvement in its Recycling Program, as articulated above, the Proposed Actions for recycling are:

- Develop a materials processing facility at the 30th Street Pier (in Brooklyn Community District 7) through a public-private partnership involving a 20-year service agreement with a private recyclables processor; and
- Develop a Recyclables acceptance facility in Manhattan.

2.3.1 Recyclables Processing Facility

The City is in the process of negotiating an agreement with the Sims Hugo Neu Corporation (SHN) for the acceptance, processing and marketing of the MGP and a portion of the mixed paper[1] (Curbside Recyclables) collected by DSNY. (This contract is further described in 2.4.3.) As part of the agreement, SHN will finance the development of a materials processing facility on City-owned land at the 30th Street Pier in the South Brooklyn Marine Terminal (SBMT).

In addition, SHN will use its existing regional network of waterfront acceptance facilities and its own fleet of barges to transport material to the new facility at SBMT. Recyclable material will arrive at the new materials processing facility as follows:

- DSNY trucks collecting Curbside Recyclables in the Bronx will tip this material at SHN's existing acceptance facility in the Bronx, where SHN will transfer material to barge for transport to SBMT.
- DSNY trucks collecting Curbside Recyclables in Staten Island CDs will tip this material either at the new Staten Island Transfer Station for consolidation into transfer trailers that would drive to SBMT, or at SHN's existing acceptance facility in Jersey City, where SHN would transfer material to barge for transport to SBMT.
- DSNY trucks collecting Curbside Recyclables in northern Brooklyn and Queens CDs will tip this material at SHN's existing acceptance facility in Long Island City, where SHN will transfer material to barge for transport to SBMT.
- DSNY trucks collecting Curbside Recyclables in Manhattan CDs will tip this material at a Manhattan acceptance facility. Until the new acceptance facility is on line trucks from southern Manhattan would tip at SHN's existing acceptance facility in Jersey City; trucks from northern Manhattan would tip at SHN's existing facility in the Bronx where SHN will transfer this material to barge for transport to the 30th Street Pier at SBMT.
- DSNY trucks collecting Curbside Recyclables in southern Brooklyn CDs would drive to SBMT and tip directly at the materials processing facility.

[1] This is the portion that is not already committed to Visy Paper (NY), Inc. (Visy), for processing in its recycled paper mill on Staten Island.

2.3.2 Manhattan Recyclables Acceptance Facility

DSNY proposes to develop a Recyclables acceptance facility in Manhattan. The West 59th Street MTS is currently the transfer site for the mixed paper, which DSNY collects in Manhattan CDs and Visy barges to its recycled paper mill on Staten Island.

As described in Section 4.2.1.1, DSNY is proposing to issue a procurement to assess the feasibility of providing the West 59th Street MTS for use by the private sector for the export of a portion of Manhattan's Commercial Waste by barge. In order to maximize the throughput capacity required for this proposal, the truck-to-barge operation for mixed paper would need to be relocated. In order to facilitate this relocation, as well as to reduce the number of vehicle miles traveled by DSNY trucks, DSNY proposes to develop a Recyclables acceptance facility in lower Manhattan. This proposal would also fulfill the goal of this SWMP to distribute waste management facilities more equitably in all five boroughs.

The most promising location for this Manhattan Recyclables acceptance facility is the former site of DSNY's Gansevoort MTS on Pier 52 in Manhattan Community District 2. The Gansevoort MTS has not been used by DSNY since 1991. For this proposed project to move forward, several issues must be resolved, such as acceptable integration of the facility design (including an environmental education center) and operation into the plans for the Hudson River Park, and amendment of the Hudson River Park Act.

Table 2.3-1 lists all of the facilities that would be elements of the Recycling program in the SWMP, as well as facilities serving the current program.

Table 2.3-1
Recycling Facilities

Facility Type	Operator/Owner, Facility Name, and Address	Community District
Proposed Action Facilities		
Recyclables Processing/Acceptance	Sims Hugo Neu Corporation 30th Street Pier at the South Brooklyn Marine Terminal, Brooklyn	Brooklyn 7
Recyclables Acceptance	DSNY, Former site of Gansevoort MTS, Pier 52, Manhattan	Manhattan 2
Existing Program Facilities		
Recyclables Processing (1)	Visy Paper, Inc. 4435 Victory Boulevard, Staten Island	Staten Island 2
Recyclables Acceptance/Processing (2) (3)	Sims Hugo Neu Corporation 850 Edgewater Rd, Bronx	Bronx 2
Recyclables Acceptance/Processing (2) (3)	Sims Hugo Neu Corporation Claremont Terminal 1 Jersey City, New Jersey	N/A
Recyclables Acceptance/Processing (2) (3)	Sims Hugo Neu Corporation 30-27 Greenpoint Avenue Long Island City, Queens	Queens 2
Recyclables Acceptance/Processing (1)	A & R Lobosco 31-33 Farrington Street Flushing, Queens	Queens 7
Recyclables Acceptance (1)	Metropolitan Paper (potential subcontractor) 854 Shepherd Avenue, Brooklyn	Brooklyn 5
Recyclables Acceptance/Processing (1)	Triboro/Cellmark 891-899 East 135th Street, Bronx	Bronx 1
Recyclables Acceptance/Processing Facility (1)	Paper Fibres 960 Bronx River Avenue, Bronx	Bronx 2
Recyclables Acceptance/Processing (1)	Rapid Processing 860 Humboldt Street, Brooklyn	Brooklyn 1

Notes:

(1) These are existing processing facilities which accept Paper from the Curbside Program and produce marketable end products. As such, they are not subject to environmental review and are listed here to indicate that they are facilities included in the SWMP.

(2) These are existing processing facilities which accept MGP from the Curbside Program and produce marketable end products. As such, they are not subject to environmental review and are listed here to indicate that they are facilities included in the SWMP.

(3) These are existing facilities that currently receive truck deliveries of DSNY Curbside Recyclables for transfer to a processing facility. As such, they are not subject to environmental review and are listed here to indicate that they are facilities included in the SWMP.

2.3.3 Advantages of Proposed Action

2.3.3.1 Recyclables Processing Facility

The major advantages of the Proposed Action to develop a materials processing facility are:

- Commits the City to maintain its Curbside MGP Program over the next 20-years.
- Creates a relationship in which the processor has economic incentives to expand product markets and thereby increase the net recovery rate for MGP. Historically, DSNY has had considerable difficulty in establishing stable and cost-effective relationships with the contractors that have processed its Curbside MGP, in part due to the practice of contracting for a five-year term with a short-notice cancellation clause. This created economic uncertainty for the contractor and discouraged investments in facility upgrades to improve recovery rates. The 20-year term of the service agreement removes these disincentives and will create a relationship in which the processor has economic incentives to expand product markets and thereby increase the net recovery rate for MGP processed.
- Enhances the opportunity to produce and market new products by recovering materials that are now marginal. The City's Curbside MGP collections have high proportions by weight of glass, particularly mixed-color, broken glass, a material which does not have economic markets. Better technology to be used in the materials processing facility, in addition to aggressive research and development – both afforded by a long-term contract – will address this situation.
- Secures competitive price terms for the City and stabilizes costs over the long term.
- Creates a waterborne transportation network that is consistent with the City's goal of reducing truck traffic. An estimated 85% of the recyclable materials will be delivered to the new Recyclables processing facility via barge, and 75% will leave post-processing via barge. This action will help reduce truck traffic on City streets and improve the environment.
- Creates significant local employment opportunities through an estimated 160 construction jobs and 100 permanent jobs when facility operations commence.

2.3.3.2 Manhattan Recyclables Acceptance Facility

The major advantages of the Proposed Action to develop a Recyclables acceptance facility in Manhattan are:

- Eliminates the need to run Recyclables collection vehicles from Manhattan to acceptance or processing facilities in other boroughs or New Jersey.
- Facilitates the relocation of the recycled paper barge operation now based at the West 59th Street MTS to Gansevoort, which will enable the West 59th Street MTS site to be potentially developed for export of Commercial Waste.
- Results in a more equitable distribution of transfer facilities among the City's boroughs.

2.4 New Initiatives

2.4.0 New Office for Recycling Outreach and Education

In order to meet the ambitious diversion goals set forth in this section, a new office will be formed within the Council on the Environment of New York City (CENYC). The new office will focus on waste prevention, composting and recycling outreach and education. CENYC, a privately funded citizens' organization in the Office of the Mayor is in a unique position to incorporate these activities into its current mission to promote environmental awareness and solutions to environmental problems. Additionally, from 1981 to 2003, CENYC ran a Waste Prevention and Recycling Service (WPRS), which included pioneering work with public schools and the New York City Housing Authority developments to create and implement waste prevention initiatives.

The new office at CENYC will have a discrete budget and will consist of one citywide director and one coordinator focusing on each borough, for a total of six new staff members. The new office will coordinate closely with DSNY to define annual work plans, so that efforts are not duplicated and to provide feedback to DSNY on improving programs. Programs pursued by the new office will include but not be limited to: waste prevention outreach and education, including training and educating building staff and tenants, especially in large residential buildings, in correct recycling practices, and working with and training tenant volunteers to administer routine monitoring of waste reduction, reuse, and recycling practices, as well as conducting waste audits in residential buildings to help determine, both at the site-specific and general levels, where failures are occurring and how best to remedy them; promoting electronics waste recycling options; assisting in developing and implementing additional waste prevention programs, such as composting or a building reuse program; promoting household hazardous waste reduction and safe disposal outlets, if needed; promoting and

improving recycling in New York City public schools, Housing Authority projects, and other such institutions, and in general working to increase the amount of materials diverted through waste prevention and recycling.

Within 3 months of the approval of the SWMP by the Council, the new office will provide the first annual work plan and a budget to the Commissioner of DSNY and to the Council for review and approval.

In February of each year following adoption of the SWMP by the Council, the new office will file a report to the City Council making recommendations regarding additional programs or practices, if any, that it determines are needed or would be useful in improving waste reduction, reuse, or recycling.

2.4.1 Propose Percentage-Based Diversion Goals

As the document that charts the course the City will follow for the next 20 years with regards to solid waste management, it is important that this SWMP set specific diversion goals for recycling, as well as outline the programs that will help achieve those goals. While the advocates of "Zero Waste" are to be lauded for setting the diversion bar high, the City must be realistic and recognize that many decisions regarding what individuals and businesses do with their waste are beyond the City's direct or indirect control.

Realistic goals do not mean unambitious goals. DSNY recommends that the City set a 70% diversion goal for the combined Commercial and DSNY-managed Waste streams to be achieved by 2015. In the near term, the City should meet a 25% diversion goal for the curbside and containerized waste generated by residents and institutions, and a 35% diversion goal for the total DSNY-managed Waste stream, both to be achieved by 2007.[2] These goals are very aggressive but reasonable given the results of the Citywide Waste Characterization Study thus far, set forth in Section 2.4.2. The Preliminary WC Report findings and the results of the four individual season sorts conducted as part

[2] For definition of these streams and tabulated projections of diversion rates over the course of the 20-year SWMP planning period, see Attachment II, "DSNY-Managed Waste Quantities and Projections for Plan Period" and Section 6.0 of Attachment VII, "Rational For Amending Local Law 19".

of Phase I of the Citywide Waste Characterization Study provide the baseline quantities of designated paper, metal, plastic, glass and other potentially recoverable materials in the waste stream. These goals also are consistent with those required in other states, as well as the goals voluntarily adopted by municipalities in cities throughout the United States. The achievement of these goals will enable the City to maintain its standing as a national leader in recycling, to avoid costly litigation for failing to meet legally-mandated, tonnage-based diversion rates and hopefully advance the City's efforts to attract recycling industries to locate and invest in the City.

By proposing these percentage-based diversion goals, DSNY is also proposing revising the tonnage-based diversion mandates in LL19. The full rationale and supporting data for this proposal can be found in Attachment VII. Agreement on all aspects of this proposal will require the participation of many stakeholders, including the City Council and the advocacy community. DSNY looks forward to working with these groups and sets forth a proposed general schedule for facilitating this dialogue in the Waste Prevention and Recycling Milestones section of this SWMP (Section 2.5). Specifically, within six months of the effective date of this SWMP, DSNY will convene the first stakeholders meeting with the City Council to revise LL19, and further commits to a timetable of no more than twelve months to reach resolution on new draft legislation.

2.4.2 Perform a Waste Characterization Study (WCS)

In Spring 2004, DSNY conducted a Preliminary Waste Characterization (Preliminary WC), the report on which can be found in Appendix D, "Preliminary Waste Characterization Report." DSNY has also completed a historic four-season comprehensive Citywide Waste Characterization Study (Citywide WCS),[3] involving the sorting of both residential refuse and recyclable streams. The Citywide WCS, the scope of which is described in Attachment III, "Waste Characterization Activities," is a continuation of the WCS first undertaken in 1989-1990 that will provide essential data to solid waste planners, especially in the recycling field. The full, four-season WCS data collection period was completed in FY 2006. The Final Report is expected to be issued in FY 2007; pie charts that present the results of the four individual season sort reports can be found in Appendix J, "Graphical

[3] Among the requirements of a SWMP are to "characterize the solid waste stream to be managed in the planning period." (New York State Environmental Conservation Law, Section 27-0107, Subsection 1.b.i.).

Presentation of Results of the Four Season Data Collection for Phase I of the Citywide Waste Characterization Study, and are posted on the Department of Sanitation's website at http://www.nyc.gov/html/nycwasteless/html/recycling/waste_char_study.shtml.

The first Recyclables and refuse sorts, conducted as part of the Preliminary WC, were completed in spring 2004 and the data is reported in the Report (see Appendix D). This section analyzes the data with a focus on implications for the Recycling Program. The data, coupled with the results of the four individual season reports described in Section 2.4.2 and provided in Appendix J, inform the ambitious yet attainable, diversion goals outlined in Section 2.3.1, as well as the choice of programs necessary to reach these goals over the course of this SWMP planning period.

2.4.2.1 Metal, Glass and Plastic (MGP) Composition

Figure 2.4-1, MGP Composition: Preliminary WC Sort Data, shows the composition of the MGP Recyclables stream. Two numbers important to highlight from the data are: (1) the percentage of the MGP stream that is comprised of mixed color, broken glass; and (2) non-designated materials. Table 2.4-1, MGP Composition: Processor Versus Preliminary WC Sort Data compares the Preliminary WC Sort data with the MGP composition data reported by the four vendors that processed the City's MGP under short-term contracts from 1994 to 2002.

2.4.2.1.1 Glass

According to the Preliminary WC, roughly 35% of the MGP stream consists of glass. This accounts for glass that is intact, defined as glass pieces greater than 3 inches by 3 inches in diameter and therefore more readily sorted by color, as well as smaller pieces of broken glass not readily separated by color ("mixed broken glass").

The four vendors that processed the City's MGP on average reported the percentage of mixed broken glass as 33% of the incoming material. The results of the Preliminary WC reveal a lower percentage of this material – only around 22%. This is significant because lack of markets for mixed broken

FIGURE 2.4-1
MGP COMPOSITION: PRELIMINARY WASTE CHARACTERIZATION SORT DATA

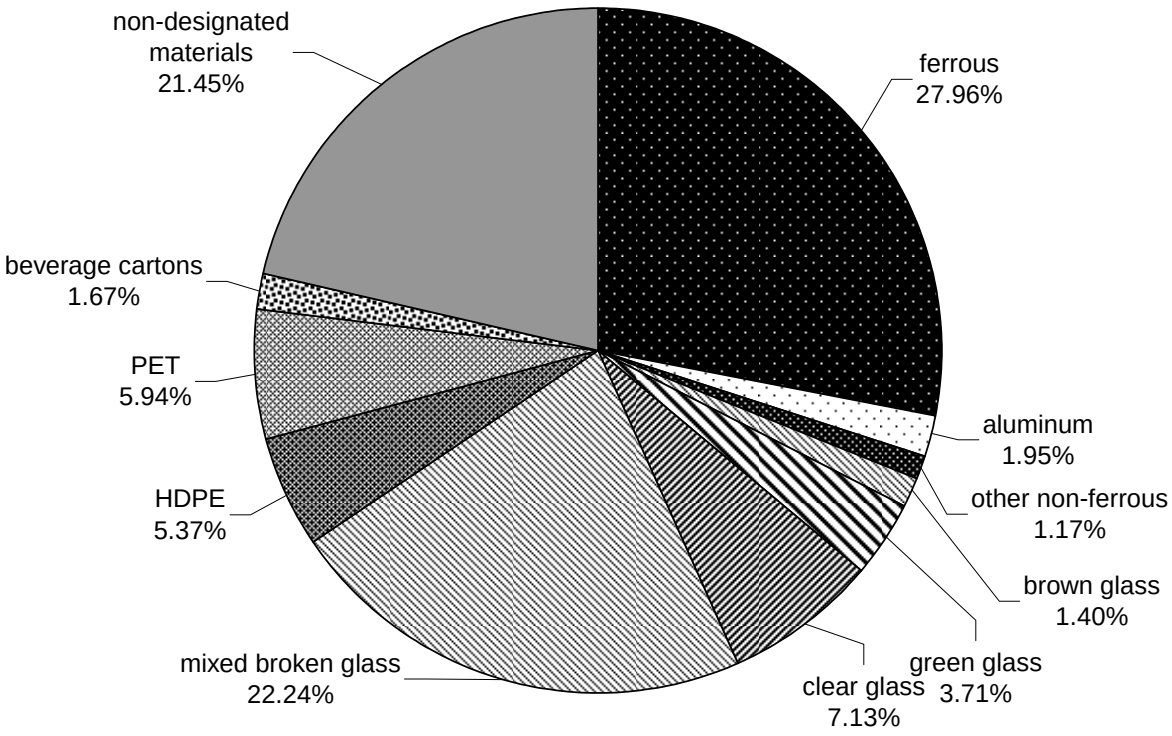


Table 2.4-1
MGP Composition: Processor Versus Preliminary Waste Characterization Sort Data

Data Source	Preliminary WC Sorts	MGP COMPOSITION AS REPORTED BY PROCESSORS UNDER PRIOR CONTRACTS FOR MGP ACCEPTANCE, PROCESSING, MARKETING				
		Average of Four Processors	Processor 1	Processor 2	Processor 3	Processor 4
MGP Composition						
ferrous	27.96%	25.48%	20.43%	30.42%	28.18%	22.87%
aluminum	1.95%	0.76%	0.60%	0.41%	1.07%	0.96%
other nonferrous	1.17%	0.00%	0.00%	0.00%	0.00%	0.00%
METAL	**31.08%**	**26.23%**	**21.03%**	**30.84%**	**29.25%**	**23.83%**
brown glass	1.40%	0.19%	0.00%	0.75%	0.00%	0.00%
green glass	3.71%	0.51%	0.00%	2.04%	0.00%	0.00%
clear glass	7.13%	1.92%	0.00%	3.26%	0.00%	4.42%
mixed broken glass	22.24%	35.40%	48.99%	13.24%	30.33%	49.03%
GLASS	**34.49%**	**38.02%**	**48.99%**	**19.29%**	**30.33%**	**53.46%**
HDPE	5.37%	3.87%	3.06%	4.94%	3.56%	3.91%
PET	5.94%	2.00%	1.45%	2.41%	2.23%	1.93%
PLASTIC	**11.31%**	**5.87%**	**4.50%**	**7.35%**	**5.80%**	**5.84%**
beverage cartons	1.67%					
Total MGP	**78.55%**		**74.52%**	**57.47%**	**65.38%**	**83.12%**
Non-Designated Materials						
non-designated plastics	6.49%	0.39%	0.28%	0.67%	0.44%	0.18%
other	14.96%	29.48%	25.19%	41.86%	34.18%	16.69%
TOTAL	**21.45%**	**29.88%**	**25.48%**	**42.53%**	**34.62%**	**16.88%**

glass, in particular, was one of the factors that led to increased processing prices and contributed to the suspension of the program in 2002. (Whether these lower glass percentages are based on the fact that, during the Preliminary WC sorts, glass had only recently been reintroduced to the MGP stream, will become clearer from the data developed in the Citywide WCS moving forward[4].

Even if mixed broken glass comprises a lower fraction of the MGP stream than previous processors maintained, it still represents one of the largest single material categories. Therefore, it will be essential for the City to work with the SHN under its new 20-year processing contract (described in Section 2.4.3) to help identify and facilitate markets for this material. SHN is already experimenting with creating a soil blend with ground glass, pursuing outlets for mixed broken glass as an aggregate material, and having conversations with secondary processors that use glass as a feedstock.

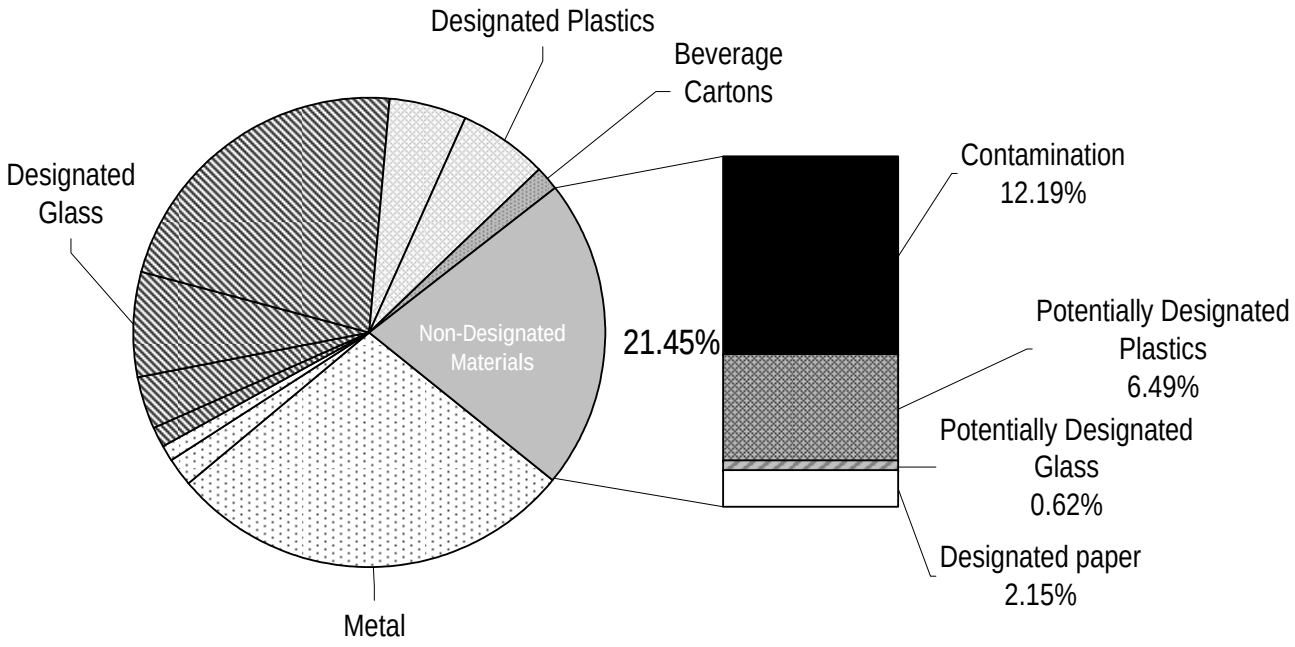
2.4.2.1.2 Non-Designated Materials

The Preliminary WC sorts found that 21% of the MGP stream consisted of non-designated materials. (This figure is not as high as previous processors asserted: on average, the four processors reported non-designated materials to comprise 30% of the incoming MGP stream.) Nevertheless, one of the major goals of the Recycling Program over this 20-year SWMP planning period must be to reduce this rate as much as possible. This can be accomplished through the sustained public education and enforcement efforts described later in this section.

Figure 2.4-2, Preliminary Waste Characterization Sort Data: Sources of Non-Designated Materials in the MGP Stream, presents the sub-composition of this sort category. While 12.2% of the non-designated material category consists of refuse thrown into the recycling bin, the next largest category (6.5%) consists of plastic containers that are not currently designated for recycling collection.

[4] On average, DSNY collected nearly 72,000 tons of waste (refuse plus recycling) each week during May and June 2004, and an average of almost 4,900 tons of MGP during this same period. Applying the glass percentages listed above to these tonnage numbers results in a capture rate of 54%. This means that residents were setting out over half of the glass known to be in the waste stream, which is a favorable rate, suggesting that these lower percentages are not a result of confusion over the newly restored program.

Figure 2.4-2
Preliminary Waste Characterization Sort Data:
Sources of Non-Designated Materials in the MGP Stream



2.4.2.2 Yard Waste

The Preliminary WC sorts took place in May and June and therefore reflect a higher percentage of yard waste, including leaves, grass and prunings, than will probably be found in the other three seasonal sorts to follow. Nonetheless, the percentage of yard waste in the total Preliminary WC sort waste stream (7.7%) is substantially higher than in the Spring Sort of the 1989-1990 Study (4.1%).

The organic fraction of the waste stream will play an important role in meeting the diversion goals of this SWMP. To keep yard waste out of the waste stream, DSNY restored funding to its backyard composting and "Leave in on the Lawn" education programs and its subsidized compost bin promotional programs in the FY 2005 budget. In addition, DSNY continues to promote the availability of its Fresh Kills compost facility to residential landscapers.

DSNY will also conduct a spring 2007 yard-waste collection pilot on Staten Island similar to its fall leaf collection program, subject to the availability of adequate permitted capacity at in-city composting facilities. DSNY will:

1) Assess historic tonnage data for Staten Island and consult with DSNY collection personnel to determine the appropriate collection and schedule (types of material, timing and frequency); 2) Send a mailing informing Staten Island residents of the discrete, separate collection program schedule and set-out requirements; 3) Conduct separate yard waste collection(s), deliver material to the Fresh Kills Compost Facility and maintain separate scale data for incoming loads.

DSNY will report the results of the pilot, including how they calculated the costs for each method of collecting to the Council by January 1, 2008 and depending on the results of the pilot, DSNY will plan how to expand the program to other districts pending the availability of adequate organics processing capacity (i.e., permitted compost facilities for Staten Island, Brooklyn/Queens and the Bronx and notwithstanding Asian Long-Horn Beetle quarantine restrictions).

2.4.2.3 Electronics

Appliances and electronics, a category not assessed in 1990, comprised a very small fraction of the overall waste stream in the Spring Sorts – 0.92%. Nevertheless, electronics are a growing and potentially toxic fraction of the City's waste stream. To deal with this issue, DSNY is developing an electronics recycling initiative (see Section 2.4.5).

2.4.3 Enter 20-Year Processing Contract for MGP

In September 2004, the Mayor announced an agreement with SHN, one of the nation's largest scrap metal processors, that will secure a long-term, economically viable outlet for the City's Recyclables and dramatically reduce truck traffic on City streets. The agreement calls for the company to build a modern recycling facility in the City in return for a commitment from the City to deliver all of the MGP, and a portion of the mixed Paper, that DSNY currently collects for the next 20 years. This long-term contract allows SHN to make the capital investment necessary to develop better markets for the City's Recyclables materials and to provide a waterborne network for movement of recycled materials. Preliminary estimates indicate that a total of 85% of the Recyclable materials will be delivered to the new processing facility via barge from SHN's acceptance facilities listed in Table 2.3-1 and, after processing, 75% will leave the processing facility via barge. By relying on waterborne transport, the facility will reduce regional truck traffic by approximately 55,000 vehicle miles per year.

Construction of the $45 million facility will create an estimated 160 construction jobs and 100 permanent jobs. Construction is expected to begin in early 2008 and be completed by late 2009 and will be financed by SHN. The new facility will be located on a pier in the SBMT, and will be part of a larger development launched by the New York City Economic Development Corporation (NYCEDC) for this waterfront site. Because SHN will export containerized recycling materials, the new facility will support a stevedoring operation, which is also envisioned for the site. These activities collectively represent a major development for a working Brooklyn waterfront.

The long-term contract will lower the City's cost for processing MGP recycling to an average price of approximately $53 per ton, $54 less per ton than the $107 than the City was facing before the program was suspended two years ago. The contract will cost the City approximately $16 million per year, saving nearly $20 million per year over what it would have paid prior to the Recycling Program's suspension.

To further advance the goal of reduced truck traffic, this SWMP proposes identifying a transfer point in Manhattan to transport Manhattan Recyclables as well.

2.4.3.1 Pilot Expansion of MGP Program to Include More Plastic Types

As described in Section 2.4.3, a long-term contract for MGP will allow DSNY's contractor SHN to invest in more sophisticated sorting equipment, which in turn may allow the City to expand the types of materials that it designates as Curbside Recyclables. While other items may be added over the course of the next 20 years, the SWMP proposes a pilot to test the viability of adding additional plastic resin types (#3-7) to the MGP stream.

The City's recycling program does not currently require that plastics be designated by resin type, but asks residents for "plastic bottles and jugs." Under their current and prior contracts, processors of the City's MGP had little incentive to invest in expensive machinery and relied instead on sorting materials by hand—a method not conducive to identifying resin types by number. Bottles and jugs are readily identifiable by shape, and thus easy for workers to hand sort without reference to the industry's voluntary coding system. Moreover, the majority of these recyclables (e.g., shampoo bottles and plastic milk jugs) are made from plastic resin types nos. 1 and 2 (PET and HDPE), plastics that have more developed markets for secondary use.

As illustrated in Figure 2.4-2, 6.49% of the materials that SHN currently receives under the interim MGP processing contract are "Potentially Designated Plastics" (meaning types of plastic that are not currently designated, but may be in the future; i.e., plastic resin types #3-7). The pilot proposed therefore generally consists of the following:

1) DSNY's contractor will test sorting equipment at its current processing facility under its interim MGP processing contract to determine the technical feasibility of separating both Designated and Potentially Designated Plastics (resin nos. 3-7); 2) DSNY, in consultation with its contractor, will determine if economically viable markets exist for the recovered Potentially Designated Plastics; 3) DSNY's contractor will report to the City on the technical and economic viability of recovering all or some subset of Potentially Designated Plastics; 4) The City will review the Contractor's recommendation and, if appropriate based upon the recommendation, the City will cause through appropriate Local Laws or rules all or some subset of Potentially Designated Plastic to become Designated Plastics.

This process shall be completed no later than February 1, 2009. If it is determined that it is technically and economically viable to recover and market Potentially Designated Plastics, then DSNY shall require and the public shall be notified that these materials shall be source separated and collected for recycling no later than November 1, 2009. For the purposes of this section, "economically viable" shall be defined to mean that the Contractor is able to demonstrate that established markets for the recovered materials exist and that the cost to the Contractor of recovery and delivery to those markets does not cause the "tip fee" charged to DSNY for the metal, glass and plastic recycling stream to exceed the average "tip fee" for DSNY-managed waste.

2.4.4 New Waste Prevention Initiatives

2.4.4.1 Develop NYC Stuff Exchange Website

DSNY developed the NYC Stuff Exchange telephone system to promote reuse outlets throughout the City. During the development stages of the NYC Stuff Exchange (1-877-NYCSTUF), many New Yorkers did not have access to the Internet. Since then, access to the Internet has dramatically increased. In an effort to reach a broader segment of the City population, DSNY will launch an internet-based version of the present phone-based NYC Stuff Exchange system. The website is expected to be available to the public prior to June 30, 2007. Prior to website launch, the integrity and consistency of the website's interactivity with future users will be fully tested by BWPRR, an effort which is expected to take several months. In addition, the City Department of Information Technology and Telecommunications the City agency that will eventually host the website, will perform extensive pre-launch hardware testing, to ensure that the proposed new service meets the City's quality assurance standards.

A major enabling activity undertaken by DSNY for residents, businesses, government agencies and not for profit organizations and institutions is to provide the NYC WasteLe$$ website as a comprehensive resource for access to information on a wide variety of waste prevention initiatives that can reduce their personal or institutional waste footprint. See the following link http://www.nyc.gov/html/nycwasteless/html/waste_faq/waste_faq.shtml#gen1.

In 2004, DSNY launched the NYC WasteLe$$ website to help New Yorkers identify practical ways to reduce waste. Other waste prevention projects that continue to be funded and supported by DSNY include:

- The **NYC Stuff Exchange** (**1-877-NYC-STUFF**) is a toll-free telephone service that provides recorded information drawing on a database of roughly 10,000 organizations where people can donate, buy, sell, rent, and repair quality second-hand goods in their neighborhood.

- The NYC Compost Project provides outreach and education on backyard composting and other methods for reducing food and yard waste, and operates compost givebacks.

- NYCWasteLe$$ Business and NYCWasteLe$$ Government were developed to provide waste prevention technical assistance to businesses, government agencies, and nonprofit organizations. Findings have been shared through newsletters, websites, seminars, and training sessions.

- NY Wa$teMatch, a citywide reusable materials exchange program, is implemented with the City University of New York and the Industrial Technology Assistance Corporation. NY Wa$teMatch helps businesses save money by providing a brokering service for industrial by-products, packaging, and other items that are potentially reusable, but for which there are not well-established recycling markets.

- Materials for the Arts is a citywide materials exchange program that collects unwanted office equipment and furniture, materials, fabric, paint, paper, and industrial by-products and makes them available free of charge to nonprofit cultural organizations, arts programs, and NYC public schools. The program is sponsored by the NYC Departments of Sanitation, Cultural Affairs, and Education. Materials for the Arts can be reached at (718) 729-3001 or http://www.mfta.org.

- Literature on removing names from junk mail lists, reducing toxics in the home, composting, and a variety of waste prevention guides and reports has been made available to the public since 1991. See publications and reports found at http://www.nyc.gov/sanitation.

2.4.4.2 Expand the NY Wa$teMatch Program

Since 1997, NY Wa$teMatch, a DSNY-sponsored industrial materials exchange program, has linked companies looking to get rid of materials with those who have a use for them. In addition to servicing the manufacturing sector, NY Wa$teMatch intends to expand to serve other business sectors such as the hospitality, healthcare and property management sectors. NY Wa$teMatch also will continue to pursue opportunities to assist local manufacturers to meet the demand for locally manufactured green building products.

2.4.4.3 Reduce Junk Mail

To reduce junk mail, a Citywide notification to promote the Mail Preference Service of the Direct Marketing Association is scheduled for 2007/2008. The Mail Preference Service allows residents to remove their addresses from most national mailing lists. Information will also continue to be posted on DSNY's website and DSNY's NYC WasteLe$$ website, and will continue to be distributed by DSNY staff members at local recycling and waste prevention-related events.

2.4.5 Develop an Electronics Recycling Initiative

Over the course of the 20-year SWMP planning period, the growth of electronic waste will undoubtedly be one of the biggest changes to the waste stream. (This is already evidenced by the preliminary data from the WCS [see Section 2.3.2.3].) Although electronics – and in particular computers – have been part of daily life for at least ten years, analysts predict that the full impact to the waste stream has yet to be seen, as stockpiling of these materials is common practice. (Computers, monitors and printers have cathode ray tubes, circuit boards or other electronic components that contain hazardous materials, such as lead, mercury and cadmium, making safe disposal a priority.) Municipalities across the country are just beginning to address this issue, with the States of California and Maine taking a lead role by banning electronic waste from disposal. The State of New York has considered, but not passed, such legislation.

The City supports federal Extended Producer Responsibility legislation that would require manufacturers of electronic goods and computers to provide for the return and safe disposal of these items. The City will also work with the Council to support appropriate electronics recycling legislation at the State level. In addition, DSNY commits within six months of the effective date of this SWMP to meet with Council representatives to discuss draft Council electronics recycling legislation an effort to reach consensus on a bill that meets collective goals of increased and cost-effective diversion of electronics from disposal, while not adversely impacting the City's retail business community.

Since 2004, DSNY has sponsored dozens of electronic recycling events that have attracted thousands of New Yorkers and resulted in the collection for recycling of more than 350 tons of electronics. DSNY events are subject to NYSDEC authorization and conducted in accordance with NYSDEC regulations.

DSNY sponsored eight electronics recycling events from September to December 2004, in all five boroughs. The events were planned, promoted, and run in partnership with the Lower East Side Ecology Center and a host of local community organizations. Partial support for these events was provided by Dell Inc., Lexmark, and the National Recycling Coalition. New York City residents brought approximately 50 tons (100,000 pounds) of obsolete computer equipment and 300 pounds of cell phones to the eight recycling events.

In October 2005, DSNY sponsored five electronics recycling events, one in each borough. To hold these events, DSNY worked with the Lower East Ecology Center and received support from Best Buy and Intel. DSNY site partners included the Council on the Environment of NYC's Greenmarket Program; General Growth Properties, Inc.; NYC Department of Parks & Recreation; Prestige Properties and Development Company. Approximately 4,300 New Yorkers participated in the October 2005 electronics recycling events, dropping off nearly 196 tons (391,885 pounds) of electronic equipment and 1,432 pounds of cell phones.

In April and May 2006, DSNY sponsored a series of "Spring Cleaning" events at which New York City residents could get free compost; recycle unwanted electronics; and donate clothing and linens to local charitable organizations. Despite unrelenting rain, around 10,000 people attended the events. The events were held at DSNY's compost facilities; an additional DSNY-sponsored electronics recycling event was held in Manhattan's Union Square Park.

At the 2006 "Spring Cleaning" events, DSNY distributed 33,500 30-pound bags of compost (made from NYC leaves) to attendees and 995 discounted compost bins were also sold so that New Yorkers could make compost at home. The NYC Compost Project, a DSNY-funded program that provides compost education in all five boroughs, helped run the compost givebacks.

The Lower East Side Ecology Center helped DSNY organize the electronics recycling portion of the 2006 "Spring Cleaning" events and Con Edison supplied partial funding. A total of 115 tons (229,831 pounds) of electronic equipment and 862 pounds (.43 tons) of cell phones were collected for recycling during the events. Goodwill Industries and the Salvation Army partnered with DSNY to collect the 31.05 tons (623,000 pounds) of clothing and linens that New Yorkers donated during the events.

In September and October 2006, DSNY will sponsor five more electronics and clothing recycling events, one in each borough, with the participation of the Lower East Side Ecology Center; Best Buy; Intel; Goodwill Industries of Greater New York and Northern New Jersey, Inc.; The Salvation Army Greater New York Division, Staten Island Mall/General Growth Properties; NYC Department of Parks & Recreation; Prospect Park Alliance; Mall at Bay Plaza/Prestige Properties & Development Co., Inc.; and Queens College.

DSNY intends to continue to conduct electronics recycling events during the autumn of each year, at least until a more comprehensive means of addressing this waste stream can be put in place. These drop-off collections, which target CPUs, monitors, printers and computer peripherals, will be held throughout the City with the assistance of numerous local community organizations and with the support and cooperation of electronics retailers and manufacturers. DSNY, prior to each event, will send out a mailer to all City households announcing the particulars and provide information about alternative computer reuse and recycling opportunities.

2.4.6 Add Household Hazardous Waste (HHW) Collection

Household Hazardous Waste (HHW) is defined as household wastes that are flammable, corrosive, poisonous or otherwise potentially dangerous, including solvents, pesticides, hobby chemicals and other household items that would be regulated as hazardous wastes if generated by businesses or government agencies. These wastes are not accepted at DSNY's Household Special Waste drop-off sites due to New York State Department of Environmental Conservation (NYSDEC) permit restrictions. See Attachment VI for additional information about DSNY's Household Special Waste program and Attachment VIII for information on DSNY's waste tire management program.

To provide an outlet and a means of collection for these materials, DSNY will seek to procure the services of a specialty contractor for HHW management services by issuing a Request for Proposals (RFP) by 2007. The RFP will allow the private sector to propose a broad range of options that DSNY will consider. The RFP shall be issued no later than January 1, 2007, and shall include a commencement date of no later than May 1, 2008. The City shall report to the Council no later than September 1, 2007 as to whether a proposal has been selected. If no proposal has been selected, the reasons for not selecting any proposals shall be submitted.

To address changes in State law which prohibit residents from "knowingly" setting out products containing mercury and DSNY from "knowingly" collecting those same products along with MSW, DSNY has instituted the following procedures and programs:

- DSNY has notified its collection workforce of this new State prohibition both through verbal and written announcements.
- DSNY allows and encourages the public to bring these items to its Household Special Waste sites for drop-off.
- DSNY intends to pursue an expansion of its HHW service to the public through the issuance of an RFP procurement solicitation. Depending upon the outcome of that solicitation, there may be many more opportunities provided to the public for proper disposal of HHW. In addition, if funding is available, DSNY will implement plans to mail a brochure to all NYC residents about proper disposal of HHW materials in the near future. DSNY will use that opportunity to inform the public regarding the content of the new state law and its applicability to the daily disposal of waste.

2.4.7 New Public Education and Advertising Initiatives

2.4.7.1 Conduct New Market Research

DSNY has conducted extensive market research in the past to assess what New Yorkers know and think about waste prevention, recycling, composting and related topics for over five years. (The results of this original market research are available on line at http://www.nyc.gov/html/dsny/html/reports/recywprpts.shtml.) In order to develop educational materials and advertising campaigns effective in the current environment (post-cessation and resumption of MGP collection), it is important for DSNY to conduct new market research regarding public attitudes and awareness of waste prevention, composting and recycling. This new data is expected to take into account the changing demographics within the City.

DSNY has recently contracted the services of a professional market research firm to, through focus groups and citywide surveys, update DSNY's past market research efforts, and to assist us in supplementing our existing knowledge base, as well as to develop more effective education and advertising campaigns. It is anticipated that DSNY will conduct further market research, as needed, during the course of implementation of this 20-year SWMP.

2.4.7.2 Produce an Electronic Newsletter

An annual or semi-annual electronic newsletter was launched in FY 2006 to keep New Yorkers up-to-date on DSNY's recycling, waste prevention and composting efforts. This will save on printing and mailing costs and will be easier to update, prepare and archive than a printed publication. It will cover topics relevant to recycling, such as new developments in the City's recycling program, seasonal recycling programs, how to order recycling materials, frequently asked questions, and practical waste prevention tips. The newsletter will be distributed via NYC.gov to users who signed up to receive this service, will be posted on DSNY's website and will also be distributed to City agencies and other interested parties.

2.4.7.3 Enhance the "Golden Apple" School Recycling Award Program

The Golden Apple Awards program encourages waste prevention, recycling and neighborhood cleanup efforts in City schools by providing cash awards and recognition of achievements. The monetary awards serve as an incentive for schools to develop and report on new initiatives. Further, the program helps students appreciate how they can make the City a cleaner and greener place to live.

To help schools initiate Golden Apple projects, DSNY will test the feasibility of providing schools with Golden Apple "Seed Money" that will encourage schools to pursue innovative ideas. By providing upfront funding for worthwhile projects, DSNY may inspire schools to undertake even more ambitious, creative, exciting and effective efforts. It is expected that funds will be used for equipment, materials, supplies or services intended to implement waste prevention, recycling or cleanup projects.

2.4.7.4 Produce New Publications

DSNY will produce: (i) a mailer to promote annual computer recycling events; (ii) a new HHW publication for Citywide distribution that focuses on reduction, reuse, recycling and proper disposal of HHW, Special Waste and products that contain hazardous components (e.g., electronics); (iii) new materials to promote fall leaf collections; and (iv) a campaign to promote the NYC Stuff Exchange website.

As it has in the past, DSNY will promote Electronics and Clothing Drop-off events that it will conduct in the fall of 2006. Many other public education and advertising initiatives are expected to be undertaken during implementation of this 20-year SWMP. The specific efforts will reflect the results of market research, WCSs, legislative and policy developments, and the continued evolution of the waste prevention, recycling and composting program in the City.

2.4.7.5 Conduct Commercial Recycling Education

DSNY will work with the Business Integrity Commission (BIC) to conduct a comprehensive study of the current recycling practices of commercial waste haulers in the City. The goal of the study will be to assess compliance with applicable local laws and rules in order to determine whether these are effective or require revision and clarification. The study should also assess the capability of the commercial establishments and commercial carters to increase their ability to recycle currently mandated items and their ability to add additional items to be recycled.

The study scope shall include at minimum: a survey of haulers and their customers to determine current practices, including contracting, notification and comprehension of local laws and rules; field inspections of transfer stations and recycling facilities to assess current operations and constraints; collection of data to report the actual amount of material being recycled; site visits to places of business, representative of different types of customers to determine comprehension and compliance, as well as public notification and compliance with any recycling laws or rules currently in place. The study shall report on the current state of commercial recycling in the City, including economic and technical issues, and make recommendations for potential improvement, specifically including whether changes in the applicable laws and rules are merited and what changes, if any should be enacted.

This study shall be completed no later than February 1, 2009. DSNY and BIC shall report the findings of the study to the Council no later than May 1, 2009, and commit to engage in dialogue with the Council regarding potential changes to the applicable laws and rules, as well as any cost-effective measures to improve commercial recycling identified by the study.

2.4.8 New Composting Initiatives

2.4.8.1. Require Set-Out in Paper Bags

DSNY will revise the recycling rules and support legislation to require residents to set out leaves in paper bags by January 2007. DSNY's leaf collection program currently requires residents to use clear plastic bags for setting out leaves for curbside collection. Plastic bags are a contaminant that must be screened-out of compostable waste material. In 2001, DSNY implemented a small paper-bag pilot

project and found that paper bags are compostable. Paper bags appropriate for the set-out of compostable material are available in most home supply "box stores" throughout the City, and switching to paper-bag set-out has the potential to substantially reduce composting operation costs and increase the overall effectiveness of DSNY's composting program. The City will notify appropriate local retailers as to the new requirements and request that they stock sufficient amounts of paper composting bags to meet expected demand. The City shall also notify all residents that receive composting pickups of this change, and undertake any other steps needed to educate the public about this change. Switching to paper bag set-out has the potential to substantially reduce composting operating costs and increase the overall effectiveness of the program.

2.4.8.2 Conduct On-Site Composting Feasibility Study

DSNY worked with NYCEDC to conduct a study to thoroughly investigate the feasibility of an on-site, food-waste composting facility at the Hunts Point Food Distribution Center (Food Center) in the Bronx. Tenants at the Food Center, especially members of the Produce Cooperative, generate large quantities of degradable waste everyday (produce, broken wooden pallets and soiled cardboard). The idea is to recycle this material on site in an enclosed, odor-controlled composting facility. Locating a recycling facility in close proximity to feedstock generators is an important factor in its economic viability.

The feasibility study commenced in FY 2004 and a final report was issued in December 2005. The study concluded that it is feasible to site an anaerobic digestion facility at the Hunts Point Food Distribution Center without significant impacts to neighbors while providing a reasonably priced organics recovery option that creates jobs for the Hunts Point community, generates a renewable energy source and a marketable compost product, and reduces waste export to out-of-state disposal facilities and the associated truck emissions. However, the study also raised questions about contracting for the organic waste and delivering it from Food Center tenants to a potential facility, as well as the risk allocation between the public and private entities. Answers to these questions, as well as further stakeholder dialogue regarding the site analysis are still needed before it can be determined if an RFP to solicit vendors for facility development should be issued.

2.4.8.3 Landscaping Disposal Requirements

Many yards in the City are maintained by landscaping companies, which mow lawns, trim bushes and undertake other activities that produce organic waste. Oftentimes employees of these companies place these trimmings in plastic bags and leave them on the curb for disposal as solid waste, which appears to be in violation of current law, but is not the subject of active enforcement. This heavy organic waste is picked up by DSNY and is disposed of in landfills, when in fact it would be better to compost such material. DSNY supports passage of a local law that would expressly forbid the practice of disposing of this material as solid waste, and would require that landscaping companies deposit the trimmings they produce at a composting facility.

2.4.8.4 Composting Facility Siting Task Force

The expansion of composting programs may require additional sites for composting yard waste, leaves and other non-food compostables. In addition, the SWMP calls for exploring and testing new technologies, such as anaerobic digesters, for disposing of waste, which also would require a site or sites in the City. Therefore, the Mayor and the Council will create a Composting Facility Siting Task Force to advise on these issues. The task force would serve the dual purpose of finding sites for additional composting facilities and for new technology facilities in each borough.

The task force would consist of eleven members, with three members appointed by the Mayor, three by the Speaker of the City Council, and one each by the five borough presidents. Task force members would serve four-year terms without compensation, and could be appointed for two terms. Any vacancies would be filled in the same manner as the original appointment for the remainder of the term of the departing member. The task force would exist for two full terms, unless the Council and the Mayor act to lengthen its tenure. The task force members shall select a President and other officers as it sees fit from among its members.

The task force would consider all relevant information pertaining to land use decision-making and the needs of the operations under consideration to propose sites for new composting facilities and new solid waste technologies. The City could then use these proposed sites as a starting point in undertaking the additional analysis needed to formally select new sites.

The task force shall start operations no later than July 1, 2007. The task force shall report to the Mayor and City Council annually on July first of each year, beginning on July 1, 2008. The task force shall be adequately funded and staffed through DSNY to provide assistance for its proper functioning.

2.4.9 Public Recycling

In many parts of the City, including busy commercial streets, parks and transportation facilities, use by large numbers of people leads to significant amounts of waste being deposited in public trash receptacles. Much of this trash is recyclable material such as paper, plastic and glass. However, there are very limited public recycling receptacles on the City's streets, in its parks, or in transportation facilities, thereby causing all of this recyclable material to enter the waste stream and ultimately be exported to landfills or incinerators. Consequently, DSNY will set up a pilot program to place recycling receptacles for different recyclable materials (i) on one major pedestrian-intensive commercial strip in each borough; (ii) in one park per borough in cooperation with the Parks Department; and (iii) in one major transportation facility or hub in each borough in cooperation with the MTA, in order to test the feasibility of collecting significant amounts of recyclable materials in public places. DSNY will evaluate the plan with an eye towards expanding it to additional locations and will report findings and recommendations to the Council.

2.4.10 Economic Development

The New York City Economic Development Corporation (NYCEDC) has worked closely with DSNY on a number of recycling and waste prevention initiatives and continues to use economic development tools and incentive to foster growth in the City's recycling and waste prevention business and manufacturing sector.

NYCEDC provided considerable assistance and expertise in the effort to site and develop the Sims Hugo Neu (SHN) materials recovery facility that will service the long-term processing contract described in this Chapter. NYCEDC made available to SHN approximately 11 acres of waterfront property it manages at the South Brooklyn Marine Terminal, and is currently involved in negotiating a

long-term lease with the company for use of the site. This important development will facilitate a steady stream of processed recyclables of consistent quality – an essential step in attracting value-added processors to locate in New York City (see Section 2.3.1).

NYCEDC has also worked with DSNY to help the Visy paper mill on Staten Island to expand. Brokering a contract amendment between DSNY and Visy, the City will provide the company with additional wastepaper and the company will expand to develop a corrugator plant that will employ up to 100 full time employees.

NYCEDC, in cooperation with DSNY, conducted a feasibility study of developing a commercial organics recovery facility to service the NYCEDC-managed Hunts Point Food Distribution Center. NYCEDC will continue to work with stakeholders and DSNY to determine if a request for proposals is appropriate to encourage a private company to develop this type of recycling facility (see Section 2.4.8.2).

NYCEDC continues to meet with - and assist where possible - for-profit and non-profit entities interested in siting recycling-related industries in New York City. For example, NYCEDC has met with: the coalition of groups conducting the feasibility study for a Bronx Recycling Industrial Park; one of the nation's largest newsprint companies that is interested in exporting recycled paper back to its mill via barge and/or rail; and, numerous companies proposing to site new technologies for increased materials and energy recovery from New York City solid waste stream. Finally, NYCEDC continues to offer triple tax-exempt financing for recycling-related industries, in addition to its standard incentive packages.

2.5 Milestones

Table 2.5-1 presents implementation milestones related to the Proposed Actions and New Initiatives.

Table 2.5-1
SWMP Milestones – Recycling

PROGRAM Milestone	Scheduled Fiscal Year	SWMP Section
PROPOSED ACTION – RECYCLING FACILITIES AND SERVICES		
MATERIALS PROCESSING FACILITY, 30TH STREET PIER AT SBMT		
City and SHN execute 20-year agreement	2007	Sections 2.3.1 and 2.4.3
SHN's South Brooklyn processing facility to begin receiving paper in addition to MGP	2011	Sections 2.3.1 and 2.4.3
MANHATTAN ACCEPTANCE FACILITY		
Finalize site selection and complete design and permitting	2008	Section 2.3.2
Complete construction and begin facility operation	2011	Section 2.3.2
NEW INITIATIVES – RECYCLING		
Propose LL19 amendments to Council, including to replace mandatory tonnage diversion with percentage goals	2007	Section 2.4.1
Reach resolution on draft legislation to revise LL19	2008	Section 2.4.1
Electronics recycling Citywide events and mailings	Ongoing	Section 2.4.5
Develop electronics recycling legislative initiative	2007	Section 2.4.5
▪ Issue Citywide Waste Characterization Study ▪ Final Report	2007	Section 2.4.2
Conduct public education market research	Ongoing	Section 2.4.7.1
Submit Council on the Environment Outreach and Education Office work plan and budget	2007	Section 2.4.0
NEW INITIATIVES – RECYCLING		
Report on Council on the Environment Outreach and Education Office w/recommendations	2007	Section 2.4.0
Increase recycling diversion rate	Ongoing	Section 2.4.1
Promote restoration of recycling services	Ongoing	Attachment VI, Section 1.4.2
Begin recycling re-education of City Agencies and institutions	2007	Section 2.4.0
SHN to Test Feasibility of separating, marketing and recycling plastics 3-7 and if feasible, DSNY to require source separation and educate public	2009-10	Section 2.4,3.1
DSNY/BIC to report on completed study on efficacy of current laws and feasibility of increasing commercial recycling and report and discuss cost effective ways to improve diversion	2010	Section 2.4.7.5

Table 2.5-1 (Continued)
SWMP Milestones – Recycling

PROGRAM Milestone	Scheduled Fiscal Year	SWMP Section
NEW INITIATIVES – RECYCLING (continued)		
2010 review of SWMP recycling initiatives	2010-11	Section 2.5.1
Issue various new public education materials	Ongoing	Section 2.4.7.4
Conduct public recycling pilot	2007	Section 2.4.9
NEW INITIATIVES – WASTE REDUCTION		
Develop, launch and promote Stuff Exchange Website	2007-8	Section 2.4.4.1
Pilot spring yard waste collection on SI and report	2007-8	Section 2.4.2.2
Market Wa$teMatch to add focus on hospitality, healthcare and property management industries	2010-12	Section 2.4.4.2
Launch new Citywide publication/campaign to promote junk mail reduction	2007-8	Section 2.4.4.3
Resume fall leaf and Xmas tree collection (where permitted composting facilities are available)	2005	Attachment VI, Section 1.7.2
Resume compost education and give-back programs in cooperation with the City's Botanical Gardens	2005	Attachment VI, Section 1.7.5
Seek regulation revision to require residents to set out leaves in paper bags, educate public and retailers	2007	Section 2.4.8
Issue electronic newsletter	Ongoing	Section 2.4.7.2
NYCDEP to issue RFP to study the feasibility of a food waste disposal pilot	2008	Section 5.4
NYCDEP to complete food waste disposal feasibility study	2009	Section 5.4
Issue new HHW reduction publication	2007	Section 2.4.7.4
Issue RFP for HHW collection days and report to Council on proposal selection	2007-8	Section 2.4.6
Commence HHW collection contract	2009	Section 2.4.6
Establish Composting/New Technology Facility Task Force	2008	Section 2.4.8.4
Resolve feasibility issues regarding development of on-site food composting facility at Hunt's Point Food Center	2007	Section 2.4.8.2
DSNY to support legislation to require composting of landscaping organic waste/subsidize and promote bins	N/A	Section 2.4.8.3

2.5.1 Waste Reduction, Reuse, and Recycling Review

With the implementation of a 20-year recycling contract and the other important measures outlined in this chapter, the City is showing a strong commitment to its recycling efforts. Nonetheless, waste reduction, reuse, and recycling must remain central elements in the City's solid waste management efforts, and although the 20-year contract is vital, the City will still be responsible for getting as much recyclable material to the new recycling facility as possible, designating new recyclable materials, initiating new waste reduction, reuse, and recycling programs, and taking other measures to reduce waste for export. These efforts, under the authority of DSNY, with assistance from the new Office of Recycling Outreach and Education, must be carefully reviewed periodically to ensure that they are progressing properly. Consequently, beginning in January of 2010, DSNY, in conjunction with the Council, DSNY's recycling contractors, and all relevant stakeholders, will undertake a review of the waste reduction, reuse, and recycling effort to determine how successful it is and how it should grow in the future. Based on the results of that review, the Council will consult with DSNY and the new Office for Recycling Outreach and Education, to determine if additional legislation is needed to spur waste reduction, reuse, and recycling, including if a separate office is required—including possibly an expansion of the new Office for Recycling Outreach and Education—to set and implement policy regarding these aspects of waste management.

2.6 Status of Existing Programs

Attachment VI provides an extensive discussion of the status of the Existing Recycling Programs.

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3.0 LONG TERM EXPORT PROGRAM

3.1 Introduction

This section describes the Administration's proposed Long Term Export Program to replace the Interim Export contracts. It provides the background and context for the program, identifies the facilities and services that are part of the Proposed Actions, lists Milestones related to its implementation, and summarizes important features of the operations of these facilities and of other Existing Programs.

3.2 Background

In July 2002, Mayor Bloomberg outlined a new approach to the City's Long Term Export Program and directed the DSNY to develop and implement an MTS Conversion Program. Subsequently, the Mayor initiated efforts to explore and pursue an array of Alternatives to Converted MTSs that might reduce the cost and/or accelerate the Program's implementation. Consistent with the Mayor's direction, the following actions were taken to define and advance the Long Term Export Program:

- Issuance of three procurements to identify private waste transfer facilities in the Bronx, Queens and Brooklyn (BQB RFPs)[1] that could serve as Alternatives to South Bronx and Greenpoint Converted MTSs, receipt of proposals and selection of vendors for contract negotiations;
- Initiation of discussions with the Port Authority on a long-term government-to-government agreement for the utilization of the excess disposal capacity available at the Essex County Resource Recovery Facility in Newark, New Jersey (Essex County RRF);
- Development of plans for the conversion of the MTSs into containerization facilities to 90% design completion and preparation of draft applications for land use approvals and regulatory permits for the Converted MTSs;

[1] Request for Proposals to Receive, Transfer, Transport and Dispose of Department of Sanitation-managed Waste from Brooklyn Formerly Delivered to the Greenpoint MTS; (ii) Request for Proposals to Receive, Transfer, Transport and Dispose of Department of Sanitation-managed Waste from Queens Formerly Delivered to the Greenpoint MTS; and (iii) Request for Proposals to Receive, Transfer, Transport and Dispose of Department of Sanitation-managed Waste from the Bronx.

- Issuance of a procurement to solicit vendor proposals to receive, transport and dispose of the solid waste containerized at Converted MTSs, receipt of proposals and vendors selected for contract negotiations;

- Construction of the Staten Island truck-to-container-to-rail transfer station,[2] now at 100% completion and via a procurement, the award of a 20-year service agreement to receive, transport and dispose of the solid waste to be containerized at the Staten Island transfer facility;

- Issuance of a Request For Expressions of Interest (RFEI) to investigate the availability of New York State disposal capacity for DSNY-managed Waste; and

- Issuance of an FEIS, to support the SWMP.

3.3 Proposed Actions – Long Term Export Facilities and Contracts

The Proposed Action for Long Term Export has the following specific elements.

- For the Bronx wasteshed, CDs 1 through 12, enter into a long-term contract with one or both of two private waste companies for truck-to-rail disposal of all or a portion of the Bronx waste;

- For the Brooklyn wasteshed formerly served by the Greenpoint MTS, enter into a long-term contract with one or two private waste companies for truck-to-rail or truck-to-barge disposal of all or a portion of the DSNY-managed Waste from Brooklyn CDs 1, 3, 4 and 5;

- For the Brooklyn wasteshed formerly served by the Hamilton Avenue MTS, develop a City-owned Converted MTS on the same site, where DSNY-managed Waste from Brooklyn CDs 2, 6, 7, 8, 9, 10, 14, 16, 17 and 18 will be received and containerized;

- For the Brooklyn wasteshed formerly served by the Southwest Brooklyn MTS, develop a City-owned Converted MTS on the same site, where DSNY-managed Waste from Brooklyn CDs 11, 12, 13 and 15 will be received and containerized;

- For the wasteshed inclusive of Manhattan CDs 1, 2, 3, 4, 7, 9, 10 and 12, enter into a long-term service agreement with the Essex County RRF in Newark, New Jersey to receive and process DSNY-managed Waste delivered in City collection vehicles;

- For the Manhattan wasteshed formerly served by the East 91st Street MTS, develop a City-owned Converted MTS on the same site, where DSNY-managed Waste from Manhattan CDs 5, 6, 8, and 11 will be received and containerized;

[2] Approved in the 2000 SWMP Modification; the facility is fully permitted.

- For the Queens wasteshed formerly served by the Greenpoint MTS, enter into a long-term contract with a private transfer station for truck-to-rail or truck-to-barge disposal of all of the DSNY-managed Waste from Queens CDs 1 through 6;

- For the Queens wasteshed formerly served by the North Shore MTS, develop a City-owned Converted MTS on the same site, where DSNY-managed Waste from Queens CDs 7 through 14 will be received and containerized; and

- For the four wastesheds served by Converted MTSs, enter into 20-year service agreements with one or more waste management companies for transport of containerized waste by barge directly from an MTS to disposal facilities or to intermodal facilities for transloading to railcars or a larger barge, and for disposal at an appropriately permitted out-of-City facility.

Figure 3.3-1, Locations of SWMP Long Term Export Facilities and Wastesheds Served, identifies the boroughs and CDs that would be assigned to specific facilities.

Table 3.3-1 lists the potential long-term export facilities proposed in the SWMP. In the Bronx and Brooklyn CDs 1, 3, 4 and 5, noted in Table 3.3-1, the decision as to whether DSNY contracts for export of all or a portion of the DSNY-managed Waste generated in these wastesheds with either of two potential transfer stations is being determined during ongoing negotiations with the proposing companies.

3.3.1 Formulation and Advantages of the Long Term Export Program

Currently, Interim Export contracts provide for disposal of all DSNY-managed Waste. The principal features of Interim Export[3] are:

- DSNY contracts with 21 private transfer stations (located both within and outside the City) or out-of-City disposal facilities, to provide sufficient capacity to dispose of approximately 12,500 tpd on an average daily basis;

- 48% of DSNY-managed Waste is moved to out-of-City disposal sites by transfer trailers;

[3] This information reflects the status of Interim Export in FY 2004.

Figure 3.3-1
Locations of SWMP Long Term Export Facilities and Wastesheds

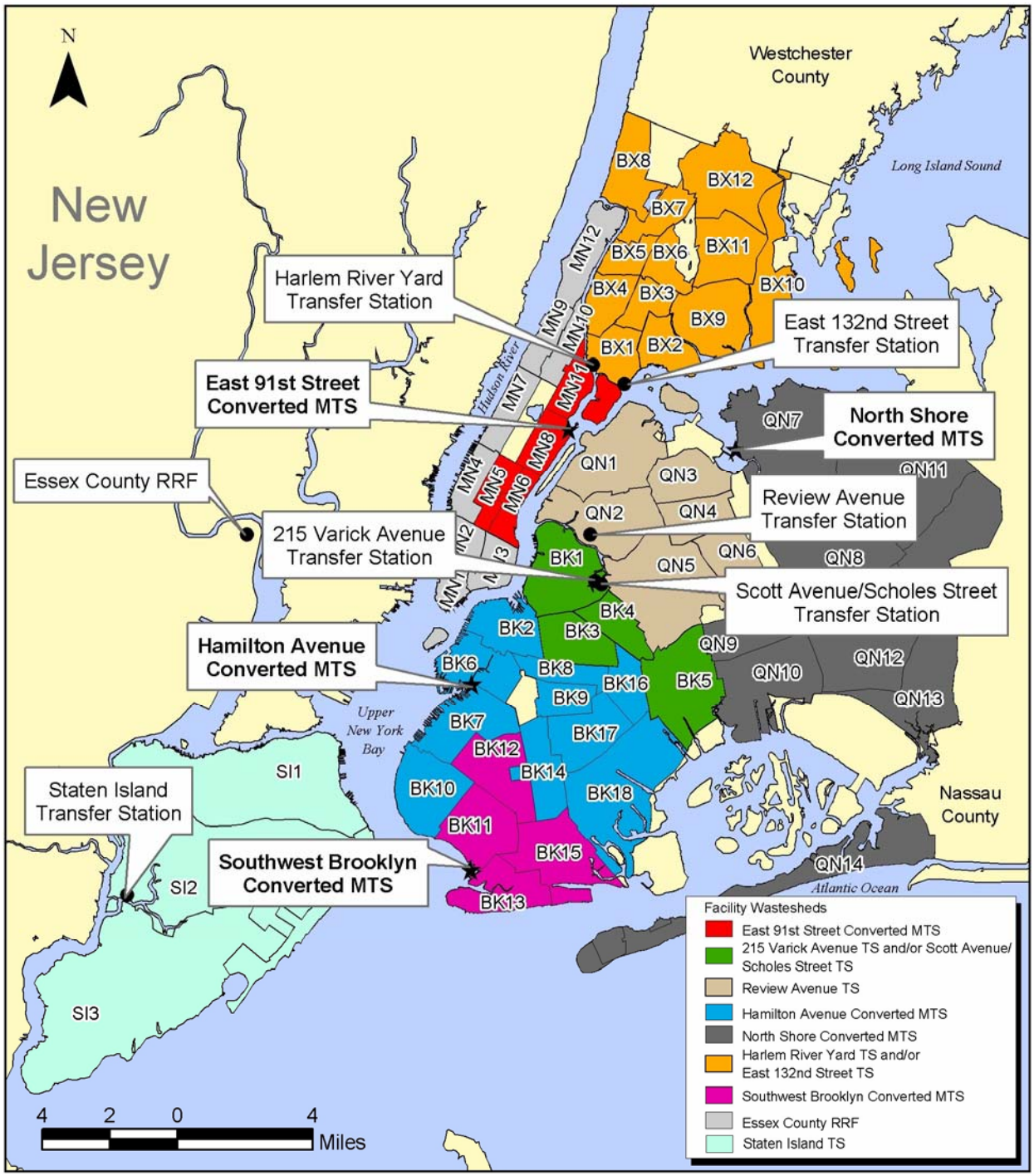


Table 3.3-1
Proposed SWMP Long Term Export Facilities and Potential Contractors

Facility Type	Owner, Facility Name, and Address	Community District	Wasteshed Served – Community Districts
Converted MTS[(1)]	DSNY Hamilton Avenue Converted MTS, Hamilton Avenue at Gowanus Canal, Brooklyn	Brooklyn 7	Brooklyn CDs 2, 6, 7, 8, 9, 10, 14, 16, 17 and 18
Converted MTS[(1)]	DSNY Southwest Brooklyn Converted MTS, Shore Pkwy at Bay 41st Street, Brooklyn	Brooklyn 11	Brooklyn CDs 11, 12, 13 and 15
Converted MTS[(1)]	DSNY East 91st Street Converted MTS, Manhattan	Manhattan 8	Manhattan CDs 5, 6, 8 and 11
Converted MTS[(1)]	DSNY North Shore Converted MTS, 31st Avenue and 122nd Street, Queens	Queens 7	Queens CDs 7 through 14
Truck-to-Rail TS	Waste Management Harlem River Yard, 98 Lincoln Avenue, Bronx	Bronx 1	Bronx CDs 1 through 12
Truck-to-Rail TS[(2)]	Allied Waste Services, East 132nd Street Transfer Station, Bronx and Oak Point Rail Yard, Oak Point Avenue and Barry Street, Bronx	Bronx 1	Bronx CDs 1 through 12
Truck-to-Rail TS	Waste Management, 215 Varick Avenue, Brooklyn	Brooklyn 1	Brooklyn CDs 1,3, 4 and 5
Truck-to-Rail TS	Allied, 72 Scott Avenue-598 Scholes Street, Brooklyn	Brooklyn 1	Brooklyn CDs 1, 3, 4 and 5
Truck-to-Rail/Barge TS[(3)]	Waste Management, 30-58 Review Avenue, Queens and the LIRR Maspeth Rail Yard, Maspeth Avenue and Rust Street Queens	Queens 2	Queens CDs 1 through 6
Waste-to-Energy Facility[(4)]	Port Authority of New York and New Jersey, Essex County RRF, Newark, New Jersey	N/A	Manhattan CDs 1, 2, 3, 4, 7, 9, 10 and 12
Truck-to-Rail Transfer Station[(5)]	DSNY Staten Island Transfer Station West Service Road, Staten Island	Staten Island 2	Staten Island CDs 1 through 3

Notes:

(1) From among the selected proposers responding to DSNY's MTS RFP, DSNY will award one or more contracts for the acceptance, transport and disposal of containerized waste from the Converted MTSs.

(2) This facility would include use of an off-site intermodal rail yard, as noted in the Table, where containers would be loaded onto railcars.

(3) Pending the outcome of negotiations between DSNY and Waste Management of New York, LLC, the Review Avenue Transfer station would be modified to operate as a truck-to-truck-to-rail facility. Operating in a truck-to-rail mode will require use of the Maspeth intermodal rail yard, located within 1 ½ miles of the facility, where containers would be loaded onto railcars.

(4) The Essex County RRF is a permitted and operating waste-to-energy facility in Newark, New Jersey. DSNY-managed Waste would be delivered in collection vehicles to this facility or via hopper barges from the existing MTSs, if an enclosed barge unloading facility (EBUF) were to be developed in the vicinity of the Essex County RRF some time in the future.

(5) The Staten Island Transfer Station was approved in the 2000 SWMP, based on an environmental review in the 2000 Plan FEIS. The facility is fully permitted and under construction. It is listed here since it is part of the SWMP.

- 14% of DSNY-managed Waste is moved to out-of-City disposal sites by rail; and
- 38% of DSNY-managed Waste is moved to out-of-City disposal sites in DSNY collection vehicles.[4]

The following considerations guided the formulation of the Long Term Export Program:

- Reducing the City's dependence on transport by transfer trailer to disposal sites is a priority. Some 93% of all truck-transferred DSNY-managed Waste is disposed in landfills and most of the landfills under contract are within a radius of 200 miles of the City. A combination of factors is causing the depletion of this capacity and an increase in disposal price. The recent re-bidding of some Interim Export contracts that rely on truck transport to landfills has reflected an average increase of 19% over the initial contract prices.
- Remote disposal capacity remains available, but truck-based transfer to these sites is not economically viable.
- Developing a barge/rail transport system capable of accessing this remote capacity could offset potential increases in disposal costs.
- Developing a long-term solution should be equitable to the greatest extent possible.
- Any long-term solution should be able to be implemented without causing significant adverse impacts.

The proposed Long Term Export Program is a comprehensive plan that balances the City's need to export waste over the long term in a comprehensive manner, with the environmental benefit of significantly reducing the transfer trailer traffic associated with Interim Export. Its major advantages include the following:

- DSNY-managed Waste delivered to private transfer facilities in the Bronx, Brooklyn and Queens will be exported by barge or rail and, depending on the outcome of negotiations, the Commercial Waste processed at these facilities may also be exported by barge or rail.
- The in-City facilities proposed would be developed on existing sites at either MTSs or private transfer stations.

[4] Includes Interim Export from Manhattan and Staten Island.

- The proposed combination of facilities provides the City with redundancy in the DSNY-managed Waste system that accommodates future increases in waste generated in the City as a function of population growth. Occasional conditions that may affect certain components of the system will not disrupt future waste export.

- Use of existing private transfer station and Essex County RRF capacity: (i) allows some components to be implemented on a faster timetable; and (ii) minimizes City investment in new capital projects.

- The Converted MTSs will provide capacity that could be available to containerize Commercial Waste for barge/rail export. (This advantage is addressed in more detail in Section 4.)

- The projected economics of the Proposed Action are less costly to the City than the Mayor's original plan to develop eight Converted MTSs. Attachment XI presents an economic analysis of the cost of implementing the SWMP and discusses how new or modified facilities will be financed.

3.3.2 Program Milestones

Table 3.3-2 presents the anticipated Milestones for implementing the Long Term Export Program.

Table 3.3-2
SWMP Milestones – Long Term Export

PROGRAM Milestone	Scheduled Fiscal Year	SWMP Section
PROPOSED ACTION – LONG TERM EXPORT FACILITIES AND SERVICES		
DSNY HAMILTON AVENUE CONVERTED MTS, HAMILTON AVENUE AT GOWANUS CANAL, BROOKLYN		
Complete procurement and award Transport & Disposal contract	2007	See Section 3.2
Complete design and permitting	2007	See Section 3.2
Complete construction and begin facility operation	2010	See Section 3.2
DSNY SOUTHWEST BROOKLYN CONVERTED MTS, SHORE PKWY AT BAY 41ST STREET, BROOKLYN		
Complete procurement and award Transport & Disposal contract	2007	See Section 3.2
Complete design and permitting	2007	See Section 3.2
Complete construction and begin facility operation	2010	See Section 3.2

Table 3.3-2 (continued)
SWMP Milestones – Long Term Export

PROGRAM Milestone	Scheduled Fiscal Year	SWMP Section
PROPOSED ACTION – LONG TERM EXPORT FACILITIES AND SERVICES		
DSNY EAST 91ST STREET CONVERTED MTS, MANHATTAN		
Complete procurement and award Transport & Disposal contract	2007	See Section 3.2
Complete design and permitting.	2007	See Section 3.2
Complete construction and begin facility operation	2010	See Section 3.2
DSNY NORTH SHORE CONVERTED MTS, 31ST AVENUE AND 122ND STREET, QUEENS		
Complete procurement and award Transport & Disposal contract	2007	See Section 3.2
Complete design and permitting	2007	See Section 3.2
Complete construction and begin facility operation	2010	See Section 3.2
BRONX LONG TERM EXPORT PROCUREMENT		
Complete contract negotiations and award contract	2007	See Section 3.2
Complete design permitting and construction, if required,[5] and begin facility operation	2007	See Section 3.2
BROOKLYN LONG TERM EXPORT PROCUREMENT		
Complete contract negotiations and award contract	2007	See Section 3.2
Complete design, environmental review, permitting and construction and begin facility operation	2009	See Section 3.2
QUEENS LONG TERM EXPORT PROCUREMENT		
Complete contract negotiations and award contract	2007	See Section 3.2
Complete design, environmental review, permitting and construction and begin facility operation	2009	See Section 3.2
INTERMUNICIPAL PROCUREMENT FOR DISPOSAL SERVICES AT A REGIONAL WASTE-TO-ENERGY FACILITY		
Complete contract negotiations, award contract and commence service	2007	See Section 3.2
STATEN ISLAND TRANSFER STATION		
Complete facility construction	2007	See Section 3.1 and Table 3.2-1
Begin facility operations and implement long term service agreement for container rail transport and disposal	2007	See Section 3.1 and Table 3.2-1
CONVERTED MTS REPORTING/PERMITTING		
Report to Council on RFP process/permit approvals for MTSs	2008	See Section 3.7
Report to Council if any of the MTS agreements are not finalized by 2010 and recommend proposed SWMP modification on handling residential solid waste	2010-11	See Section 3.7
ALTERNATIVE TECHNOLOGY EVALUATION AND PLANNING		
Issue Phase 2 Alternative Technology Evaluation	2007	See Section 5.2
Evaluate development of a pilot project to establish the basis for commercial application	2007	See Section 5.2

[5] Only one of the two private waste transfer stations in the Bronx requires permit modifications and construction.

3.4 Summary of Facility Operations

3.4.1 Converted MTSs

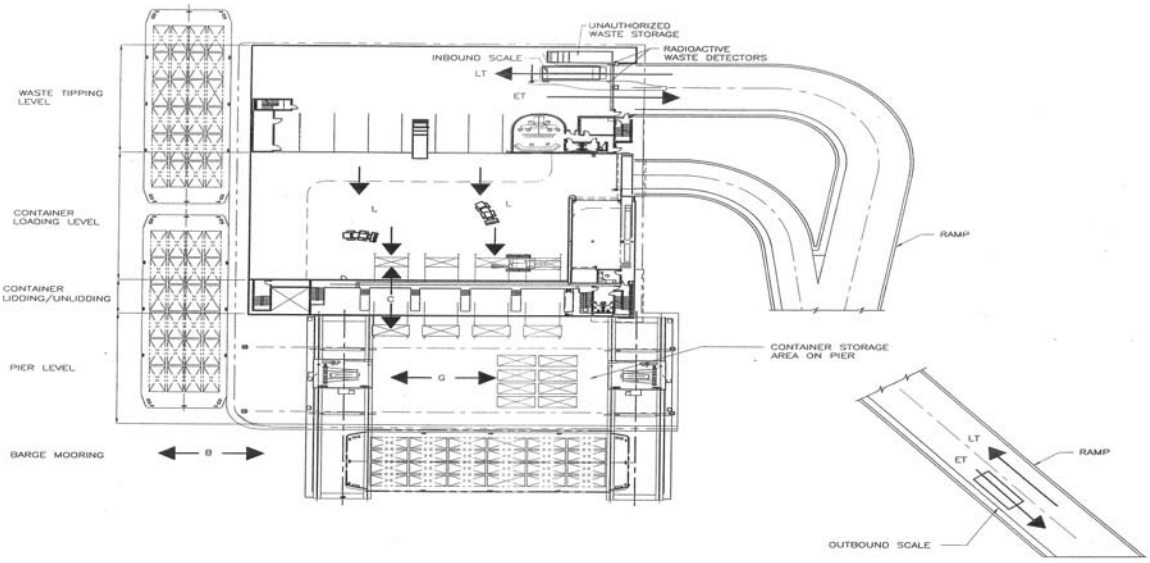
The four Converted MTS facilities have a common three-level processing building design. Figure 3.4-1 provides a schematic of plan and section views of a typical Converted MTS that depicts the following operational features:

- Collection vehicles enter a tipping floor at the uppermost level and tip waste onto the second-level loading floor, 12 feet below;
- On the loading floor, waste is sorted and pushed by front-end loaders through slots in the floor directly over intermodal containers, located on the first level of the processing building;
- Equipment operating over the slots in the loading floor evens and tamps the waste in the containers, which are then lidded with leakproof gasketed covers and moved by trolley to the external pier level of the facility;
- A gantry crane on the pier loads full containers onto and unloads empty containers off of a flatbed barge moored to the pier;
- Each barge has a capacity for 48 containers; and
- Tugboats move full/empty barges directly to an out-of-City disposal site[6] or between the MTS and an intermodal transloading facility where they are loaded onto railcars or a larger barge for transport to a disposal facility.

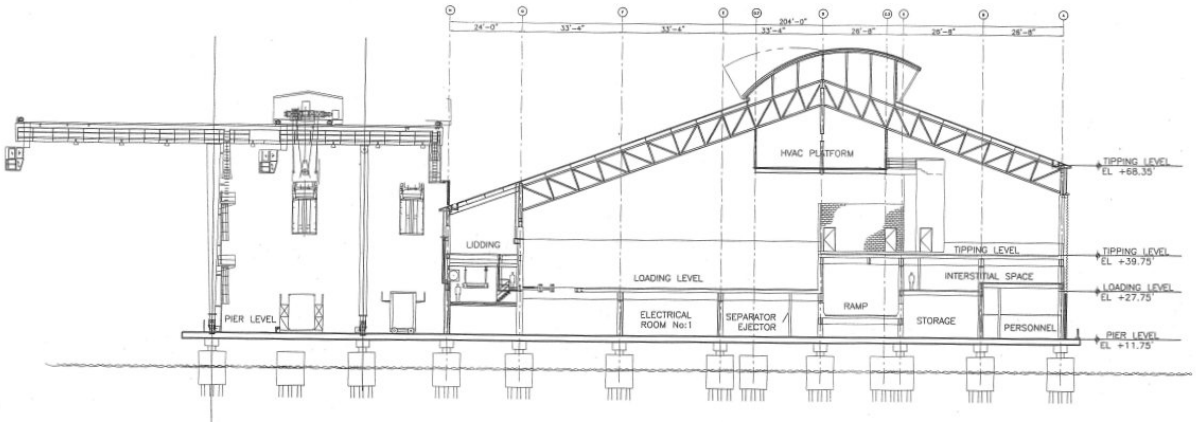
The intermodal containers are approximately 20 feet long, 12 feet high and 8½ feet wide. They are capable of holding approximately 62 cubic yards of refuse. The density of the waste entering the container is increased from approximately 450 pounds per cubic yard to approximately 700 pounds per cubic yard by tamping. On average, it is estimated that each container will contain approximately up to 22 tons of waste.

[6] DSNY has released an RFP for the handling of MTS containerized waste and negotiations with potential vendors are ongoing.

Figure 3.4-1



Plan View



Section View

3.4.1.1 MTS-Containerized Waste Disposal

Subject to the outcome of negotiations between DSNY and the proposers selected pursuant to the MTS containerization RFP, containerized waste will be transported by barge from the Converted MTSs directly to (i) a disposal site; or, (ii) intermodal terminals, where the containers will be transloaded to railcars or a larger barge for transport to an out-of-City disposal facility.

The City has determined that it would be in its best interests to seek proposals that enable DSNY not to rely on a single facility to handle containers from the MTSs, provided that the use of more than one transloading facility is operationally and technically feasible. In contracting with a vendor or vendors to handle the City's MTS containerized waste, in August 2006, DSNY issued a request for a Best and Final Offer (BAFO) in connection with the Request for Proposals for handling waste at the four MTSs. The BAFO specifically seek proposals on alternative facilities at which containerized waste from its MTSs can be transloaded and, subject to the limitations above, the City will not contract to transload annually more than 75% of the containers generated at the MTSs at any single in-city transloading facility. This provision shall not be mandatory or in any way binding if, over a twenty year term of any agreement to transport and dispose of containerized waste from MTSs, the estimated additional cost to the City of utilizing more than one facility exceeds by $100 million the estimated cost that the City would pay in the absence of this provision 3.4.1.1.

3.4.2 Converted MTS Capacities

In order to define the average and peak hourly design capacities of the Converted MTSs, historical data regarding truck and tonnage arrival rates from FY 1998 were evaluated and analyzed. Based on this analysis, it was determined that a Converted MTS would be designed with a tipping floor to accommodate 30 collection vehicles per hour and a loading level to process and containerize 220 tons of MSW per hour. If the facility were to operate at full capacity over an entire day (i.e., three shifts with a productivity of 6.5 hours per shift), it could process 4,290 tons of waste. DSNY has proposed specific permit limits for the Converted MTSs that reflect the DSNY-managed Waste that would be generated in the respective wasteshed for each MTS and the amount of Commercial Waste that could be processed in nighttime hours without causing noise impacts, as determined in the FEIS, that are lower than the nominal

design capacity. Although the design capacity of the Converted MTSs is 4,290 tpd, Table 3.4-1 presents expected throughput capacities at the Converted MTSs for DSNY-managed Waste, based on average tpd and average peak tpd of DSNY-managed Waste generated in the wastesheds served by the MTSs facilities and also including Commercial Waste.[7] The average and average peak day tpd are numbers that DSNY has used for planning purposes and in draft permit applications and are consistent with the environmental review in the FEIS. There would be occasions, subject to permit limits, when the full design capacity of the Converted MTSs would be required to deal with upset conditions in the City's waste management system. The classic example of this is following a snow emergency, when several days of waste have accrued. Also, unanticipated outage conditions in one element of the system could require temporary shifts in waste deliveries among the Converted MTSs.

Table 3.4-1
Converted MTS Average Throughputs

Converted MTS Location	(1) DSNY Average TPD	(2) Average Peak Day TPD	(3) Commercial Tonnage (Noise Constrained) (1) TPD	Total (Sum of Columns 2 and 3)
SWMP Export Facilities				
Hamilton Avenue	1,900	2,280	1,274	3,554
Southwest Brooklyn	950	1,140	828	1,968
East 91st Street	720	864	780	1,644
North Shore	2,200	2,640	1,000	3,640

Note:
(1) This total includes the potential for processing Commercial Waste that is presented as a Proposed Action in Section 4.

[7] The subject of potentially processing Commercial Waste at the Converted MTSs is addressed in Chapter 4.

3.4.2.1 Converted MTS Community Advisory Groups

Within six months of the effective date of this SWMP, DSNY shall establish four Community Advisory Groups ("CAGs") in the respective Community Districts that host Converted Marine Transfer Stations. The CAGs will advise the Mayor and other elected officials on the development, construction and operation of the respective Converted MTSs.

The CAGs shall consist of no fewer than ten members, four appointed by the Mayor, three appointed by the borough president where the respective Converted MTS is located and three appointed by the council member elected from the council district in which the respective Converted MTS is located. The membership of each Community Advisory Group shall represent community boards, environmental and environmental justice organizations, business organizations, property owners, other local community groups and concerned members of the general public.

Members shall serve for a term of two years without compensation and shall designate one member to serve as chairperson and one as vice-chairperson. No member may serve more than two consecutive terms. The Community Advisory Groups shall exist for ten years, at which time the City Council and the Administration will evaluate their effectiveness and continued merit, and jointly determine whether the program should be extended.

3.4.3 Private Transfer Stations

All of the five private transfer stations included in the SWMP are existing facilities. Of the five existing facilities, four would require permit modifications to facilitate barge or rail export and/or expansions of their existing permitted capacities. Table 3.4-2 provides a summary of the permitted status of these facilities, proposed capacity expansions where applicable, other required permit modifications where applicable, and DSNY wastesheds served. Where an expansion of capacity is proposed (see Table 3.4.2), the BQB RFPs require that waste companies make arrangements to offset these proposed capacity expansions in their respective project service areas, except the Queens procurement, which requires that offsets be obtained in Brooklyn Community District 1 or Queens Community District 12.

Table 3.4-2
Private Transfer Station Capacities

Facility	Community District Location/ Wasteshed Served	Current Permitted Capacity (TPD)	Proposed Expansion Increment (TPD)	Other Permit Modifications	Average Peak Day DSNY Waste (TPD) [1]	Commercial Waste Processed (Yes/No)
Allied Waste Services, East 132nd Street, Truck-to-Truck-to-Rail Transfer Station, Bronx	Bronx 1/ Bronx CDs 1 through 12	2,999	None	Addition of lidding facility	2,337	Yes
Waste Management, Harlem River Yard, Truck-to-Rail Transfer Station	Bronx 1/ Bronx CDs 1 through 12	4,000	None	None	2,337	Yes
Waste Management, 215 Varick Avenue, Truck-to-Rail Transfer Station, Brooklyn [2]	Brooklyn 1/ Brooklyn CDs 1, 3, 4 and 5	4,250	None	Containerization floor plan, lidding area, container storage area and rail siding for loadout of containers onto railcars.	1,114	Yes
Allied Waste Services, 72 Scott-598 Scholes, Truck-to-Rail Transfer Station, Brooklyn	Brooklyn 1/ Brooklyn CDs 1, 3, 4 and 5	220	1,148	Consolidation of operations among three separate facilities, rail improvements	1,114	Yes
Waste Management, 30-58 Review Avenue, Truck-to-Truck-to-Rail Transfer Station, Queens with containers drayed to Maspeth railyard	Queens 2/ Queens CDs 1 through 6	958	417[3]	A modified facility, sized to process waste from Queens CDs 1 through 6 (an increase of one CD in the wasteshed delivering to the current facility) will be developed at the site of the existing transfer station. [4]	1,375	To be determined

Notes:

[1] Average peak day values are those used in FEIS.

[2] Reflecting negotiations with Waste Management, this facility replaces its 485 Scott Avenue Facility. It was not evaluated in the FEIS and the permit modification is subject to environmental review.

[3] This is the difference between the existing permit capacity of 958 tpd and a proposed weekly permit limit of 8,251 tons per week, which on a 6 day average week basis equates to 1,375 tpd. The 1,375 tpd value is derived from actual FY 2006 data for a 6-week period from May 22 through July 1 during which average day deliveries were 1,146 tpd. This average day value was increased by 20% to provide a margin for future growth and contingency.

[4] This facility modification is subject to a new environmental review to support the permit expansion.

3.4.4 Transloading Facilities

Upon completion of containerizing waste at the MTSs, the containers will need to be transported to out-of-city disposal sites. Prior to such export, in most cases the containers will need to be transloaded from the barges originating at the MTSs to either trains or ocean-going barges for transport to disposal locations. To the extent that such operations occur at a transloading facility within the City, it is in the City's best interests that MTS-originated containers be transported to their final disposal location as expeditiously as possible and that such containers not be stored at the transloading facility, or otherwise remain at such facility any longer than necessary to complete the transloading of the containers and preparation for shipment or other transport to a final disposal location. To meet these goals, the City will make reasonable efforts, subject to normal operating conditions and operational feasibility and practicability, to ensure that at an in-city intermodal facility (i) the time from which any MTS-originated container is removed from a barge to the premises of such facility and is transloaded onto another barge or railcar for ultimate transport out of the City shall not exceed 24 hours; (ii) under no circumstances shall the time from which any MTS-originated container is removed from a barge to the premises of such facility and is transloaded onto another barge or railcar for ultimate transport out of the City exceed 48 hours; and (iii) that on an annual basis, at least 50% of the containers handled by such facility shall be transloaded to a barge for final disposal and no more than 50% of the containers handled by such facility shall be transloaded to a railcar for transport to a final disposal location.

3.4.5 Council Review of Modifications to the SWMP

If DSNY proposes a permanent alteration in the manner in which five (5) percent of the City's residential waste stream or ten (10) percent of the City's overall waste stream is handled, DSNY must submit such proposal to the Council. The Council shall have sixty (60) days from the date it receives such proposal to vote on a local law that either approves or rejects DSNY's proposed modification to the SWMP. If the Council fails to pass a local law within this sixty-day time period that either approves or rejects the proposed modification, the proposed modification shall be deemed approved.

3.5 Existing Programs

DSNY's operations also include refuse and Recyclable collections and Interim Export. These and other existing DSNY activities are described in Attachment VIII and Appendix E.

3.6 Future Manhattan Capacity

The Proposed Actions for Long Term Export Facilities and Contracts described in Section 3.3, together with the proposed use of the West 59th Street MTS for Commercial Waste Transfer described in Section 4.3.2.1 and the proposed Gansevoort Recycling and Education Center for Manhattan metal, glass, plastic and paper described in Section 2.3.2 will allow Manhattan to handle more waste and recyclables within the borough. However, there are still significant amounts of commercial and residential waste that will leave the borough for handling and export. The proposed Gansevoort facility may require an amendment to the Hudson River Park Act, the approval of which is uncertain at this time.

DSNY will continue to investigate potential alternative solid-waste-transfer station locations in Manhattan and will do so on a strict timeline, stated herein, while seeking approvals for the West 59th Street and Gansevoort MTSs. Specifically, DSNY will seek a location or locations with the collective capacity to transfer up to 3,000 tpd of Commercial Waste. DSNY may accomplish this through additional siting studies, Requests for Expressions of Interest or other means.

DSNY will report to the Council on January 1st of each year, beginning on January 1, 2008, as to what efforts have been made to identify alternative transfer station locations.

The City shall issue an RFP for the use of the West 59th Street MTS no later than six months after adoption of the SWMP by the Council. No later than 18 months from the date of the adoption of the SWMP by the Council, the City shall report to the Council as to the progress of the RFP process and any other approvals needed to use this facility for commercial waste processing. If by three years from the date of approval of the SWMP by the Council the City does not have an executed agreement for the use of the West 59th Street facility or the Gansevoort facility, the City will report to the Council on the status of these facilities and will make recommendations as appropriate to address the handling of Manhattan's commercial waste

and recyclables through the submission to the Council of a proposed modification to the SWMP. The proposed modification may include, without limitation, a new timeline for completing an agreement for use of the West 59th Street facility and/or the Gansevoort facility or a new proposal for handling some or all of Manhattan's commercial waste or recyclables.

The scheduled timetables for milestones for the development of Manhattan commercial waste capacity described in this Section are set forth in Table 4.3-1, SWMP Milestones – Commercial Waste. The scheduled timetable for the development of the Gansevoort Recycling and Education Center for Manhattan is set forth in Table 2.5-1, SWMP Milestones – Recycling.

3.7 MTS Reporting and Permitting

No later than 18 months from the date of the adoption of the SWMP by the Council, the City shall report to the Council on the progress of the RFP process and any other approvals needed to use the 4 MTSs. If any of the agreements for the 4 MTSs are not finalized within four years of the adoption of the SWMP by the Council, then the City will report to the Council on the status of these facilities and will make recommendations as appropriate to address the handling of the City's residential waste through the submission to the Council of a proposed modification to the SWMP. The proposed modification may include, without limitation, a new timeline for finalizing agreements for any of the 4 MTSs or a new proposal for handling the City's residential waste, including alternative MTS sites.

With respect to the permitting of the MTSs for the handling of putrescible waste, DSNY will only seek permits consistent with the tonnage information set forth in the Final Environmental Impact Statement, provided, however, that if the amounts of residential waste generated or collected in the waste shed served by the relevant MTS is at any point in time higher than the amount set forth in the FEIS, the MTS permits can be amended to reflect such increased amounts of residential waste generated or collected.

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4.0 COMMERCIAL WASTE MANAGEMENT

4.1 Introduction

This section provides background information on the City's Commercial Waste system and describes the Proposed Actions directed at improving export of Commercial Waste from the City and the facilities that would be involved. New Initiatives, elements of Existing Programs, are also described. These include regulatory and enforcement actions aimed at siting restrictions and improving the operation of existing facilities. More detailed information on Existing Programs is provided in Attachment IX.

4.2 Background

In complexity, Commercial Waste management is as significant as its residential counterpart. The volume managed is even larger, accounting for nearly 75% of the City's total waste stream. Yet unlike residential waste, Commercial Waste is managed by the private sector, not DSNY.

Nevertheless, the City has historically played an important role in the management of Commercial Waste. At times in its past, the City allowed private haulers to take advantage of its solid waste infrastructure, including its landfills and MTSs. More recently, that role has been reversed; for its current, Interim Export contracts, the City relies on some in-City private-sector infrastructure and continues to regulate that infrastructure.

This private-sector infrastructure consists of a network of land-based transfer stations, points at which waste from local collection trucks is transferred for long-haul export. These transfer stations are generally located in M3 districts, districts reserved for heavy industry which are well buffered from residential communities. However, waste trucks traveling to and from these transfer stations often pass through residential communities.

Two features of the current system have served as the focus of concern recently. The first is that Manhattan has no private transfer stations, despite the fact that over 40% of the City's Putrescible Commercial Waste is generated in Manhattan. As a result, although some waste is

driven directly out of the City, most of Manhattan's Commercial Waste is driven to another borough before it is exported from the City. Further, because only one of the City's 19 private Putrescible Transfer Stations exports waste by means other than transfer trailer, the export of waste—not just its collection—creates truck traffic.

This SWMP recognizes the importance of taking concrete action to address both of these issues: the in-City distribution of facilities for Commercial Waste transfer and the heavy reliance on long-haul trucks for export. Additionally, it outlines steps that address other issues identified by the CWM Study completed in 2004, including DSNY's stepped up enforcement program and strengthened operating procedures and environmental controls at transfer stations.

4.3 Proposed Actions – Commercial Waste Facilities and Contracts

To achieve a more balanced distribution and reduce effects from Commercial Waste transfer operations in those CDs that currently have the greatest number of transfer stations, the following measures are proposed:

- Assess the feasibility of providing the site of the existing Manhattan West 59th Street MTS to private waste management companies to use for the transfer of Commercial Waste collected by private carters in Manhattan. The facility could be: (i) refurbished and used in conjunction with an EBUF; or (ii) redeveloped as a containerization facility.

- Design measures to encourage private carters to deliver Commercial Waste during the 8:00 p.m. to 8:00 a.m. time period to the four Converted MTSs that are elements of the Proposed Action for Long Term Export (Hamilton Avenue, Brooklyn; Southwest Brooklyn, Brooklyn; East 91st Street; Manhattan; and North Shore, Queens).

- Negotiate arrangements with the owner/operators of the selected private transfer stations in the Bronx, Brooklyn and Queens that submitted proposals in response to the BQB RFPs and that are potential elements of the Proposed Action to cause any Commercial Waste (in addition to DSNY-managed Waste) processed at these facilities to be containerized and exported from the project service area by barge and/or rail.

4.3.1 Advantages of the Proposed Action

These Proposed Actions, if fully implemented and taken together with the Long Term Export Proposed Actions, would facilitate the City's transition from an almost wholly truck-based waste export system to a predominantly rail- and/or barge-based export system for the City's putrescible waste.

4.3.1.1 West 59th Street MTS Site for Commercial Waste Transfer

Developing this site for transfer of a portion of Manhattan-generated Commercial Waste would:

- More equitably distribute the impacts of Commercial Waste transfer among the City's boroughs;
- Reduce the volume of transfer trailer truck traffic in the City;
- Provide the site most proximate to midtown, a major generator of Commercial Waste; and
- Shorten carters' current runtime from the end of their midtown collection route to their tipping locations in other boroughs, resulting in a decline in the overall duration of commercial collection operations and fewer vehicle miles traveled in the City.

4.3.1.2 Commercial Waste Transfer at Four Converted MTSs

The advantages of using the Converted MTSs to containerize Commercial Waste include:

- Capitalizes on unused capacity during the hours when private carter collection operations occur. As DSNY would tip during the day and private carters at night, there is minimal potential for conflict in terms of processing both waste streams at the Converted MTSs.
- Potentially removes approximately 178 transfer trailers from the City's streets that would otherwise be transporting waste for export. As containerization facilities, the four Converted MTSs have potentially available capacity for processing up to approximately 3,915 tpd of Commercial Waste.

4.3.1.3 Containerization and Rail Export from Private Transfer Stations

The advantages of requiring private transfer station owners/operators who are containerizing and exporting DSNY-managed Waste by barge and/or rail to also containerize and export by barge or rail any Commercial Waste processed at their respective facilities are:

- Reduces outbound transfer trailer traffic from the private transfer stations, thus reducing truck traffic in these communities; and
- Accelerates the conversion of the City's private transfer network towards a barge- and/or rail-based system that will have long-term economic and environmental benefits for the City.

4.3.1.4 Commercial Waste Reporting

As stated, DSNY will make all best efforts to attract commercial waste to the MTSs. Success in this endeavor, as well as the development of a commercial MTS at 59th Street, is critical to relieving the several neighborhoods that currently suffer the brunt of commercial waste management in the City. Consequently, DSNY will report to the Council on the February 1st after the first MTS has been operational for a full year, and annually thereafter, regarding the use of the MTSs by private haulers carrying commercial waste. If any MTS receives less than 50% of the commercial capacity analyzed in the FEIS for three years in a row, DSNY will report to the Council on the status of commercial recycling and will make recommendations as appropriate for the handling of commercial waste through the submission to the Council of a proposed modification to the SWMP.

4.3.2 Implementation

4.3.2.1 West 59th Street MTS Site for Commercial Waste Transfer

DSNY will assess the feasibility of providing the West 59th Street MTS Site for Commercial Waste transfer through a Request for Proposals (RFP). The RFP will establish minimum requirements for the use of the site and solicit information on how companies would propose to refurbish/redevelop the site and conduct operations. On the assumption that a company's

proposal and plan of operation for the site will differ from the Converted MTS design developed by DSNY, Section 40.3.2.3.2 of the FEIS notes that a supplemental environmental review of the selected proposer's facility will be required. DSNY will serve as the lead agency for the environmental review.

The RFP will require that proposers submit two proposals: one that is based on the assumption that the current paper-barge operation is relocated; and a proposal based on the assumption that the paper-barge operation remains at West 59th Street.[1]

The City shall issue an RFP for the use of the West 59th Street MTS no later than six months after approval of the SWMP by the Council. No later than 18 months from the date of the approval of the SWMP by the Council, the City shall report to the Council as to the progress of the RFP process and any other approvals needed to use this facility for commercial waste processing. If by three years from the date of approval of the SWMP, the City does not have an executed agreement for the use of this facility for processing commercial waste, the City will report to the Council on the status of the West 59th Street facility and will make recommendations as appropriate to address the handling of Manhattan's commercial waste through the submission to the Council of a proposed modification to the SWMP. The proposed modification may include, without limitation, a new timeline for completing an agreement for use of the West 59th Street facility or a new proposal for handling some or all of the commercial waste generated in Manhattan.

4.3.2.2 Commercial Waste Transfer at Four Converted MTSs

The City intends to develop policies that will result in the processing of Commercial Waste at the four Converted MTSs as part of the SWMP. When these policies are implemented, containerizing Commercial Waste at the four Converted MTSs would proceed.

[1] Such a proposal may be implemented if, for example, the paper-barge operation is not relocated to a new facility at Gansevoort Street, as proposed in Section 2.3.2 of the Draft SWMP.

4.3.2.3 Milestones

Table 4.3-1 lists Milestones related to each of the Proposed Actions.

Table 4.3-1
SWMP Milestones – Commercial Waste

PROGRAM Milestone	Scheduled Fiscal Year	SWMP Section
ASSESS FEASIBILITY OF USING WEST 59TH STREET MTS FOR PROCESSING COMMERCIAL WASTE		
Issue an RFP to solicit private vendors	2007	See Sections 4.3 and 3.6
Report on West 59th Street RFP process progress and required approvals	2008	Sections 4.3 and 3.6
Recommend SWMP modifications on commercial waste to Council if the City does not have an executed agreement for use of West 59th Street MTS	2009	See Sections 4.3 and 3.6
USE OF CONVERTED MTSs TO CONTAINERIZE COMMERCIAL WASTE		
Assess alternative implementation methods	2009	See Section 4.3
Implement selected method	2010	See Section 4.3
Report on use of MTSs for transport and disposal of commercial waste	2010	See Section 4.3
Report to Council on status of commercial recycling and propose SWMP modifications if for 3 years in a row, any MTS receives less than 50% of commercial capacity analyzed in FEIS	Post 2010	See Section 4.3
FUTURE MANHATTAN CAPACITY		
Investigate potential alternative Manhattan solid waste transfer station locations and report to Council annually on efforts to identify alternative locations	2008	See Section 3.6
TRANSFER STATION CAPACITY REDUCTION		
Commence negotiations with transfer station operators to seek transfer station putrescible and C&D capacity (permitted and used) reductions in select CDs	2007	See Section 4.4
Reach agreement on transfer station capacity reductions by April 2007, if not work with Council to draft legislation to accomplish reductions	2007	See Section 4.4
MTS host district specific and Bronx capacity reductions to occur	2010	See Section 4.4

Table 4.3-1 (Continued)
SWMP Milestones – Commercial Waste

PROGRAM Milestone	Scheduled Fiscal Year	SWMP Section
TRUCK TRAFFIC ANALYSIS		
DSNY and NYCDOT to conduct a traffic study to assess the feasibility of redirecting transfer station truck routes to minimize potential impacts to residential areas	TBD	See Section 4.4
NYCDEP FOOD WASTE DISPOSAL STUDY		
With support from DSNY and NYCEDC, issue RFP to solicit consultant to conduct study to understand the costs and benefits of the use of commercial food waste disposals in defined areas of the City	2008	See Section 5.4
Consultant to complete study	2009	See Section 5.4

4.4 New Initiatives

4.4.1 Introduction

In addition to the Proposed Action described above, DSNY has undertaken and will undertake several new initiatives that are consistent with its oversight role in Commercial Waste management. This role currently involves the issuance of Commercial Waste transfer station operating permits, conducting ongoing transfer station inspections, and enforcing regulations that pertain to transfer station operation.

This SWMP sets forth several new initiatives with regard to Commercial Waste management that aim to accomplish the following objectives:

- Strengthen the regulations pertaining to the siting of new transfer stations and to disallow a net increase in capacity in those CDs that already have the greatest number of such facilities;

- Hold privately owned waste transfer station to higher operational standards, thereby reducing the impacts of these facilities;
- Enhance the effectiveness of enforcement efforts through training and technological improvements, which will be financed through increased transfer station permitting fees;
- Identify the best means of reducing putrescible transfer station capacity in the two or three communities with the greatest concentration of transfer stations as the Converted MTSs become operational; and
- Reduce the impacts on those communities that are along truck routes leading to transfer stations by evaluating alternate routing options.

4.4.2 New Siting Regulations

In 2004, DSNY amended the rules governing the siting of private solid waste transfer stations in the City. For the first time, these rules place restrictions on both the siting of new solid waste transfer stations and the ability of existing transfer stations to increase their lawful daily permitted throughput capacity. At the same time, the rules encourage the development of transfer stations that transport solid waste from the City by rail or barge.

These amendments restrict the siting of new solid waste transfer stations by placing CDs into five categories based upon the total number of transfer stations located in a specific Community District. These categories each contain specific restrictions regarding the buffer distance of any new transfer station from a residential district, hospital, public park, school or another solid waste transfer station, and a requirement that a new transfer station shall provide space for on-site queuing of trucks. In all CDs, a new transfer station must be at least 400 feet from a sensitive receptor, and the buffer distance requirements between a new transfer station and sensitive receptors increase based upon the number of transfer stations located in a Community District. The rules also place restrictions on the ability of existing transfer stations to expand permitted capacity that are similarly tied to buffer distances from sensitive receptors and limit the total number of transfer stations that can be sited in M1 districts in any one Community District.

In CDs with the highest number of transfer stations (Brooklyn CD 1, Bronx CD 2), in order for a new transfer station to be permitted or for an existing transfer station to be allowed to increase its lawful daily permitted throughput capacity, the transfer station must obtain a corresponding reduction (offset) in the lawful daily permitted throughput capacity at a transfer station located in the same Community District.

The DSNY will conduct periodic reviews of transfer station capacity with the objective of minimizing the concentration or impacts of transfer stations, particularly in those communities with the largest number of transfer stations (see Section 4.4.4).

4.4.3 New Operational Regulations

In 2005, DSNY amended the existing rules governing the operation and maintenance of private solid waste transfer stations found in Title 16 of the Rules of the City of New York (RCNY). The amendments set forth more stringent operation and maintenance requirements for all transfer stations, existing and new, and provide additional enforcement measures that further minimize the environmental impacts of transfer station operations.

In response to the CWM Study's finding that the largest amount of particulate matter generated from transfer station operations originates from stationary equipment and non-road motor vehicles operated outdoors at transfer stations, and, consistent with the City's Air Pollution Control Code, the rules place certain prohibitions on visible air emissions coming from such equipment and vehicles. Since 2005, DSNY's Permit and Inspection Unit (PIU) officers have received training in United States Environmental Protection Agency (USEPA) visual calibration methods to visually determine the density or opacity of plumes of smoke or other air contaminant emissions coming from stationary equipment and non-road motor vehicles, as well as the length of time such emissions last. Based upon this training, DSNY's officers are qualified to issue violations for unlawful air emissions coming from outdoor equipment and vehicles at transfer stations. In addition, transfer stations are required to submit documentation annually, certifying that all their stationary equipment and non-road motor vehicles that operate outdoors have been inspected to ensure proper maintenance and operating condition.

The rules also require state-of-the-art odor control equipment at Putrescible Transfer Stations. Specifically, the rules mandate the installation of ventilation equipment that will improve the air exchange rate at Putrescible Transfer Stations and prevent the escape of malodorous air. All Putrescible Transfer Stations are also required to install odor control equipment that neutralizes odors, rather than simply masks odors with another scent. The recommended odor control equipment consists of a hard-piped, high-pressure system, suspended above the facility's tipping floor, with rings of mist nozzles strategically aimed at fans and exhaust vents.

Lastly, the rules provide additional enforcement measures to prevent dust generation and tracking material onto public roadways. Fill Material Transfer Stations are required to pave their entrance and exit areas, and C&D Transfer Stations are required to pave the receipt, processing and storage areas of their facilities. All transfer stations are required to implement a method for cleaning motor vehicle tires before vehicles may exit a facility.

4.4.4 Seek to Reduce Permitted Transfer Station Capacity in Select CDs

The reopening of the MTSs will have the effect of creating significant new putrescible capacity for the City in areas that do not have large numbers of transfer stations. DSNY proposes to explore ways to reduce the daily permitted putrescible capacity in the communities with the greatest concentration of transfer stations as new putrescible transfer station capacity becomes available under the City's new long-term waste export plan. Specifically, DSNY will reduce the Citywide, lawfully permitted putrescible and construction and demolition (C&D) transfer capacity by up to 6,000 tpd (up to 4,000 tons of putrescible capacity and up to 2,000 tons of C&D capacity) through reductions in the capacity of community districts Bronx 1, Bronx 2, Brooklyn 1 and Queens 12 (the "relevant community districts") as the city-owned MTSs become operational. To the extent that it is legally feasible and does not affect the City's operational ability to dispose of City waste, DSNY will seek these reductions through meaningful capacity reductions in each of the relevant community districts relative to the legally permitted capacity in those districts. DSNY will seek to achieve the district-specific reductions no later than one year after the city-owned MTSs serving the borough in which each particular district is located become operational. In the Bronx (which will not have an MTS), the reduction will occur no

later than one year after the first MTS becomes operational. To the extent it is legally feasible, DSNY will attempt to ensure that the amount of putrescible waste sent to the relevant community districts is reduced and not only the amount of permitted capacity. DSNY intends to work with community groups, the City Council and the solid waste industry to implement this proposal. DSNY may also work with the City Council, as necessary, to amend Section 16-131 of the Administrative Code to clarify that DSNY has the authority to reduce permitted capacity at transfer stations.

In determining whether to reduce the lawful permitted putrescible capacity of a transfer station, factors to be considered will include, among other things: 1) the overall concentration of transfer stations in the community district in which the transfer station is located; 2) a transfer station's proximity to other transfer stations; 3) a transfer station's unused throughput capacity in relation to its lawful permitted capacity during the twelve month period immediately preceding the date when the obligation to reduce authorized capacity became effective; 4) the City's solid waste management needs; 5) a transfer station's compliance with revised operating rules promulgated by DSNY in 2005; 6) a transfer station's ability to facilitate export of waste outside the city by barge or rail; and 7) a transfer station's ability to provide on-site truck queuing; 8) number and type of violations issued to a transfer station during the eighteen month period immediately preceding the date when the obligation to reduce the authorized capacity became effective. Within three months of the Council's adoption of the SWMP, DSNY, in cooperation with the Council, will commence negotiations with representatives of the solid waste management industry to seek voluntary reductions in permitted transfer station capacity. Should these negotiations fail to result in agreed-upon capacity reductions by April 1, 2007, DSNY will work with the Council to draft legislation to accomplish reductions in permitted transfer station capacity. DSNY may also work with the City Council, as necessary, to amend Section 16-131 of the Administrative Code to clarify that DSNY has the authority to reduce permitted capacity at transfer stations.

4.4.5 Traffic Analysis for Alternatives to Sensitive Truck Routes

The majority (68%), of the Commercial Waste transfer stations in New York City are in areas zoned for the heaviest industry (M3 zones) and thus are well buffered from any conforming residential use. However, trucks traveling to and from the transfer stations use commercial thoroughfares that pass through residential areas, e.g., Metropolitan Avenue in Greenpoint, Brooklyn.

The CWM Study (Appendix E) analyzed 58 key intersections in areas leading up to transfer stations and determined that the percentage of waste hauling vehicles was no more than 7% of the total number of vehicles traveling through any of the intersections. The number is comparatively small, but DSNY recognizes that waste-hauling trucks can cause noise and other potentially adverse community impacts.

DSNY and the New York City Department of Transportation (NYCDOT) will conduct a traffic study to assess the feasibility of redirecting transfer-station truck routes to minimize, to the extent possible, potential adverse impacts of those routes in residential areas. This study will build upon the CWM Study (Appendix E) and other available data and will focus on practical and cost-effective ways to reduce community impacts from transfer station truck traffic. Such mitigation measures if possible could include:

- Appropriate signage at facility reminding driver of designated export truck route;
- Recommendations for designating specific routes for waste hauling traffic leaving transfer stations under existing DSNY authority;
- Additional regulatory measures;
- Possible modifications to/detours from the local truck route network (possibly limited to waste hauling trucks) to avoid residences and sensitive receptors;
- Structural changes to the geometry of certain intersections to enable waste hauling traffic to avoid truck route sections with numerous residences;
- Other measures, as appropriate.

The study will be confined to four communities:

- Hunts Point, Bronx
- Port Morris, Bronx

- Greenpoint/Williamsburg, Brooklyn
- Jamaica, Queens

The detailed Scope of Services for the study is attached as Appendix G.

4.4.6 Increased Transfer Station Fees

All privately owned waste transfer stations pay an annual fee that accompanies the submittal of their permit renewal to DSNY (per Section 16-131(c) of the Administrative Code). The fee is designed to cover DSNY's administrative costs, as well as the costs of enforcing the regulations that pertain to private transfer station operations. (A complete list of these regulations can be found in the CWM Study, Volume II, Appendix E.) This approach of using permitting fees to fund enforcement is one that the National Environmental Justice Advisory Council's Waste Transfer Station Working Group recommends for lead enforcement agencies such as DSNY.

Currently, DSNY charges a two-tiered fee depending on whether private transfer stations are handling putrescible waste or non-putrescible waste (such as C&D waste or fill material). While the number of inspectors has increased significantly over the past ten years, the fee has not. In order to maintain current levels of inspection, hire new inspectors and enhance the performance of inspection agents overall, DSNY will increase the annual fee it charges to private transfer stations. To accomplish this new initiative, DSNY will propose an amendment of Section 16-131(c) of the Administrative Code and seek City Council approval of such amendment.

The increased revenue would cover the costs of new inspectors, as well as technology-based enhancements to improve inspection efficiency. Specifically, DSNY will hire additional personnel, including a full-time industrial hygienist, who will serve several important functions with regard to transfer station enforcement. These individuals will be responsible for reviewing and approving the detailed engineering plans that will be required of all facility operators to demonstrate that the facility is in compliance with the new operating regulations, described in Section 4.4.3. Additionally, these individuals will lead DSNY's new opacity-reading program, described in Section 4.4.3.

Technology enhancements that will be covered by the increased fee will include upgrading DSNY's enforcement database and providing enforcement agents with handheld electronic devices to access and input data in the field. An electronic form will increase efficiency during the inspection for the facility being inspected and the inspectors. Indicators such as location, weather, exact time and date, and facility permit status could be recorded automatically, eliminating human error. The entire file of infraction and penalty payment information could be electronically linked to each violation entry, providing seamless access to data.

DSNY will over time look to integrate this database with that of the NYSDEC, so that the two agencies can more effectively coordinate their enforcement efforts. A complete history of each facility's violation past should be recorded and accessible to all agencies that might use the information to track further violations, target enforcement efforts or adjust regulatory processes at certain facilities.

Transfer station enforcement quality has shown major improvements over the last decade due to the increased frequency of inspections. However, further improvements can be made, especially to enhance the level of coordination within and between the City agencies responsible for enforcement. With the creation of a fully computerized system of inspection forms at the agency level, the universal coordination of waste transfer enforcement information can easily be fostered.

4.5 Status of Current Programs

Information regarding all aspects of the City's current Commercial Waste management system can be found in the CWM Study. See Appendix E of the SWMP. Attachment IX offers: information on DSNY's regulatory role and enforcement activities contained in the CWM Study; a characterization of the private transfer station system in the City; a description of DSNY's role in its regulation and the regulatory responsibilities of other agencies; and a description of the recycling regulations applicable to Commercial Waste generators. Attachment IV reports on Commercial Waste quantities and projections for the period of the SWMP.

4.5.1 Enforcement

Enforcement is an important part of DSNY's oversight of the Commercial Waste management system, and as such a review of the current enforcement practices at the City's privately owned transfer stations is included here.

DSNY is responsible for regulating and inspecting the operation and maintenance of privately owned transfer stations permitted by the DSNY. Currently there are 54 transfer stations, holding 18 putrescible station permits, 22 non-putrescible stations permits and 20 fill material station permits.[2]

Twenty-two (22) officers – 17 Environmental Police Officers and 5 Environmental Lieutenants – comprise the PIU and conduct the on-site inspections of these facilities. The frequency of these inspections is dependent on the type of material processed at the facility. Full inspections are conducted at Putrescible Transfer Stations and Non-Putrescible Transfer Stations roughly 5.2 times a month and at Fill Material Transfer Stations approximately twice a month. Inspections can occur 24 hours per day, 7 days per week. The one- to two-hour inspection examines a variety of potential violations concerning transfer station management procedure, cleanliness, noise, machine maintenance and general operation. The inspector measures and evaluates the current level of waste on site as well as reviews recent record logs.

Drive-by inspections (which are not scheduled) usually last roughly 15 minutes and occur twice as frequently as full inspections. There are approximately 240 to 250 per month. The number of stations each inspector is responsible for varies depending on shift rotation. Each shift generally has four teams of two officers that rotate through the transfer stations. Drive-by inspections occur when an inspector has other reason to be in the vicinity of the transfer station and constitute a basic evaluation of "quality of life" issues and a general maintenance check at the transfer station. DSNY frequently adapts new inspection and surveillance techniques to be less conspicuous.

[2] Five facilities have dual permits, i.e., putrescible/non-putrescible, and one facility has three permits, but the total number of actual facilities is 54. There are also three intermodal facilities authorized to accept waste in sealed containers for transloading onto railcars.

DSNY adheres to a no-tolerance policy for "quality of life" infringements. When a violation pertaining to odors, leachate, vectors/rodents or dust occurs, definite action is most always taken. In such cases, a summons violation is immediately issued and must be followed up. For other infringements relating to facility maintenance or procedure, a warning may be issued before summons action is taken.

Various fine structures exist depending on the type, severity and frequency of a violation. Certain transfer station violations, such as operating a transfer station without a valid permit or being in violation of DSNY's operational rules, warrant a fine ranging from $2,500 for a first offense, $5,000 for a second offense and up to $10,000 for third and subsequent offenses. Other violations, such as those relating to sidewalk and street infractions, have lower liability amounts that warrant fines between $100 and $300.

Generally speaking, an overall bolstering of enforcement efforts in the last few years has led to increased adherence to regulations and permit conditions. The existence of a progressive fine structure with higher penalties for repeat violators and the fact that persistent offenses can lead to closure has allowed for persuasive enforcement. DSNY longitudinal statistics report a decline in violations as well as in number of facilities over the past decade, as a result of the increased frequency of inspections and the closure of negligent facilities. In 1990, 153 transfer stations were in operation; this number dropped to 96 in 1996 and to 54 transfer stations currently.

Arguably, no other industry in the City is inspected as frequently or is held under as intense scrutiny as the waste transfer industry. Inspectors are continuously challenged to respond to the concerns of residents while balancing the needs of an industry that provides a vital City service. DSNY recognizes the need to maintain and strengthen its enforcement efforts over the course of this SWMP planning period.

4.5.2 Other Existing Programs

More detailed information on Existing Programs is provided in Attachment IX.

5.0 OTHER PLANNING INITIATIVES

5.1 Waste Characterization

5.1.1 Introduction

Section 27-0107 of the New York State Conservation Law requires New York State planning units (counties and municipalities) to draft, and update at least decennially, a local SWMP. Among the requirements of such local SWMPs is one to "characterize the solid waste stream to be managed in the planning period." (New York State Environmental Conservation Law, Section 27-0107, Subsection 1.b.i.) In response to this, in April of 2004, the Bureau of Waste Prevention, Reuse and Recycling (BWPRR) of DSNY contracted with a consulting firm to conduct a Citywide WCS.

The WCS is being coordinated through the BWPRR and involves the participation of several other bureaus within DSNY, including the Bureau of Cleaning and Collections, the Bureau of Waste Disposal, and the Bureau of Planning and Budget's Operations Management Division. A preliminary WCS has been completed, as has Phase I of the Citywide WCS. Issuance of the Phase I Report and the conduct of Phase II of the WCS will provide more in-depth information on the DSNY-managed Waste stream.

The last Citywide WCS was conducted in the City in 1989-1990. Over the past 12 years, DSNY has conducted four smaller-scale waste composition studies of DSNY-managed refuse and recycling.[1] The results of these studies varied considerably because they examine different groups of waste generators served by DSNY. The results of the 1989-1990 study have been

[1] For the DSNY's 1990 Waste Composition Study, see DSNY, A Comprehensive Solid Waste Management Plan for New York City and Final Generic Environmental Impact Statement, Appendix Volume 1.1, Waste Stream Data, August 1992; and DSNY Operations Planning Evaluation and Control, New York City Waste Composition Study 1989-1990 (four volumes). For the DSNY's Staten Island Waste Composition Study, see HDR Engineering, Inc., Report on Staten Island District 3 Waste Composition Analysis (June 1997). For the DSNY's Low-Diversion Districts Waste Composition Study, see DSNY, Mixed Waste Processing in New York City: A Pilot Test Evaluation (October 1999). For the DSNY's "suburban" neighborhood study, conducted for a backyard composting evaluation, see DSNY, Backyard Composting in New York City: A Comprehensive Program Evaluation (June 1999).

utilized in the preparation of the SWMP, while the results of the new WCS currently underway and outlined below will further inform the DSNY's solid waste management planning over the proposed planning period.

5.1.2 Spring Sorts

In Spring 2004, DSNY conducted a preliminary WCS in which the curbside refuse and recyclables stream was evaluated for the City as a whole. The results, summarized in Section 2.3.2 and detailed in the Preliminary Waste Characterization Report in Appendix D, describe the curbside waste stream in terms of its material composition and the breakdown of refuse and recycling streams. It is important to note that while this study was considered preliminary, the sampling procedures used to analyze the data conform to rigorous analytic standards and the study results will provide a valuable background against which the Citywide Phase I results will be compared.

5.1.3 Phases I and II

Phase I of the WCS, which began in summer 2004 and continued through summer 2005, examined residential waste to better understand how it varies by season and by housing density and income. It also assessed street-basket waste, and included a special focus on the relationship between structural and service characteristics of multi-unit buildings and refuse and Recyclables generation and composition. The report of Phase I is expected to be issued in FY 2007. See Section 2.3, Attachment III and Appendix D for additional information.

Phase II will cover the characterization of waste from the public institutions served by DSNY. It will also include an examination of C&D debris, lot cleaning and inter-agency fill streams managed by the DSNY. The scheduling of Phase II has not yet been finalized.

5.1.4 Planning Implication

The outcome of the WCS will enable the DSNY to: (i) determine whether additional materials may be appropriate for recycling or other methods of handling and/or reducing wastes in the future; (ii) improve the DSNY's waste prevention, reuse and recycling efforts by targeting of

groups of waste generators for outreach and publicity; (iii) improve the DSNY's enforcement of existing recycling and other sanitation laws and codes; (iv) inform DSNY operations, including equipment procurement, facility construction and collection route structure; (v) generate information relevant to recycling processors and other entities engaged in market development for the City's Recyclable materials; and (vi) foster a better understanding of how MSW in the City has changed over the past decade, through comparison of study results with results from prior City WCSs.

The level of detail, number of material categories and range of waste streams being examined under the WCS is unprecedented among municipal waste characterization studies for cities throughout the United States. No other city has examined the variation in waste composition by housing density and income or attempted to link, through direct observation (rather than surveys), structural characteristics of multi-unit buildings and their recyclables composition. The ambitious scope of the WCS is appropriate to the City's massive waste stream and particular demographic characteristics, and will set a new standard in municipal waste characterization in the United States.

5.2 Alternative Technology Studies

5.2.1 Introduction

The City's Long Term Export Program (as described in Section 3) will ensure that the City has reliable access to the disposal capacity it requires for the next 20 years. However, there are compelling reasons to continue to investigate alternatives to the landfilling and conventional waste-to-energy disposal options upon which this long-term export plan relies. These reasons are summarized as follows:

- Diversification – By diversifying the means of disposal available, the City will be in a stronger position to insulate itself from the effects of an increasingly monopolistic, national waste management industry.
- Sustainable resource reuse and recovery – Alternative technologies have the potential to recover and reuse a greater portion of the solid waste stream than landfilling, and claim to do so in a more sustainable manner than conventional waste-to-energy technology.

- Reliability and risk – If alternative technologies provided disposal options that could be sited in or near the City, this would decrease reliance on other states, and reduce the risk of federal legislative obstacles that could undermine component parts of the export plan in the future.

With these goals in mind, the City commissioned a comprehensive evaluation of new and emerging solid waste management technologies. The following section describes the evaluation and its findings, including proposed next steps. The final evaluation report can be found in Appendix F.

5.2.2 Summary of the Evaluation

The objective of the evaluation of new and emerging waste management and recycling technologies and approaches was to guide DSNY in its consideration of innovative technologies as part of its waste management system. The report identifies innovative technologies which are available now, i.e., commercially operational processing MSW, those which are soon-to-be commercially in use for MSW, and those which are promising, but in an earlier stage of development. It also compares these technologies to conventional waste-to-energy technology to identify the potential advantages and disadvantages that may exist in pursuing innovative technologies. Conventional waste-to-energy technology was chosen as a point of comparison since it is the most widely used approach to reducing the quantity of post-recycled waste being landfilled.

5.2.2.1 Definition of New and Emerging Technologies

For the purposes of the evaluation, “new and emerging technologies” were defined as technologies (e.g., biological, chemical, mechanical and thermal processes) that are not currently in widespread commercial use in the United States, or that have only recently become commercially operational. Technologies that are commercially operational in other countries, but only recently or not at all in the United States, are defined as "new and emerging" with respect to use in the United States. Table 5.2-1 lists the technologies considered as new and emerging for purposes of the study, and their development status.

5.2.2.2 Technology Selection

Proven, commercial solid waste management processes and technologies with widespread use in the United States, such as conventional waste-to-energy, landfilling and stand-alone material recovery facilities (MRFs), were not considered for this evaluation. The DSNY has already conducted a separate, thorough evaluation of aerobic MSW composting/co-composting, as a prerequisite to evaluating new and emerging technologies. Stand-alone RDF technologies were also considered, upon demonstration that the RDF technology includes innovative features that offer substantial improvements and advantages over conventional RDF technology.[2]

Table 5.2-1
New and Emerging Technologies Categories and Development Status

Technology Category	Commercial Use Outside U.S. for MSW	Pilot Testing with MSW	Additional Research and Testing Required for MSW	Desirable for Monitoring
Anaerobic Digestion	✓	✓		
Thermal Processing	✓	✓		
Hydrolysis		✓		
Aerobic Digestion			✓	
Chemical Processing			✓	✓
Mechanical Processing				✓

[2] Conventional RDF technology is considered to be a process that mechanically separates out metals and inert (non-combustible) materials from MSW (e.g., through screening and magnetic separation) and shreds the screened MSW to produce a more homogenous fuel.

5.2.2.3 Evaluation Methodology

The evaluation started with a wide search to maximize the number of new and emerging technologies evaluated. The search included both a review of unsolicited proposals received by the City in the recent past, and independent research to expand the list of innovative technologies and project sponsors. To further widen the search, a Request for Information (RFI) was issued to gather consistent information from companies offering new and emerging waste management and recycling technologies.

The search resulted in the identification of 43 technologies. Using a methodology developed specifically for the City, these 43 technologies were evaluated through three levels of increasing scrutiny to focus efforts on the most promising technologies. The objective of the evaluation was to identify, describe and evaluate new and emerging technologies based on type of technology, status of development and potential applicability for the City. These technologies were categorized as follows:

- **Thermal.** Thermal technologies are those that use or produce a significant quantity of heat during the course of processing MSW. Common descriptors for thermal technologies include gasification, pyrolysis, cracking and plasma. These technologies are similar, in that exothermic or endothermic chemical reactions occur during the processes that change the composition of the MSW. Types of products resulting from thermal processing include syngas (i.e., synthesis gas composed of hydrogen gases, carbon monoxide and carbon dioxide), which is combusted to produce electricity; char, which is a carbon-based solid residue; and organic liquids (e.g., light hydrocarbons).

- **Digestion** (Aerobic and Anaerobic). Digestion is the reduction of the organic fraction of MSW through microbial decomposition, accompanied by the evolution of liquids and gases. The biological process of digestion may be aerobic or anaerobic, depending on whether oxygen is introduced into the process. Anaerobic digestion produces a biogas, which is primarily methane and carbon dioxide, and compost. Biogas can be combusted to generate electricity. Aerobic digestion produces a compost that may be used as a soil amendment or fertilizer; aerobic digestion does not produce a biogas.

- **Hydrolysis.** Hydrolysis is generally a chemical reaction in which water reacts with another substance to form two or more new substances. Specifically with relation to MSW, hydrolysis refers to an acid-catalyzed reaction of the cellulose fraction of the waste (e.g., paper, food waste, yard waste) with water to produce sugars. Additional process steps are used to convert the sugars to ethanol or other products such as levulinic acid, a commonly used chemical feedstock for producing specialty chemicals.

- **Chemical Processing.** Chemical processing is a general term for technologies that utilize one or a combination of various chemical processes. For the purpose of the study, only one technology was included in this category. That specific technology is based on the chemical process of depolymerization, which is the permanent breakdown of large molecular compounds into smaller, relatively simple compounds. The process converts the organic fraction of MSW into energy products (steam and electricity), oil, specialty chemicals and carbon solids.

- **Mechanical Processing for Fiber Recovery.** Technologies included in this category mechanically process MSW to recover fiber for use in making paper. This technology category includes innovative refuse-derived fuel technologies that produce a clean source of secondary fiber.

The technologies were advanced through three levels of scrutiny from preliminary review to more detailed, comparative review of the more established technologies. Fourteen (14) of the 43 technologies initially identified advanced to the most detailed level of comparative review.

5.2.2.4 Categorization of Technologies

As part of the evaluation, the technologies were categorized by their development status (i.e., are they in commercial use, being tested at a demonstration or pilot facility, or in the process of ongoing, developmental research). The results are described below.

- Anaerobic digestion is currently in commercial operation (for MSW) outside of the United States (e.g., Canada, Israel, the Netherlands, Italy, Germany and other European countries). Anaerobic digestion has not been commercially applied within the United States. Therefore, technology transfer to the United States would need to be addressed in considering commercial application in this country (e.g., MSW composition, waste management practices, end-product markets and regulatory requirements).

- Thermal processing (i.e., gasification) is currently in commercial operation (for MSW) outside of the United States (e.g., Japan, Germany and Italy). Several types of gasification technologies are in commercial operation, including fluid bed

gasification, high temperature gasification, plasma gasification and gasification/vitrification. These gasification technologies have not been commercially applied within the United States. Again, technology transfer to the United States would need to be addressed in considering commercial application in this country.

- Hydrolysis is not yet in commercial operation for MSW. However, one company (Masada Oxynol) is advancing the technology to commercial application, with pilot testing completed in the United States and a facility under development in Middletown, New York.

- Aerobic digestion (as distinct from MSW composting) is not yet in commercial operation for MSW. However, a 30-tpd demonstration plant is in operation in Vancouver, Canada, processing source-separated food waste and other source-separated organic waste. Additional research and testing is required to advance to pilot-testing for mixed MSW.

- Chemical processing requires research and testing to advance to the pilot stage for MSW. An 8-tpd pilot plant in Philadelphia is available to conduct this research and testing.

- Mechanical processing for fiber recovery bears monitoring. It is the least developed of all the innovative technology categories, with only bench-scale testing completed for the fiber recovery process.

5.2.3 Next Steps

The results of the evaluation suggest a series of next steps for the City. Based on success demonstrated outside of the United States by several companies, the evaluation concludes that anaerobic digestion and thermal processing (gasification) technologies merit further consideration by the City. The evaluation also suggests that hydrolysis could be considered for a pilot project. The City could monitor the development of the commercial hydrolysis project in Middletown, New York, and consider sending waste to this facility (for pilot testing) when it becomes operational. The development of aerobic digestion projects should be monitored; chemical processing and mechanical processing technologies should be assessed again, e.g., in five years, to monitor their progress.

As a follow up to the evaluation, in March 2005, the City commissioned a Phase 2 evaluation that consists of a focused, detailed review of the anaerobic digestion and thermal processing (gasification) technologies to supplement and verify information presented by project sponsors during the initial evaluation. Within the final evaluation report, included as Appendix F of the SWMP, the Phase 2 evaluation scope has been added, as Appendix H.

The Phase 2 scope seeks to address the potential impact of technology transfer issues such as differences in waste composition and waste management practices, product markets, regulatory requirements and related environmental issues. Should the review, which is expected to be complete by the end of 2006, be promising, a pilot project could be developed to establish the basis for commercial application, including project definition and risk sharing. See Section 2.4.8.4, Composting Facility Siting Task Force, for a discussion of a task force to be established to serve the dual purpose of finding sites in each borough for additional composting facilities and for exploring and testing new solid waste technologies that may be identified as a result of evaluations discussed in this Section.

5.3 Alternative Fuel and Emission-Control Technologies

DSNY has extensive experience in alternative fuels, and with new engine and the retrofitting of emission-control technologies. Through a number of successful pilot programs, including ongoing initiatives, DSNY has assessed the equipment and fueling options appropriate for collection and other DSNY vehicles.[3] Through its research activities, DSNY has determined that its refuse hauling vehicles and collection operations are currently best suited to the use of clean diesel technology which provides the benefit of a substantial reduction of emissions without a major reduction of fuel efficiency and cost. However, DSNY continues to evaluate natural gas technologies, also available for use in the City's refuse hauling vehicles, despite their requirement for a significant fueling infrastructure investment and greater cost uncertainties.

[3] The City's March 2004 CWM Study (Volume. IV of Appendix E) provides a number of case studies that describe the results of DSNY's groundbreaking partnerships with truck manufacturers to reduce emissions and test new technology.

DSNY was the first City agency to pilot the use of ultra-low-sulfur diesel (ULSD) in 2001 and has moved forward, ahead of schedule, to achieve reductions in sulfur emissions in diesel fuel. On July 1, 2004, DSNY expanded the use of ULSD fuel throughout the five boroughs of the City. The fuel, which contains less than 30 parts per million of sulfur, is now dispensed at all of DSNY's diesel fueling facilities for use by all of DSNY diesel vehicles, making DSNY the first City agency to provide ULSD to its entire diesel fleet, well in advance of USEPA June 2006 regulatory requirements. ULSD gives DSNY the basic platform needed to test advanced emission-control technologies (such as diesel particulate filters and diesel oxidation catalysts) designed for diesel engines. Clean diesel options, including advanced exhaust after-treatment and engine modification technologies used in conjunction with ULSD fuel, can cut vehicle emissions by 90% or more without having a major impact on fuel efficiency and cost.

Also in the forefront on the use of alternative fuel technologies, DSNY recently procured 26 new compressed natural gas (CNG) collection trucks. Based on their performance in the field, DSNY will evaluate these new CNG collection trucks to compare their performance with the first-generation CNG trucks purchased under a prior contract. Investigating CNG paves the way for future transitions that may be made to hydrogen fuel cells as a vehicle-fueling source. One of the major disincentives, however, to creating a CNG refuse truck fleet is the cost related to purchasing the trucks and the infrastructure needed for a CNG facility; a CNG refuse collection vehicle can cost considerably more than a conventional diesel truck and the cost of a CNG facility with fueling, proper ventilation and leakage alarms can be high.

DSNY currently operates more than 170 collection trucks equipped with an advanced emission-reduction technology (e.g., diesel oxidation catalysts and diesel particulate filters). Having seen success in the use of this new technology, DSNY is moving forward to expand the installation of this retrofit equipment across the entire collection truck fleet. Diesel oxidation catalysts and diesel particulate filters, when used with ULSD fuel, can reduce emissions of particulate matter, hydrocarbons and carbon monoxides.

DSNY has also evaluated the costs and benefits of other fuels and technologies such as biodiesel, fuel cells, propane, ethanol, methanol and hybrid electric vehicles. While none were deemed to be as immediately promising and cost effective as the clean diesel, DSNY will continue to assess these new technologies as they emerge or evolve, and will:

- Continue to use ULSD fuel in all diesel vehicles in its fleet to meet USEPA emissions standards;
- Continue to make clean diesel technology the preferred vehicle standard for new heavy-duty refuse vehicle purchases;
- Continue to test and evaluate the fleet of CNG collection trucks;
- Continue to pursue its CNG heavy-duty program to take advantage of potential advancements in CNG technology and fuel cell technology;
- Continue to develop partnerships with fuel suppliers, original equipment manufacturers and infrastructure providers in order to help reduce the cost of clean fuel implementation;
- Continue to make ethanol vehicle purchases and plan for ethanol fueling facilities for light-duty vehicles; and
- Use government grants and economic incentives to offset the higher costs associated with natural gas, hybrid electric and ethanol vehicles.

Contracts with private waste companies entered into to implement elements of the Long Term Export Program will consider, as applicable, terms to achieve the following goals with respect to new fuel, engine or emission retrofit technologies:

- The retrofitting of old diesel vehicles with clean diesel technology;
- The use of ULSD in collection vehicles and off road vehicles ahead of the June 2006 mandate;
- The purchase of clean diesel vehicles that will be needed to meet scheduled strict USEPA emission standards;
- The use of government grants and economic incentives to help offset the incremental capital costs associated with natural gas refuse vehicles; and
- The exploration of the option of using CNG heavy-duty refuse vehicles in the future in conjunction with infrastructure suppliers and engine manufacturers.

5.4 Commercial Food Waste Disposal Study

The City of New York does not permit the use of commercial food waste disposals (FWD). (Food waste discharged through the FWDs would be conveyed by the City sewer system as a semi-liquid to a wastewater treatment plant for treatment and disposal.) However, because of the potential of FWDs to reduce the amount of wet, heavy putrescible commercial waste handled through the current land-based disposal system, it is important to understand the potential costs and benefits, both economic and environmental if a limited use of FWDs were allowed (i.e. in a defined area of the City).

Therefore, the New York City Department of Environmental Protection (DEP), with support from DSNY and NYCEDC will undertake a study to model the impacts that such a hypothetical, limited-area use of FWDs would have on the DEP infrastructure and operations that would be affected. The study shall be conducted by an outside consultant. The RFP for this study shall be issued no later than July 1, 2007. The study shall be completed no later than December 31, 2008. Each element of the wastewater treatment system will need to be evaluated in terms of the impact on service, capacity, and regulatory compliance. The costs associated with anticipated additional operations, maintenance and infrastructure investment, as well as environmental impacts will need to be quantified so that the proposal can be objectively evaluated and compared with the existing commercial waste disposal system. The study would seek to understand the economic, engineering, and environmental effects a defined, limited-area use would have on the City's infrastructure before considering potential implementation on a trial basis.

The study will seek to address the following issues, among others, related to the modeled impacts of a limited-area use of FWDs: 1) the magnitude of capital expenditures and potential annual increases in operating and maintenance costs; 2) the additional flow and related load from FWDs relative to the gains made by the DEP from more than a decade of water conservation measures, and further reductions targeted to allow necessary maintenance on DEP's aqueducts, the effect on DEP's ability to meet the legal mandates for nitrogen removal, combined sewer overflow (CSO) capture, and Newtown Creek secondary treatment; and 3) the potential increase in citywide sludge production, sewer back-ups, air emissions and the cost of maintenance.

ATTACHMENT I
THE PLANNING UNIT

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THE PLANNING UNIT

1.0 INTRODUCTION

The City of New York is approximately 320 square miles in size, and contains 6,000 miles of streets. Except for pick-ups and deliveries, trucks must travel on designated truck routes. Rail lines serve all five boroughs; rail access is particularly available to certain of the manufacturing districts in the South Bronx, Queens, Brooklyn, and northern and western Staten Island. Much of the City's shorefront is accessible to marine transportation systems, and much of it is zoned for manufacturing or commercial uses that could include certain types of waste-management facilities. The Hudson and East Rivers, Long Island Sound, and the New York Harbor separate boroughs from each other and from neighboring jurisdictions to the west, north, and east. The major truck-accessible river and harbor crossings that link these areas are the George Washington, Triborough, Whitestone, Throgs Neck and Verrazano Bridges, and the Battery, Holland, Lincoln and Midtown Tunnels.

Most of the City's supplies of fresh food and produce enter the City by truck. In general, they are distributed through the Hunt's Point Market, and by the meat markets on Manhattan's west side.

A majority of New Yorkers live in multi-family buildings, and more people rent their living quarters than own them. According to the 2005 United States Census Bureau New York City Housing and Vacancy Survey, there are 3,037,996 occupied housing units in the City, and approximately 67% (2-million) are renter-occupied. Thirty-one percent (31%) of the renter-occupied households in the City are in Brooklyn, 28% in Manhattan, 21% in Queens, 18% in the Bronx and 3% in Staten Island.

New York's propensity for multi-family housing provides the City certain waste-relevant characteristics unique among other major U.S. cities, e.g. a much lower generation rate for leaf-and-yard waste (given the scarcity of backyard space) and high population densities, particularly in Manhattan and the Bronx.

2.0 STATISTICAL PROFILE OF NEW YORK CITY, CURRENT AND PROJECTED

"A Statistical Profile of New York City," available from the Department of City Planning, provides an extensive discussion of present and projected demographic and economic conditions in New York. Its major findings are summarized below.

The 2000 Census count was 8,008,278 million persons. In 2004, the U.S. Census Bureau, with substantial input from New York City, estimated the population of the City of New York at 8,168,338, an increase of more than 160,000 persons or 2 percent since 2000[1]. The number of non-resident workers and visitors who are in the City on any given day is approximately 1.3 million (NYMTC's 2001 Hub-Bound Travel Study). The metropolis attracts daily commuters from an area with a radius of roughly 80 miles, from neighboring New Jersey, Connecticut, Long Island and upstate New York. It attracts visitors from all over the United States to do business and to participate in its unequalled artistic and cultural life. With its three major airports (and its harbor), the City is the country's major gateway for foreign visitors and emigrants, and attracts approximately 5 million foreign visitors every year to sample its unique attractions.

Manhattan was the most populous borough at the beginning of the century, but since 1930 Brooklyn has had the largest population. Queens has been the second-most-populous borough since 1960, while the Bronx is fourth, and Staten Island, the fastest-growing borough, is fifth.

As of 2002, the Education & Health Services sector led industry employment, followed by Government, and then Professional Business Services, and Trade, Transportation & Utilities—all experiencing growth since the mid-1990s.[2] Financial Acitivities represented a slightly lower percentage of overall industry employment in 2002, having declined about 6.5% over the previous five years. Each of these sectors employed more people than Construction, Manufacturing, and Information sectors combined. While the Construction and Information sectors experienced growth, however, Manufacturing declined by a notable 28.6%.

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[1] New York City Department of City Planning, Population Update, http://www.nyc.gov/html/dcp/html/census/popupdate.shtml.
[2] New York City Department of City Planning. 2002 Annual Report on Social Indicators.

As major construction of Riverside South continues on Manhattan's far West Side and several new public and private buildings are changing the shape of downtown Brooklyn, there are several other major City development projects, in various stages of planning, as described below.

2.1 World Trade Center Site Redevelopment Plan

The Lower Manhattan Development Corporation, working with many partner agencies, is coordinating the redevelopment of the World Trade Center site within the broader picture of Lower Manhattan as a whole. Extensive public dialogue has contributed to the selection of Memory Foundations, the master plan for the World Trade Center site, and served to guide multiple Lower Manhattan neighborhood studies. On September 17, 2003, LMDC, working with the Port Authority and Studio Daniel Libeskind, released a Refined Master Plan for the World Trade Center site.

LMDC has prepared a Generic Environmental Impact Statement (GEIS) to examine the broad range of potential impacts stemming from the World Trade Center Memorial and Redevelopment Plan. A Record of Decision and Findings Statement was adopted by LMDC on June 2, 2004.

2.2 Hudson Yards Development & No. 7 Line Extension

The Hudson Yards is a comprehensive proposal to realize the development potential of Manhattan's Far West Side. The Hudson Yards area extends from West 28th Street on the south, Seventh and Eighth Avenues on the east, West 43rd Street on the north, and the Hudson River on the west. Hudson Yards is ideally located to allow for the expansion of the Midtown Central Business District and to help secure the City's economic future. The project includes a series of actions to transform Hudson Yards into a dynamic, transit-oriented urban center by extending the No. 7 subway line west and south, permitting medium- to high-density development and a mix of uses, including commercial, residential, open space, cultural and entertainment. On January 19, 2005, a comprehensive rezoning proposal was adopted for Hudson Yards. Other major public sector actions including the extension of the Number 7 Subway Line, development of a new open space network, and creation of a Convention Corridor are underway and will take a number of years to be completed. The program would result in over 40 million square feet of new commercial and residential development and a substantial of new public open space.

2.3 Plan for Downtown Brooklyn

In June 2004, the New York City Council approved the Downtown Brooklyn Plan, a comprehensive development plan to facilitate the continued growth of Downtown Brooklyn. The plan was proposed by the New York City Department of City Planning (DCP) and the New York City Economic Development Corporation (NYCEDC), in partnership with the Downtown Brooklyn Council (DBC), a local business organization. The approved plan is for a series of zoning map and zoning text changes, new public open spaces, pedestrian and transit improvements, urban renewal, street mappings and other actions designed to foster a multi-use urban environment to serve local residents, businesses, academic institutions and cultural institutions, and would result in over 4.5 million square feet of additional new development in Downtown Brooklyn.

The Atlantic Yards Project is an initiative envisioned within the Downtown Brooklyn Plan. The Atlantic Yards, located at the intersection of Atlantic and Flatbush Avenues is a 22- acre site that includes the MTA/LIRR's Vanderbilt rail yards. The project is a proposal to build a sports and entertainment arena, apartment buildings, a hotel, retail uses, and landscaped open space. The project is being developed pursuant to a New York State Empire State Development Corporation (ESDC) General Project Plan (GPP). An environmental review, including preparation of a Draft Environmental Impact Statement (DEIS) and Final Environmental Impact Statement (FEIS) pursuant to the New York State Environmental Quality Review Act (SEQRA) must be completed and is underway as of August 2006. The project could result in as much as 7.5 million square feet of new residential and commercial development in the Atlantic Yards area of Brooklyn.

2.4 Greenpoint-Williamsburg Rezoning

On May 11, 2005, the New York City Council approved the Greenpoint-Williamsburg Rezoning, proposed by the Department of City Planning. The Greenpoint-Williamsburg Rezoning allows for housing and open spaces, in tandem with light industry and commercial uses, along two miles of Brooklyn's East River waterfront and upland neighborhoods. The approved actions include

zoning map and zoning text changes to facilitate new housing and local commercial development, and in conjunction with the Department of Parks and Recreation, City Map changes to establish a new, 27.8-acre waterfront park. The adopted zoning changes include a inclusionary housing program, reflecting recommendations made during the public review process. This inclusionary housing program promotes affordable units in both rental and condominium developments, encourages preservation of existing affordable units, and targets affordable housing to a range of income levels. In addition, the plan included approval of a waterfront access plan that offers a blueprint for a continuous publicly accessible esplanade and new public open spaces along the waterfront.

2.5 Transportation Projects

A number of major transportation projects are also planned for the City including the following:

- **East Side Access**, projected to cost $6.3 billion, will bring Long Island Rail Road (LIRR) commuters into Grand Central Terminal, creating a terminal on Manhattan's East Side to complement Penn Station on the West Side. This project is currently under construction.

- The **Second Avenue Subway**, estimated at approximately $16 billion, will relieve pressure on the overcrowded Lexington Avenue line and improve access to downtown Manhattan.

- The $750 million **Fulton Transit Center** will replace the current maze of tunnels and stairways built by NYC Transit to connect subways lines built years apart by the City and different private companies. The center will improve access to nine subway lines and include an underground concourse that will connect to three additional subways, the PATH train that serves New Jersey, and the redeveloped World Trade Center site.

- A new **South Ferry Terminal** will replace the existing single track loop with a two-track station providing faster loading and unloading of trains, provide additional station entrances with ADA accessibility, improved access to the Staten Island Ferry, Battery Park and other Lower Manhattan destinations, and a free transfer to the Whitehall St subway station (R/W subway lines). The project is budgeted at $400 million and is currently under construction.

- The **Access to the Regions Core Project**, (recently renamed the Trans-Hudson Express Tunnel) sponsored by New Jersey Transit, is for construction of a new two-track rail tunnel underneath the Hudson River, a new 34th Street Rail Station, and an additional rail storage yard. This estimated $6 billion dollar project is intended to

substantially increase rail capacity into New York City and provide redundancy for the existing trans-Hudson River tunnels. The project is currently being studied in the Access to the Core Draft Environmental Impact Statement (ARC DEIS). In March 2006, NYMTC added the project to the Regional Transportation Plan (RTP) and subsequently, the Federal Transit Administration, granted approval for preliminary engineering to commence.

- The **Moynihan Station Civic and Land Use Improvement Project** is a comprehensive initiative to build a major transportation hub at the James A. Farley Post Office Building, located on the superblock bound by 31st and 33rd Streets and Eighth and Ninth Avenues in Manhattan. The Moynihan Station Project will be implemented by the Moynihan Station Development Corporation, a subsidiary of ESDC. The project would create the new Daniel Patrick Moynihan Station, including a grand new train hall for use by New Jersey Transit and Long Island Rail Road commuters. This new station would be physically connected to Penn Station and would serve as a gateway to expected new development in Midtown West/Hudson Yards. The station would improve circulation and relieve capacity constraints within existing Penn Station. The project is currently in the public review process. Construction is expected to begin in fall 2006.

3.0 POPULATION AND PROJECTED POPULATION CHANGE

At the most fundamental level, waste generation is a function of population and of economic activity. The 20-year projections for DSNY-managed Waste in Attachment II used population growth estimates as a basis for escalating the residentially generated fraction of DSNY-managed Waste. Forecasted employment was used as the basis for the 20-year projections of Commercial Waste, in Attachment III.

3.1 Population Past and Present

Until 1950, the City's population grew at a declining rate. From 1950 to 1970, it was relatively constant. Between 1970 and 1980, there was a substantial population decline (of up to 1% a year), which was partially reversed during the 1980s. With continued growth in the 1990s, the City's population exceeded 8 million in the 2000 Census for the first time.

The average household size in the City has typically been smaller than in the rest of the nation. As elsewhere in the country, it has generally declined since 1960, although it has increased somewhat over the past decade as a result of the influx of immigrants.

Average household income in the City has grown somewhat less since World War II than in the nation as a whole. New York's per-capita income has historically been higher than the national average, since the cost of living in the City is much higher than the national average. In recent decades, the relative discrepancy between high- and low-income groups has increased.

3.2 Population Forecasts

While there is considerable uncertainty associated with the available forecast data, modest demographic and economic growth over current baseline levels is most likely. The rate of population growth for the period from 2006 to 2025 is estimated to be about 14%, based on the most current NYMTC population projections for that time period. Attachment II provides forecasted population growth derived from the NYMTC forecasts for the years 2006, 2010, 2015, 2020 and 2025. This forecast is used as the basis for projecting changes in the residential waste stream.

4.0 ROLES OF AGENCIES IN THE SWMP

4.1 Department of Sanitation (DSNY)

DSNY is the City agency with primary responsibility for solid waste management and planning in the City. It is responsible for collection as well as contracting for the transfer and out-of-City disposal of approximately 11,800 tpd of DSNY-managed Waste generated in the City by residential households, DSNY special collections, City, state and federal agencies and certain non-profit institutions in FY 2006. DSNY also operates the largest Curbside Recycling program in the country, providing pick-up service on a weekly basis to every residential dwelling unit in the City.

Further, DSNY regulates the siting and operation of private transfer stations in the City (see Chapter 4), and enforces these regulations through environmental review of applications of new transfer station permits or modifications/expansions of existing facilities and by conducting periodic inspections to ensure enforcement if its Operating Rules.

In its planning capacity DSNY prepares the SWMP and acts as lead agency for the supporting EIS.

4.2 New York City Economic Development Corporation

NYCEDC is a corporation under the control of the City that, among other roles, functions as the City's primary agency for waterfront development and rail transportation planning. As such, NYCEDC plays a significant role in planning and developing the necessary rail infrastructure within the City to support the Long Term Export.

ATTACHMENT II
DSNY-MANAGED WASTE QUANTITIES
AND
PROJECTIONS FOR PLAN PERIOD

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EXHIBITS

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DSNY-MANAGED WASTE QUANTITIES AND PROJECTIONS FOR PLAN PERIOD

1.0 DSNY-MANAGED WASTE GENERATION, DIVERSION AND DISPOSAL

DSNY-managed Waste is putrescible and non-putrescible waste that DSNY collects, recycles or disposes of from all residences in the City, not-for-profit institutions, other City, state and federal agencies, as well as waste from special DSNY operations such as lot cleaning, street cleaning and other operations. This Attachment presents historical data for Fiscal Years 2002 through 2006 and projections for the 20-year period of the SWMP, FY 2007 through FY 2026, of waste generated, recycled and disposed (exported). Since March 2001 all waste disposed has been exported from the City, as indicated in the tables that follow.

Tables II 1-1, II 1-2 ,II 1-3 II 1-4 and II 1-5 present the reported quantities of DSNY-managed Waste and summarize the total waste generated and exported or diverted to recycling for the City from FY 2002 through FY 2006. On these tables, DSNY-managed Waste for Export is broken down into two main components: (1) DSNY curbside and containerized collections; and (2) "other" DSNY-managed Waste. This latter category of waste includes bulk waste collection, lot cleaning, street dirt and other miscellaneous categories of waste managed by DSNY. Also, Recycling, Composting and Reuse is broken down into two main components: (1) the waste diverted to recycling through the Curbside Recycling Program; and (2) "other" recycled wastes. This latter category of recycled wastes includes: derelict vehicle recycling, auto tires, lot cleaning bulk metal recycling and dirt reuse, DOT asphalt and millings recycling, and interagency clean fill and interagency road material. Exhibit 1, "Waste Generation Category Definitions," at the end of this section provides definitions of each of the categories that appear in the Waste Generation tables below and discusses past and future changes in these categories.

Table II 1-1
FY 2002 Actual Tonnage Generation

FY 02 Actual Tonnage Generation	Total	
	Tonnage	**TPD**
DSNY-Managed Waste for Export		
DSNY Curbside/Containerized Refuse Collection		
DSNY Containerized Collection	346,622	1,148
DSNY Regular Collection	2,727,679	9,032
Total DSNY Curbside/Containerized Refuse Collection	**3,074,301**	**10,180**
Other DSNY-Managed Waste		
Bulk	6,928	23
Lot Cleaning	29,412	97
Miscellaneous	9,097	30
Street Dirt	75,677	251
Other City Departments/Paid	125,812	417
Household Waste	37,998	126
Total "Other DSNY-Managed Waste"	**284,924**	**943**
Total DSNY-Managed Waste for Export	**3,359,225**	**11,123**
Recycling, Composting and Reuse		
DSNY-Managed Curbside/Containerized Recycling		
Paper and MGP Recycling		
Paper	406,765	1,347
Metal, Glass and Plastic	330,286	1,094
Total Paper and MGP Recycling	**737,051**	**2,441**
Other Agency Recycling		
City Agency Recycling[(1)]	811	3
Self help metal recycling	6,685	22
Housing Authority bulk metal recycling	-	-
Food composting (Rikers)	6,167	20
Christmas tree composting	1,472	5
Yard and leaf composting	18,819	62
Materials for the Arts (reuse)	551	2
Total "Other Agency Recycling"	**34,505**	**114**
Total DSNY-Managed Curbside/Containerized Recycling	**771,555**	**2,555**

Table II 1-1 (continued)
FY 2002 Actual Tonnage Generation

FY 02 Actual Tonnage Generation	Total	
	Tonnage	TPD
Other Recycled Wastes		
Derelict vehicle recycling	13,941	46
Auto tire recycling	4,238	14
Lot cleaning bulk metal recycling and dirt reuse	3,757	12
DOT asphalt recycling	178,745	592
DOT millings recycling	90,974	301
Interagency clean fill reuse	327,899	1,086
Interagency road material reuse	238,090	788
Total "Other Recycled Wastes"	**857,644**	**2,840**
Total Recycling, Composting and Reuse	**1,629,199**	**5,395**
Grand Totals and Diversion Rates		
Total DSNY-Managed Curbside/Containerized Refuse Collection & Recycling[(2)]	**3,845,856**	**12,735**
Curbside/Containerized Diversion[(3)]	**20.1%**	
Total (DSNY-Managed Waste for Export, Recycling, Compost and Reuse) Generation[(4)]	**4,988,424**	**16,518**
Total DSNY-Managed Diversion[(5)]	**32.7%**	

Notes:

(1) See Exhibit 1 at end of this section for a discussion of changes in the future status of these materials.

(2) "Total DSNY-managed Curbside/Containerized Refuse Collection & Recycling" is the sum of "Total DSNY Curbside/Containerized Refuse Collection" and "Total DSNY-managed Curbside/Containerized Recycling"

(32) Curbside/Containerized Diversion is calculated as "Total DSNY-managed Curbside/Containerized Recycling" divided by "Total DSNY-managed Curbside/Containerized Refuse Collection and Recycling", (line A ÷ line B).

(4) "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" is the sum of "Total DSNY-managed Waste for Export" and "Total Recycling, Composting and Reuse"

(5) "Total DSNY-managed Diversion" is calculated as "Total Recycling, Composting and Reuse" divided by "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation", (line C ÷ line D)

Table II 1-2
FY 2003 Actual Tonnage Generation

FY 03 Actual Tonnage Generation	Total	
	Tonnage	TPD
DSNY-Managed Waste for Export		
DSNY Curbside/Containerized Refuse Collection		
DSNY Containerized Collection	373,067	1,235
DSNY Regular Collection	3,169,060	10,494
Total DSNY Curbside/Containerized Refuse Collection	**3,542,127**	**11,729**
Other DSNY-Managed Waste		
Bulk	7,535	25
Lot Cleaning	3,824	13
Miscellaneous	19,453	64
Street Dirt	62,296	206
Other City Departments/Paid	125,355	415
Household Waste[(1)]	38,610	128
Total "Other DSNY-Managed Waste"	**257,073**	**851**
Total DSNY-Managed Waste for Export	**3,799,200**	**12,580**
Recycling, Composting and Reuse		
DSNY-Managed Curbside/Containerized Recycling		
Paper and MGP Recycling		
Paper	363,285	1,203
Metal, Glass and Plastic	82,930	275
Total Paper and MGP Recycling	**446,215**	**1,478**
Other Agency Recycling		
Self help metal recycling[(1)]	4,984	17
Housing Authority bulk metal recycling[(1)]	542	2
Food composting (Rikers)	5,650	19
Christmas tree composting	-	-
Yard and leaf composting	-	-
Materials for the Arts (reuse)	528	2
Total "Other Agency Recycling"	11,704	39
Total DSNY-Managed Curbside/Containerized Recycling	**457,918**	**1,516**

Table II 1-2 (continued)
FY 2003 Actual Tonnage Generation

FY 03 Actual Tonnage Generation	Total	
	Tonnage	TPD
Other Recycled Wastes		
Derelict vehicle recycling	13,858	46
Auto tire recycling	2,733	9
Lot cleaning bulk metal recycling and dirt reuse	3,442	11
DOT asphalt recycling	146,827	486
DOT millings recycling	70,715	234
Interagency clean fill reuse	401,617	1,330
Interagency road material reuse	311,561	1,032
Total "Other Recycled Wastes"	**950,752**	**3,148**
Total Recycling, Composting and Reuse	**1,408,671**	**4,664**
Grand Totals and Diversion Rates		
Total DSNY-Managed Curbside/Containerized Refuse Collection & Recycling[(2)]	**4,000,045**	**13,245**
Curbside/Containerized Diversion[(3)]	**11.4%**	
Total (DSNY-Managed Waste for Export, Recycling, Compost and Reuse) Generation[(4)]	**5,207,871**	**17,245**
Total DSNY-Managed Diversion[(5)]	**27.0%**	

Notes:

(1) See Exhibit 1 at end of this section for a discussion of changes in the future status of these materials.

(2) "Total DSNY-managed Curbside/Containerized Refuse Collection & Recycling" is the sum of "Total DSNY Curbside/Containerized Refuse Collection" and "Total DSNY-managed Curbside/Containerized Recycling"

3) Curbside/Containerized Diversion is calculated as "Total DSNY-managed Curbside/Containerized Recycling" divided by "Total DSNY-managed Curbside/Containerized Refuse Collection and Recycling" (line A ÷ line B)

(4) "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" is the sum of "Total DSNY-managed Waste for Export" and "Total Recycling, Composting and Reuse"

(5) "Total DSNY-managed Diversion" is calculated as "Total Recycling, Composting and Reuse" divided by "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" (line C ÷ line D)

Table II 1-3
FY 2004 Actual Tonnage Generation

FY 04 Actual Tonnage Generation	Total	
	Tonnage	TPD
DSNY-Managed Waste for Export		
DSNY Curbside/Containerized Refuse Collection		
DSNY Containerized Collection	387,662	1,284
DSNY Regular Collection	3,152,318	10,438
Total DSNY Curbside/Containerized Refuse Collection	**3,539,979**	**11,722**
Other DSNY-Managed Waste		
Bulk	7,786	26
Lot Cleaning	5,090	17
Miscellaneous	39,878	132
Street Dirt	56,670	188
Other City Departments/Paid	122,009	404
Household Waste	220	1
Total "Other DSNY-Managed Waste"	**231,653**	**767**
Total DSNY-Managed Waste for Export	**3,771,632**	**12,489**
Recycling, Composting and Reuse		
DSNY-Managed Curbside/Containerized Recycling		
Paper and MGP Recycling		
Paper	381,111	1,262
Metal, Glass and Plastic	160,462	531
Total Paper and MGP Recycling	**541,572**	**1,793**
Other Agency Recycling		
Bulk Metal[(1)]	5,249	17
Food composting (Rikers)	5,600	19
Christmas tree composting	1,024	3
Yard and leaf composting	-	-
Materials for the Arts (reuse)	567	2
Total "Other Agency Recycling"	**12,441**	**41**
Total DSNY-Managed Curbside/Containerized Recycling	**554,013**	**1,834**

Table II 1-3 (continued)
FY 2004 Actual Tonnage Generation

FY 04 Actual Tonnage Generation	Total	
	Tonnage	TPD
Other Recycled Wastes		
Derelict vehicle recycling	12,836	43
Auto tire recycling	3,362	11
Lot cleaning bulk metal recycling and dirt reuse	2,012	7
DOT asphalt recycling	150,803	499
DOT millings recycling	114,319	37
Interagency clean fill reuse	444,717	1,473
Interagency road material reuse	213,652	707
Total "Other Recycled Wastes"	**941,702**	**3,118**
Total Recycling, Composting and Reuse	**1,495,715**	**4,953**
Grand Totals and Diversion Rates		
Total DSNY-Managed Curbside/Containerized Refuse Collection & Recycling[(2)]	**4,093,992**	**13,556**
Curbside/Containerized Diversion[(3)]	**13.5%**	
Total (DSNY-Managed Waste for Export, Recycling, Compost and Reuse) Generation[(4)]	**5,267,347**	**17,442**
Total DSNY-Managed Diversion[(5	**28.4%**	

Notes:

(1) See Exhibit 1 at end of this section for a discussion of changes in the future status of these materials.

(2) "Total DSNY-managed Curbside/Containerized Refuse Collection & Recycling" is the sum of "Total DSNY Curbside/Containerized Refuse Collection" and "Total DSNY-managed Curbside/Containerized Recycling"

(3) Curbside/Containerized Diversion is calculated as "Total DSNY-managed Curbside/Containerized Recycling" divided by "Total DSNY-managed Curbside/Containerized Refuse Collection and Recycling" (line A ÷ line B)

(4) "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" is the sum of "Total DSNY-managed Waste for Export" and "Total Recycling, Composting and Reuse"

(5) "Total DSNY-managed Diversion" is calculated as "Total Recycling, Composting and Reuse" divided by "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" (line C ÷ line D)

Table II 1-4
FY 2005 Actual Tonnage Generation

FY 05 Actual Tonnage Generation	Total	
	Tonnage	TPD
DSNY-Managed Waste for Export		
DSNY Curbside/Containerized Refuse Collection		
DSNY Containerized Collection	403,342	1,336
DSNY Regular Collection	2,982,122	9,875
Total DSNY Curbside/Containerized Refuse Collection	**3,385,464**	**11,210**
Other DSNY-Managed Waste		
Bulk	8,448	28
Lot Cleaning	12,930	43
Miscellaneous	2,249	7
Street Dirt	63,428	210
Other City Departments/Paid	115,805	383
Total "Other DSNY-Managed Waste"	**202,860**	**672**
Total DSNY-Managed Waste for Export	**3,588,324**	**11,882**
Recycling, Composting and Reuse		
DSNY-Managed Curbside/Containerized Recycling		
Paper and MGP Recycling		
Paper	416,468	1,335
Metal, Glass and Plastic	247,297	793
Total Paper and MGP Recycling	**663,765**	**2,127**
Other Agency Recycling		
Bulk Metal	3,650	12
Food composting (Rikers)	4,649	15
Christmas tree composting	1,373	4
Yard and leaf composting	17,035	55
Materials for the Arts (reuse)	686	2
Total "Other Agency Recycling"	**27,394**	**88**
Total DSNY-Managed Curbside/Containerized Recycling	**691,159**	**2,215**

Table II 1-4 (continued)
FY 2005 Actual Tonnage Generation

FY 05 Actual Tonnage Generation	Total	
	Tonnage	**TPD**
Other Recycled Wastes		
Derelict vehicle recycling	9,797	31
Auto tire recycling	2,090	7
Lot cleaning bulk metal recycling and dirt reuse	1,529	5
DOT asphalt recycling	137,686	441
DOT millings recycling	118,092	379
Interagency clean fill reuse	489,216	1,568
Interagency road material reuse	216,341	693
Total "Other Recycled Wastes"	**974,750**	**3,124**
Total Recycling, Composting and Reuse	**1,665,909**	**5,339**
Grand Totals and Diversion Rates		
A. Total DSNY-Managed Curbside/Containerized Recycling	**691,159**	**2,215**
B. Total DSNY-Managed Curbside/Containerized Refuse Collection & Recycling[(1)]	**4,076,623**	**13,425**
Curbside/Containerized Diversion[(2)]	**17.0%**	
C. Total Recycling, Composting and Reuse	**1,665,909**	**5,339**
D. Total (DSNY-Managed Waste for Export, Recycling, Compost and Reuse) Generation[(3)]	**5,254,233**	**17,221**
Total DSNY-Managed Diversion[(4)]	**31.7%**	

Notes:

(1) "Total DSNY-managed Curbside/Containerized Refuse Collection & Recycling" is the sum of "Total DSNY Curbside/Containerized Refuse Collection" and "Total DSNY-managed Curbside/Containerized Recycling"

(2) Curbside/Containerized Diversion is calculated as "Total DSNY-managed Curbside/Containerized Recycling" divided by "Total DSNY-managed Curbside/Containerized Refuse Collection and Recycling" (line A ÷ line B)

(3) "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" is the sum of "Total DSNY-managed Waste for Export" and "Total Recycling, Composting and Reuse"

(4) "Total DSNY-managed Diversion" is calculated as "Total Recycling, Composting and Reuse" divided by "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" (line C ÷ line D)

Table II 1-5
FY 2006 Actual Tonnage Generation

	Total	
FY 06 Actual Tonnage Generation	**Tonnage**	**TPD**
DSNY-Managed Waste for Export		
DSNY Curbside/Containerized Refuse Collection		
DSNY Containerized Collection	411,021	1,361
DSNY Regular Collection	2,951,576	9,773
Total DSNY Curbside/Containerized Refuse Collection	**3,362,597**	**11,134**
Other DSNY-Managed Waste		
Bulk	7,653	25
Lot Cleaning	10,114	33
Miscellaneous	2,025	7
Street Dirt	65,758	218
Other City Departments/Paid	110,738	367
Total "Other DSNY-Managed Waste"	**196,289**	**650**
Total DSNY-Managed Waste for Export	**3,558,886**	**11,784**
Recycling, Composting and Reuse		
DSNY-Managed Curbside/Containerized Recycling		
Paper and MGP Recycling		
Paper	397,394	1,316
Metal, Glass and Plastic	243,454	806
Total Paper and MGP Recycling	**640,848**	**2,122**
Other Agency Recycling		
Bulk Metal	3,026	10
Food composting (Rikers)	4,836	16
Christmas tree composting	1,310	4
Yard and leaf composting	13,166	44
Materials for the Arts (reuse)	749	2
Total "Other Agency Recycling"	**23,088**	**76**
Total DSNY-Managed Curbside/Containerized Recycling	**663,936**	**2,198**

Table II 1-5
FY 2006 Actual Tonnage Generation

	Total	
FY 06 Actual Tonnage Generation	**Tonnage**	**TPD**
Other Recycled Wastes		
Derelict vehicle recycling	9,266	31
Auto tire recycling	1,591	5
Lot cleaning bulk metal recycling and dirt reuse	749	2
DOT asphalt recycling	187,574	621
DOT millings recycling	128,294	425
Interagency clean fill reuse	315,619	1,045
Interagency road material reuse	249,444	826
Total "Other Recycled Wastes"	**892,538**	**2,955**
Total Recycling, Composting and Reuse	**1,556,474**	**5,154**
Grand Totals and Diversion Rates		
A. Total DSNY-Managed Curbside/Containerized Recycling	**663,936**	**2,198**
B. Total DSNY-Managed Curbside/Containerized Refuse Collection & Recycling[1]	**4,026,533**	**13,333**
Curbside/Containerized Diversion[2]	**16.5%**	
C. Total Recycling, Composting and Reuse	**1,556,474**	**5,154**
D. Total (DSNY-Managed Waste for Export, Recycling, Compost and Reuse) Generation[3]	**5,115,360**	**16,938**
Total DSNY-Managed Diversion[4]	**30.4%**	

Notes:

(1) "Total DSNY-managed Curbside/Containerized Refuse Collection & Recycling" is the sum of "Total DSNY Curbside/Containerized Refuse Collection" and "Total DSNY-managed Curbside/Containerized Recycling"

(2) Curbside/Containerized Diversion is calculated as "Total DSNY-managed Curbside/Containerized Recycling" divided by "Total DSNY-managed Curbside/Containerized Refuse Collection and Recycling" (line A ÷ line B)

(3) "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" is the sum of "Total DSNY-managed Waste for Export" and "Total Recycling, Composting and Reuse"

(4) "Total DSNY-managed Diversion" is calculated as "Total Recycling, Composting and Reuse" divided by "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" (line C ÷ line D)

2.0 WASTE PROJECTIONS

The projections of waste generation over the period of the SWMP (2006 through 2025) use reported quantities for Fiscal Year 200 as a baseline. The Curbside/Containerized Refuse Collection and Curbside/Containerized Recycling portion of the waste stream was assumed to increase at the rate of population increase. The projections use adjusted New York Metropolitan Transportation Council (NYMTC) population forecasts. Population projections for Fiscal Years 2007 through 2026, derived from NYMTC forecasts of population growth in five year intervals for the years 2005 through 2030, are shown in Table II 2-1. In the interim between the issuance of the Draft SWMP in October 2004 and its adoption by the City Council in July 2006, the NYMTC updated the forecasts that were originally used. Table II 2 -1 in this SWMP is revised to reflect this new population forecast data for the 20-year Plan period. These data project a substantially higher population increase, approximately 14% compared to the 4.7% increase in the earlier forecast. The waste quantity projections over the period 2007 -2026 have been revised to reflect the increased population forecast.

NYMTC long-term population forecasts are relied upon for planning purposes by most City Agencies; there is no other source of population data for a 20-year forecast period. Since NYMTC data is provided in Calendar Years, straight line interpolation between values for successive years was used to estimate the population in the Fiscal Year period of July 1 through June 30.

Forecasts of future waste generation were developed by increasing the FY 2006 Curbside/Containerized Refuse Collection and Curbside/Containerized Recycling tonnage by the NYMTC-predicted increase in population in five year intervals through FY 2026. Tables II 2-2 through II 2-6 show the projections for DSNY-managed Waste quantities and Recyclables for FY 2007, 2010, 2015, 2020 and 2026.

Compared to DSNY Curbside and Containerized Waste and Recyclables, the generation of "other" materials such as street dirt, other City departments and lot cleaning operations, while variable, is not assumed to vary directly with population growth. In the absence of data that is known to correlate directly with changes in the waste generated in these categories, they were held constant over the period of the forecast.

As shown in Tables II 1-2 through II 1-5 above, there are no reported tonnages in the category of "City Agency Recycling" for FY 2003, 2004, 2005 and 2006 . This is the result of the "White Office Paper Program" being discontinued in FY 2003. Since this program was discontinued, this category of material was eliminated from actual and projected tables for subsequent years. Where there were or will be changes in other categories of materials, these are discussed on Exhibit 1 at the end of this section and noted in the tables.

In addition to the forecasting methodology described above, additional assumptions were applied to the recycling quantities to account for expansions of existing recycling programs and implementation of new programs, as well as for achieving the diversion goals discussed in Attachment VII. For FY 2007, the following additional assumptions were applied:

- The allocation of paper in the Total Paper and MGP Recycling category assumes that designated paper comprises 21.5% of the Total DSNY Curbside/Containerized Refuse Collection, as determined by the Preliminary Waste Characterization Study (conducted in May and June 2004). The capture rate for designated paper was assumed to be 50%, taking into account the actual FY 2004 capture rate of approximately 43%, and the FY 2007 capture rate goal of 70%.

- The allocation of MGP in the Total Paper and MGP Recycling category assumes that designated MGP comprises 12.2% of the Total DSNY Curbside/Containerized Refuse Collection, as determined by the Preliminary Waste Characterization Study." The capture rate for MGP material was assumed to be 70%. This assumption is based on the fact that, in FY 2002 (prior to the suspension of plastic and glass recycling), City residents and institutions serviced by DSNY were already achieving the equivalent of a 70% capture rate for MGP.

For FY 2010 through 2026, the following additional assumptions were applied:

- Paper and MGP were each projected to have capture rates of 70%. Capture rates could potentially increase beyond this (especially for MGP); however, a 70% capture rate is an ambitious, yet reasonable, assumption. (See Attachment VII for more information on the rationale for a 70% capture rate goal.)

- Tonnages in certain categories listed as "Other Agency Recycling" were projected to increase from FY 2007 levels and then remain constant through FY 2026. These include: self-help bulk metal, Rikers Island food-waste composting, Christmas tree composting, yard and leaf composting, and Materials for the Arts (reuse program). This assumption is

based on the fact that while these programs have room to grow in the short term, their diversion potential will, at some point, be reached

- Tonnages in the category of "New programs" listed under "Other Agency Recycling" were projected to increase over the period of FY 2010 through FY 2026. These new programs may include designating additional materials to the Recycling Program, such as #3-#7 plastics, or piloting new technologies to target organic wastes.

Based on the forecasts mentioned above, two diversion rates were calculated: the "Curbside/Containerized Diversion" and the "Total DSNY-managed Diversion." The calculations for these diversion rates are:

Curbside/Containerized Diversion:

"Total DSNY-managed Curbside/Containerized Recycling" divided by
"Total DSNY-managed Curbside/Containerized Refuse Collection and Recycling"

Total DSNY-managed Diversion:

"Total Recycling, Composting and Reuse" divided by
"Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation"

As shown by the projections in Tables II 2-2 through II 2-6 over the period of the forecast, the total diversion rate of Curbside/Containerized waste and of total DSNY-managed Waste is anticipated to increase over time. These diversion rates are consistent with diversion goals discussed in Attachment VII: Rationale for Amending Local Law 19, which establishes a 25% diversion goal for the Curbside waste stream, and a 35% diversion goal for the DSNY-managed Waste stream, both to be achieved in the fiscal year 2007.

Table II 2-1
FY 2004 through FY 2026 Projected Population

FY 2004 through FY 2026 Projected Population												
Year	Manhattan		Bronx		Brooklyn		Queens		Staten Island		Total	
	Population	% Change from FY 2006	Population	% Change from FY 2006	Population	% Change from FY 2006	Population	% Change from FY 2006	Population	% Change from FY 2006	Population	% Change from FY 2006
FY 2004	1,564,798		1,363,198		2,472,523		2,225,486		459,737		8,085,742	
FY 2005	1,578,413		1,366,392		2,504,601		2,260,930		468,101		8,178,437	
FY 2006	1,587,231		1,369,816		2,520,354		2,278,901		473,269		8,229,571	
FY 2007	1,595,791	0.54%	1,374,536	0.34%	2,530,474	0.40%	2,291,212	0.54%	478,029	1.01%	8,270,042	0.49%
FY 2010	1,621,471	2.16%	1,388,696	1.38%	2,560,834	1.61%	2,328,145	2.16%	492,309	4.02%	8,391,455	1.97%
FY 2015	1,648,356	3.85%	1,427,956	4.24%	2,616,654	3.82%	2,434,110	6.81%	520,789	10.04%	8,647,865	5.08%
FY 2020	1,673,278	5.42%	1,479,576	8.01%	2,681,514	6.39%	2,594,240	13.84%	550,959	16.42%	8,979,567	9.11%
FY 2026	1,695,668	6.83%	1,547,816	12.99%	2,767,614	9.81%	2,760,210	21.12%	595,189	25.76%	9,366,497	13.82%

Table II 2-2
FY 2007 Projected Generated Tonnage

FY 2007 Projected Tonnage Generation Generated Tonnage	Total	
	Tonnage	TPD
DSNY-Managed Waste for Export		
DSNY Curbside/Containerized Refuse Collection		
DSNY Containerized Collection	345,678	1,145
DSNY Regular Collection	2,720,254	9,007
Total DSNY Curbside/Containerized Refuse Collection	**3,065,932**	**10,152**
Other DSNY-Managed Waste		
Bulk	7,653	25
Lot Cleaning	10,114	33
Miscellaneous	2,025	7
Street Dirt	65,758	218
Other City Departments/Paid	110,738	367
Total "Other DSNY-Managed Waste"	**196,289**	**650**
Total DSNY-Managed Waste for Export	**3,262,221**	**10,802**
Recycling, Composting and Reuse		
DSNY-Managed Curbside/Containerized Recycling		
Paper and MGP Recycling		
Paper	610,731	2,022
Metal, Glass and Plastic	346,470	1,147
Total Paper and MGP Recycling	**957,200**	**3,170**
Other Agency Recycling		
Bulk Metal	5,500	18
Food composting (Rikers)	6,000	20
Christmas tree composting	1,750	6
Yard and leaf composting	26,500	88
Materials for the Arts (reuse)	800	3
Total "Other Agency Recycling"	**40,550**	**134**
Total DSNY-Managed Curbside/Containerized Recycling	**997,75**	**3,304**

Table II 2-2 (continued)
FY 2007 Projected Generated Tonnage Tonnage

FY 2007 Projected Tonnage Generation Generated Tonnage	Total	
	Tonnage	TPD
Other Recycled Wastes		
Derelict vehicle recycling	9,266	31
Auto tire recycling	1,591	5
Lot cleaning bulk metal recycling and dirt reuse	749	2
DOT asphalt recycling(1)	187,574	621
DOT millings recycling(1)	128,294	425
Interagency clean fill reuse(1)	315,619	1,045
Interagency road material reuse(1)	249,444	826
Total "Other Recycled Wastes"	**892,538**	**2,955**
Total Recycling, Composting and Reuse	**1,890,289**	**6,259**
Grand Totals and Diversion Rates		
A. Total DSNY-Managed Curbside/Containerized Recycling	**997,750**	**3,304**
B. Total DSNY-Managed Curbside/Containerized Refuse Collection & Recycling(2)	**4,063,683**	**13,456**
Curbside/Containerized Diversion(3)	**25%**	
C. Total Recycling, Composting and Reuse	**1,890,289**	**6,259**
D. Total (DSNY-Managed Waste for Export, Recycling, Compost and Reuse) Generation(4)	**5,152,510**	**17,061**
Total DSNY-Managed Diversion(5)	**36.7%**	

Notes:

(1) See Exhibit 1 at end of this section for a discussion of changes in the future status of these materials.

(2) "Total DSNY-managed Curbside/Containerized Refuse Collection & Recycling" is the sum of "Total DSNY Curbside/Containerized Refuse Collection" and "Total DSNY-managed Curbside/Containerized Recycling"

(3) Curbside/Containerized Diversion is calculated as "Total DSNY-managed Curbside/Containerized Recycling" divided by "Total DSNY-managed Curbside/Containerized Refuse Collection and Recycling" (line A ÷ line B)

(4) "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" is the sum of "Total DSNY-managed Waste for Export" and "Total Recycling, Composting and Reuse"

(5) "Total DSNY-managed Diversion" is calculated as "Total Recycling, Composting and Reuse" divided by "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation", (line C÷ line D).

Table II 2-3
FY 2010 Projected Generated Tonnage

FY 2010 Projected Generated Tonnage	Total	
	Tonnage	TPD
DSNY-Managed Waste for Export		
DSNY Curbside/Containerized Refuse Collection		
DSNY Containerized Collection	368,306	1,220
DSNY Regular Collection	2,723,079	9,017
Total DSNY Curbside/Containerized Refuse Collection	**3,091,385**	**10,236**
Other DSNY-Managed Waste		
Bulk	7,653	25
Lot Cleaning	10,114	33
Miscellaneous	2,025	7
Street Dirt	65,758	218
Other City Departments/Paid	110,738	367
Total "Other DSNY-Managed Waste"	**196,289**	**650**
Total DSNY-Managed Waste for Export	**3,287,673**	**10,886**
Recycling, Composting and Reuse		
DSNY-Managed Curbside/Containerized Recycling		
Paper and MGP Recycling		
Paper	632,176	2,093
Metal, Glass and Plastic	358,636	1,188
Total Paper and MGP Recycling	**990,812**	**3,281**
Other Agency Recycling		
Bulk Metal	5,500	18
Food composting (Rikers)	7,000	23
Christmas tree composting	2,500	8
Yard and leaf composting	50,000	166
Materials for the Arts (reuse)	1,000	3
New programs[(1)]	58,180	193
Total "Other Agency Recycling"	**124,180**	**411**
Total DSNY-Managed Curbside/Containerized Recycling	**1,114,992**	**3,692**

Table II 2-3 (continued)
FY 2010 Projected Generated Tonnage

FY 2010 Projected Generated Tonnage	Total	
	Tonnage	**TPD**
DSNY-Managed Waste for Export		
Other Recycled Wastes		
Derelict vehicle recycling	9,266	31
Auto tire recycling	1,59	5
Lot cleaning bulk metal recycling and dirt reuse	749	2
DOT asphalt recycling(2)	187,574	621
DOT millings recycling(2)	128,294	425
Interagency clean fill reuse(2)	315,619	1,045
Interagency road material reuse(2)	249,444	826
Total "Other Recycled Wastes"	**892,538**	**2,955**
Total Recycling, Composting and Reuse	**2,007,530**	**6,647**
Grand Totals and Diversion Rates		
A. Total DSNY-Managed Curbside/Containerized Recycling	**1,114,992**	**3,692**
B. Total DSNY-Managed Curbside/Containerized Refuse Collection & Recycling(3)	**4,206,377**	**13,928**
Curbside/Containerized Diversion(4)	**26.5%**	
C. Total Recycling, Composting and Reuse	**2,007,530**	**6,647**
D. Total (DSNY-Managed Waste for Export, Recycling, Compost and Reuse) Generation(5)	**5,295,204**	**17,534**
Total DSNY-Managed Diversion(6)	**37.9%**	

Notes:

(1) New programs may include those targeting waste prevention, other plastics recycling, or other streams.

(2) See Exhibit 1 at end of this section for a discussion of changes in the future status of these materials.

(3) "Total DSNY-managed Curbside/Containerized Refuse Collection & Recycling" is the sum of "Total DSNY Curbside/Containerized Refuse Collection" and "Total DSNY-managed Curbside/Containerized Recycling"

(4) Curbside/Containerized Diversion is calculated as "Total DSNY-managed Curbside/Containerized Recycling" divided by "Total DSNY-managed Curbside/Containerized Refuse Collection and Recycling" (line A ÷ line B)

(5) "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" is the sum of "Total DSNY-managed Waste for Export" and "Total Recycling, Composting and Reuse"

(6) "Total DSNY-managed Diversion" is calculated as "Total Recycling, Composting and Reuse" divided by "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" (line C ÷ line D)

Table II 2-4
FY 2015 Projected Generated Tonnage

FY 2015 Projected Generated Tonnage	Total	
	Tonnage	TPD
DSNY-Managed Waste for Export		
DSNY Curbside/Containerized Refuse Collection		
DSNY Containerized Collection	377,286	1,249
DSNY Regular Collection	2,789,474	9,237
Total DSNY Curbside/Containerized Refuse Collection	**3,166,760**	**10,486**
Other DSNY-Managed Waste		
Bulk	7,653	25
Lot Cleaning	10,114	33
Miscellaneous	2,025	7
Street Dirt	65,758	218
Other City Departments/Paid	110,738	367
Total "Other DSNY-Managed Waste"	**196,289**	**650**
Total DSNY-Managed Waste for Export	**3,363,049**	**11,136**
Recycling, Composting and Reuse		
DSNY-Managed Curbside/Containerized Recycling		
Paper and MGP Recycling		
Paper	663,671	2,198
Metal, Glass and Plastic	376,502	1,247
Total Paper and MGP Recycling	**1,040,173**	**3,444**
Other Agency Recycling		
Bulk Metal	5,500	18
Food composting (Rikers)	7,000	23
Christmas tree composting	2,500	8
Yard and leaf composting	50,000	166
Materials for the Arts (reuse)	1,000	3
New programs[(1)]	143,000	474
Total "Other Agency Recycling"	**209,000**	**692**
Total DSNY-Managed Curbside/Containerized Recycling	**1,249,173**	**4,136**

Table II 2-4 (continued)
FY 2015 Projected Generated Tonnage

FY 2015 Projected Generated Tonnage	Total	
	Tonnage	TPD
Other Recycled Wastes		
Derelict vehicle recycling	9,266	31
Auto tire recycling	1,591	5
Lot cleaning bulk metal recycling and dirt reuse	749	2
DOT asphalt recycling(2)	187,574	621
DOT millings recycling(2)	128,294	425
Interagency clean fill reuse(2)	315,619	1,045
Interagency road material reuse(2)	249,444	826
Total "Other Recycled Wastes"	**892,538**	**2,955**
Total Recycling, Composting and Reuse	**2,141,711**	**7,092**
Grand Totals and Diversion Rates		
A. Total DSNY-Managed Curbside/Containerized Recycling	**1,249,173**	**4,136**
B. Total DSNY-Managed Curbside/Containerized Refuse Collection & Recycling(3)	**4,415,933**	**14,622**
Curbside/Containerized Diversion(4)	**28.3%**	
C. Total Recycling, Composting and Reuse	**2,141,711**	**7,092**
D. Total (DSNY-Managed Waste for Export, Recycling, Compost and Reuse) Generation(5)	**5,504,760**	**18,228**
Total DSNY-Managed Diversion(6)	**38.9%**	

Notes:

(1) New programs may include those targeting waste prevention, other plastics recycling, or other streams.

(2) See Exhibit 1 at end of this section for a discussion of changes in the future status of these materials.

(3) "Total DSNY-managed Curbside/Containerized Refuse Collection & Recycling" is the sum of "Total DSNY Curbside/Containerized Refuse Collection" and "Total DSNY-managed Curbside/Containerized Recycling"

4) Curbside/Containerized Diversion is calculated as "Total DSNY-managed Curbside/Containerized Recycling" divided by "Total DSNY-managed Curbside/Containerized Refuse Collection and Recycling" (line A ÷ line B)

(5) "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" is the sum of "Total DSNY-managed Waste for Export" and "Total Recycling, Composting and Reuse"

(6) "Total DSNY-managed Diversion" is calculated as "Total Recycling, Composting and Reuse" divided by "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" (line C ÷ line D)

Table II 2-5
FY 2020 Projected Generated Tonnage

FY 2020 Projected Generated Tonnage	Total	
	Tonnage	TPD
DSNY-Managed Waste for Export		
DSNY Curbside/Containerized Refuse Collection		
DSNY Containerized Collection	389,260	1,289
DSNY Regular Collection	2,878,006	9,530
Total DSNY Curbside/Containerized Refuse Collection	**3,267,266**	**10,819**
Other DSNY-Managed Waste		
Bulk	7,653	25
Lot Cleaning	10,114	33
Miscellaneous	2,025	7
Street Dirt	65,758	218
Other City Departments/Paid	110,738	367
Total "Other DSNY-Managed Waste"	**196,289**	**650**
Total DSNY-Managed Waste for Export	**3,463,554**	**11,469**
Recycling, Composting and Reuse		
DSNY-Managed Curbside/Containerized Recycling		
Paper and MGP Recycling		
Paper	702,500	2,326
Metal, Glass and Plastic	398,530	1,320
Total Paper and MGP Recycling	**1,101,030**	**3,646**
Other Agency Recycling		
Bulk Metal	5,500	18
Food composting (Rikers)	7,000	23
Christmas tree composting	2,500	8
Yard and leaf composting	50,000	166
Materials for the Arts (reuse)	1,000	3
New programs[(1)]	240,000	795
Total "Other Agency Recycling"	**306,000**	**1,013**
Total DSNY-Managed Curbside/Containerized Recycling	**1,407,030**	**4,659**

Table II 2-5 (continued)
FY 2020 Projected Generated Tonnage

FY 2020 Projected Generated Tonnage	Total	
	Tonnage	TPD
Other Recycled Wastes		
Derelict vehicle recycling	9,266	31
Auto tire recycling	1,591	5
Lot cleaning bulk metal recycling and dirt reuse	749	2
DOT asphalt recycling[(2)]	187,574	621
DOT millings recycling[(2)]	128,294	425
Interagency clean fill reuse[(2)]	315,619	1,045
Interagency road material reuse[(2)]	249,444	826
Total "Other Recycled Wastes"	**892,538**	**2,955**
Total Recycling, Composting and Reuse	**2,299,569**	**7,614**
Grand Totals and Diversion Rates		
A. Total DSNY-Managed Curbside/Containerized Recycling	**1,407,030**	**4,659**
B. Total DSNY-Managed Curbside/Containerized Refuse Collection & Recycling[(3)]	**4,674,296**	**15,478**
Curbside/Containerized Diversion[(4)]	**30.1%**	
C. Total Recycling, Composting and Reuse	**2,299,569**	**7,614**
D. Total (DSNY-Managed Waste for Export, Recycling, Compost and Reuse) Generation[(5)]	**5,763,123**	**19,083**
Total DSNY-Managed Diversion[(6)]	**39.9%**	

Notes:

(1) New programs may include those targeting waste prevention, other plastics recycling, or other streams.

(2) See Exhibit 1 at end of this section for a discussion of changes in the future status of these materials.

(3) "Total DSNY-managed Curbside/Containerized Refuse Collection & Recycling" is the sum of "Total DSNY Curbside/Containerized Refuse Collection" and "Total DSNY-managed Curbside/Containerized Recycling"

(4) Curbside/Containerized Diversion is calculated as "Total DSNY-managed Curbside/Containerized Recycling" divided by "Total DSNY-managed Curbside/Containerized Refuse Collection and Recycling" (line A ÷ line B)

(5) "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" is the sum of "Total DSNY-managed Waste for Export" and "Total Recycling, Composting and Reuse"

(6) "Total DSNY-managed Diversion" is calculated as "Total Recycling, Composting and Reuse" divided by "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" (line C ÷ line D)

Table II 2-6
FY 2026 Projected Generated Tonnage

FY 2026 Projected Generated Tonnage	Total	
	Tonnage	**TPD**
DSNY-Managed Waste for Export		
DSNY Curbside/Containerized Refuse Collection		
DSNY Containerized Collection	381,963	1,265
DSNY Regular Collection	2,824,059	9,351
Total DSNY Curbside/Containerized Refuse Collection	**3,206,023**	**10,616**
Other DSNY-Managed Waste		
Bulk	7,653	25
Lot Cleaning	10,114	33
Miscellaneous	2,025	7
Street Dirt	65,758	218
Other City Departments/Paid	110,738	367
Total "Other DSNY-Managed Waste"	**196,289**	**650**
Total DSNY-Managed Waste for Export	**3,402,311**	**11,266**
Recycling, Composting and Reuse		
DSNY-Managed Curbside/Containerized Recycling		
Paper and MGP Recycling		
Paper	741,575	2,456
Metal, Glass and Plastic	420,698	1,393
Total Paper and MGP Recycling	**1,162,273**	**3,849**
Other Agency Recycling		
Bulk Metal	5,500	18
Food composting (Rikers)	7,000	23
Christmas tree composting	2,500	8
Yard and leaf composting	50,000	166
Materials for the Arts (reuse)	1,000	3
New programs[(1)]	500,000	1,656
Total "Other Agency Recycling"	**566,000**	**1,874**
Total DSNY-Managed Curbside/Containerized Recycling	**1,728,273**	**5,723**

Table II 2-6 (continued)
FY 2026 Projected Generated Tonnage

FY 2026 Projected Generated Tonnage	Total	
	Tonnage	TPD
Other Recycled Wastes		
Derelict vehicle recycling	9,266	31
Auto tire recycling	1,591	5
Lot cleaning bulk metal recycling and dirt reuse	749	2
DOT asphalt recycling[(2)]	187,574	621
DOT millings recycling[(2)]	128,294	425
Interagency clean fill reuse[(2)]	315,619	1,045
Interagency road material reuse[(2)]	249,444	826
Total "Other Recycled Wastes"	**892,538**	**2,955**
Total Recycling, Composting and Reuse	**2,620,812**	**8,678**
Grand Totals and Diversion Rates		
A. Total DSNY-Managed Curbside/Containerized Recycling	**1,728,273**	**5,723**
B. Total DSNY-Managed Curbside/Containerized Refuse Collection & Recycling[(3)]	**4,934,296**	**16,339**
Curbside/Containerized Diversion[(4)]	**35.0%**	
C. Total Recycling, Composting and Reuse	**2,620,812**	**8,678**
D. Total (DSNY-Managed Waste for Export, Recycling, Compost and Reuse) Generation[(5)]	**6,023,123**	**19,944**
Total DSNY-Managed Diversion[(6)]	**43.5%**	

Notes:

(1) New programs may include those targeting waste prevention, other plastics recycling, or other streams.

(2) See Exhibit 1 at end of this section for a discussion of changes in the future status of these materials.

(3) "Total DSNY-managed Curbside/Containerized Refuse Collection & Recycling" is the sum of "Total DSNY Curbside/Containerized Refuse Collection" and "Total DSNY-managed Curbside/Containerized Recycling"

(4) Curbside/Containerized Diversion is calculated as "Total DSNY-managed Curbside/Containerized Recycling" divided by "Total DSNY-managed Curbside/Containerized Refuse Collection and Recycling" (line A ÷ line B).

(5) "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" is the sum of "Total DSNY-managed Waste for Export" and "Total Recycling, Composting and Reuse"

(6) "Total DSNY-managed Diversion" is calculated as "Total Recycling, Composting and Reuse" divided by "Total (DSNY-managed Waste for Export, Recycling, Compost and Reuse) Generation" (line C ÷ line D).

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EXHIBIT 1

Waste Generation Category Definitions

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Exhibit 1

Waste Generation Category Definitions

DSNY-managed Waste for Export

DSNY Containerized Collection: Refuse collected via preset oversized metal containers.

DSNY Curbside Collection: Refuse collected in rear-loading packer trucks.

Bulk: Non-household refuse items that are too large to fit into bags or containers.

Lot Cleaning: Refuse resulting from DSNY lot cleaning operations.

Miscellaneous: Refuse that does not fit under any of the other categories.

Street Dirt: Refuse collected from mechanical street sweeper.

Other City Departments/Paid: Refuse delivered to transfer stations from other City Departments (such as NYCDEP, Department of Parks and Recreation, etc.) in which DSNY incurs the cost of transport and disposal.

Household Waste: Refuse remaining after recycling materials have been removed from self-help sites. The Self Help Program was discontinued as of FY 2003 and this category of waste is not reported for subsequent years.

Recycling, Composting and Reuse

Bulk Metal: This category is added in FY 2004 and subsequent years to reflect DSNY pick up of recycled bulk metal from households and Housing Authority developments.

Paper: Recycling of newspaper, cardboard and mixed paper collected by DSNY from residents and public institutions.

Metal, Glass and Plastic: Recycling of metal, glass bottles and jars, plastic bottles and jugs, and beverage cartons collected by DSNY from residents and public institutions.

City Agency Recycling: Recycling of white office paper collected from City agencies by DSNY contractor. This program was discontinued as of FY 2003 and this category of waste is not reported for subsequent years.

Self-Help Metal Recycling: The recycling of bulk metal dropped off by residents at DSNY's self-help sites throughout the five boroughs. The Self Help Program was discontinued as of FY 2003 and this category of waste is not reported for subsequent years. Bulk Metal from households and institutions continues to be collected by DSNY forces and is reported as Bulk Metal under Other City Agency Recycling category in the Attachment II Tables for FY 2004 and beyond.

Housing Authority Bulk Metal Recycling: The recycling of bulk metal collected from Housing Authority buildings by DSNY contractor. This program was discontinued as of FY 2004 and this category of waste is not reported for subsequent years. Bulk Metal from Housing Authority Developments continues to be collected by DSNY forces and is reported as Bulk Metal under Other City Agency Recycling category in the Attachment II Tables for FY 2004 and beyond.

Food Composting (Rikers): Food composting at the Rikers Island Pilot Composting Facility, a facility funded and operated by DSNY that accepts food waste from the City Department of Corrections Facilities on Rikers Island.

Christmas Tree Composting: Composting of Christmas trees collected from residents by DSNY, and processed at DSNY compost sites in the Bronx, Queens, Brooklyn and Staten Island.

Yard and Leaf Composting: Composting of leaves and brush collected from residents of the Bronx, Queens, Brooklyn and Staten Island by DSNY; and processed at DSNY compost sites in the Bronx, Queens, Brooklyn and Staten Island.

Materials for the Arts (reuse): The reuse of materials donated to "Materials for the Arts," a non-profit reuse center funded by DSNY.

Derelict Vehicle Recycling: The recycling of abandoned automobiles collected and recycled under private contract to DSNY.

Auto Tire Recycling: The recycling of auto tires collected during DSNY lot and street cleaning operations.

Lot Cleaning Bulk Metal Recycling and Dirt Reuse: The recycling of bulk metal from DSNY lot cleaning operations, and the reuse of dirt from DSNY lot cleaning operations for landscaping at DSNY facilities and DSNY-serviced lots and other properties.

DOT Asphalt and DOT Millings Recycling: The recycling of old asphalt and millings generated by Department of Transportation (DOT) roadwork used in DSNY paving projects. Some of this material is recycled at DOT facilities and made into new asphalt. The balance of the material is used at Fresh Kills for on-site road projects. Although a final decision on the timing has not yet been made, as the Fresh Kills road and closure construction projects are completed in the next few years, the processing and on-site reuse of this material will eventually end. However, this material will continue to be generated by City road projects and will likely be recycled at other facilities in the City. Since these quantities are not reflected in projections of recycled C&D and Clean Fill in Attachment IV, they are carried forward as recycled material generated from City projects in these tables.

Interagency Clean Fill and Interagency Road Material Recycling: The recycling of inert construction and demolition debris from public construction projects, is delivered by City contractors, processed and reused at Fresh Kills for road building, paving, contouring,

landscaping and erosion control. Although a final decision on the timing has not been made, as Fresh Kills road and closure construction projects are completed in the next few years, the processing and on-site reuse of this material will eventually end. However, this material will continue to be generated by City road projects and will likely be recycled at other facilities in the City. Since these quantities are not reflected in projections of recycled C&D and Clean Fill in Attachment IV, they are carried forward as recycled material generated from City projects in these tables.

ATTACHMENT III
WASTE CHARACTERIZATION ACTIVITIES

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WASTE CHARACTERIZATION ACTIVITIES

1.0 INTRODUCTION

Section 27-0107 of the New York State Conservation Law requires New York State planning units (counties and municipalities) to draft, and update at least decenially, a local Solid Waste Management Plan. Among the requirements of such local Solid Waste Management Plans are to "characterize the solid waste stream to be managed in the planning period." (New York State Environmental Conservation Law, Section 27-0107, Subsection 1.b.i.) In April of 2004, the Bureau of Waste Prevention, Reuse and Recycling (BWPRR) of the New York City Department of Sanitation (DSNY) contracted with a consulting firm to conduct a Citywide Waste Characterization Study (WCS). The preliminary phase of the WCS has been completed, fulfilling the State's requirement for the current New York City Solid Waste Management Plan. Follow-up phases to the WCS will provide more in-depth information on the DSNY-managed Waste stream.

The last Citywide waste characterization study was conducted in the City in 1989-1990. Over the past 12 years, the DSNY has conducted four smaller-scale waste composition studies of DSNY-managed refuse and recycling.[1] The results of these studies varied considerably because they examine different groups of waste generators served by DSNY. The results of the 1989-1990 study have been utilized in the preparation of the SWMP, while the future results of the new Waste Characterization Study currently underway and outlined below will further inform the DSNY's solid waste management planning over the proposed planning period.

[1.] For the DSNY's 1990 Waste Composition Study, see City Department of Sanitation, A Comprehensive Solid Waste Management Plan for New York City and Final Generic Environmental Impact Statement, Appendix Volume 1.1, Waste Stream Data, August 1992; and City Department of Sanitation Operations Planning Evaluation and Control, New York City Waste Composition Study 1989-1990 (four volumes). For the DSNY's Staten Island Waste Composition Study, see HDR Engineering, Inc., Report on Staten Island District 3 Waste Composition Analysis (June 1997). For the DSNY's Low-Diversion Districts Waste Composition Study, see City Department of Sanitation, Mixed Waste Processing in New York City: A Pilot Test Evaluation (October 1999). And for the DSNY's "suburban" neighborhood study, conducted for a backyard composting evaluation , see City Department of Sanitation, Backyard Composting in New York City: A Comprehensive Program Evaluation (June 1999).

In May and June of 2004, DSNY conducted a preliminary waste characterization study (PWCS) in which the curbside refuse and recyclables stream was characterized for the City as a whole. The results, summarized in Section 2.3.2 and detailed in the PWCS Final Report in Appendix D, describe the curbside waste stream in terms of its material composition and the breakdown of refuse vs. recycling streams. It is important to note that while this study was considered preliminary, the sampling procedures used ensure that its results are accurately characterize the curbside waste stream. In other words, enough samples of waste were taken to be confident – based on generally agreed upon statistical principles – that the results reflect what was in the refuse and recycling in May and June of 2004. The methods used to analyze the data conform to rigorous analytic standards, and the results have been calculated so as to objectively convey what was observed.

Phase I, scheduled for Summer 2004 through 2005, will re-examine residential waste to better understand how it varies by season and by housing density and income. It will also assess street-basket waste, and will include a special focus on the relationship between structural and service characteristics of multi-unit buildings and refuse and recyclables generation and composition. Phase II will cover the characterization of waste from public institutions served by DSNY. It will also include an examination of construction and demolition debris, lot cleaning, and inter agency fill streams managed by the DSNY. The scheduling of Phase II has not yet been finalized.

The WCS will be coordinated through the Bureau of Waste Prevention, Reuse and Recycling (BWPRR), and will involve the participation of several other bureaus within DSNY, including the Bureau of Cleaning and Collections, the Bureau of Waste Disposal, and the Bureau of Planning and Budget's Operations Management Division. The outcome of the WCS will enable the DSNY to (1) determine whether additional materials may be appropriate for recycling or other methods of handling and/or reducing wastes in the future; (2) improve the DSNY's waste prevention, reuse, recycling, and other sanitation-related public education efforts, especially to aid targeting of groups of waste generators for outreach and publicity; (3) improve the DSNY's enforcement of existing recycling and other sanitation laws and codes; (4) inform DSNY operations, including equipment procurement, facility construction, and collection route

structure; (5) generate information relevant to recycling processors and other entities engaged in market development for the City's recyclable materials; and (6) provide, where feasible, an understanding of how MSW in the City has changed over the past decade, through comparison of study results with results from prior City waste characterization studies

The level of detail and range of waste streams examined under the WCS is unprecedented among municipal waste characterization studies for cities throughout the U.S. No other city has examined the variation in waste composition by housing density and income. No other city has attempted to link, through direct observation (rather than surveys), structural characteristics of multi-unit buildings and their recyclables composition. Among major cities, only Seattle has undertaken a concurrent characterization of the recyclables stream; most cities characterize refuse only. Only Seattle has also analyzed the composition of street basket waste. Moreover, the number of material categories that will be assessed in the WCS far exceeds those used by other jurisdictions. The ambitious scope of the WCS is appropriate to the City's massive waste stream and particular demographic characteristics, and will set a new standard in municipal waste characterization in the United States.

2.0 METHODOLOGIES FOR PHASE I

2.1 Phase I Residential Waste Characterization Methodology

Using random selection methods, and taking into account Citywide variation in housing and density, refuse and recycling routes will be randomly selected for sampling each working day of a three-week period each season. DSNY Borough superintendents will be informed of the selected sample routes one week before collection. They will coordinate a protocol in which sample trucks have identifying posters affixed and trucks collect waste on normal routes and return to district garages to await relay to pre-assigned waste transfer stations (for refuse) and recycling vendors (for recycling). DSNY consultants and BWPRR staff will be on hand at transfer stations to take grab samples from each sample truck using a front-end loader. Each sample will placed into a series of 90-gallon containers and coded for identification.

DSNY consultants will transport samples to one of two sort sites, where contents will be sorted into material categories corresponding to a pre-established list. Sorted contents will be weighed and, in some cases, counted. Data will be recorded and checked using a standard Quality Control/Assurance protocol. Recorded data will be compiled in a database off site. Bulk refuse and recycling (defined as items that do not fit into a 90-gallon container) in grab samples will be weighed and described, but not included in the material sorts.

2.1.1 Definition of Housing Density and Income Strata

There is considerable variation in median household income and numbers of residential structures and number of units per structure throughout the neighborhoods of the City. Prior research both by DSNY and in other jurisdictions suggests that waste composition may vary with one or both of these demographic characteristics. In order to capture this variation, sampling will be carried out such that results will be statistically significant for each of eight income/density combinations (strata) in the City.

To accomplish this, we begin by dividing the City's 2,217 Census Tracts into a set of income/housing density strata so that we can select collection routes in tracts that are representative of each stratum. Definitions of income and housing density are as follows.

2.1.1.1 Income

Using data from the 2000 Census, median household income for each of the City's 2,217 census tracts was divided evenly into three groups. The High Income Group includes all census tracts with an average median household income over $46,193. The Medium Income Group includes all census tracts with an average median household income less than $46,193 and greater than $30,763. The Low Income Group includes all census tracts with an average median household below $30,763. This results in three equal income groups. These same groupings are currently used by DSNY to categorize Sanitation Districts and are used by the Department of City Planning to characterize CDs in the City.

High Income	> $46,193
Med. Income	$46,193=<INC>= $30,763
Low Income	< $30,763

2.1.1.2 Housing Density

Using 2000 Census data, the number of residential structures and the number of units per structures is used as a basis for determining housing density. The High Density Group includes those census tracts in which 67% or more of the residential housing structures contain 10 or more units. The Low Density Group includes those census tracts in which 67% of the residential structures contain two or fewer units. The Medium Density Group includes all those census tracts that are not in either the High Density Group or the Low Density Group.

High Density	67% - more than 10 Units
Medium Density	Areas under 67% criteria = 3 to 9 units
Low Density	67% - 2 or fewer Units

2.1.2 Stratifying Census Tracts

Based on the methodology described above, all census tracts are assigned to one of the nine strata, as outlined in Table 2.1.2-1.

Table 2.1.2-1
Distribution of Census Tracts by Income and Density Strata

	High Income	**Medium Income**	**Low Income**	**Total**
High Density	167	127	342	636
Medium Density	162	435	392	989
Low Density	410	177	5	592
TOTAL	**739**	**739**	**739**	**2,217**

Note that there are only 5 out of over 2,000 census tracts that qualify as "low income/low density." Closer examination of the characteristics of these tracts show that all but two of them consist mainly of non-residential property. For this reason, "low income - low density" will not be included as a stratum for sampling, reducing the total housing/density strata to eight.

Because census tracts are the smallest unit in which census data is reported, they provide the greatest level of demographic detail achievable at a Citywide level. As the tables above show, there are 2,217 Census Tracts in the City and 59 Sanitation Districts. For this reason, the results of the Phase I residential components will be able to be applied to strata on either the Census Tract-level or the Sanitation District-level.

2.1.3 Number of Samples

In a waste characterization study, the number of samples that are sorted affects the accuracy of the estimate. For example, if only one 200-pound sample of the City's refuse were sorted, it is very unlikely that the estimate resulting from sorting that single sample would match the composition of the City's entire curbside refuse. On the other hand, if hundreds of thousands of 200-pound samples were sorted - enough samples so that every ounce of the City refuse and recyclables were sorted - the resulting estimate would be very accurate.

If the material we were sorting were consistently and homogeneously discarded by households, it would be relatively easy to arrive at an estimate of how many samples to take. It would take very few samples to develop an estimate if there were only two materials in the waste stream and they were always found in the same proportion in every sample. However, refuse, and to a lesser degree, recyclables, are extremely variable, and the percentage of each type of waste can vary considerably between samples. Even from the same household, the type of waste can vary depending on when the sample is collected. For example, during the autumn, one would expect to find a great deal of leaves, but in the winter there will be few leaves or none. On the other hand, one would be likely to find food waste throughout the year. Because of the potential for variability between samples, a different number of samples may be required to obtain an accurate estimate for different types of waste. Continuing the example, since food waste is likely to be found more consistently than leaves, fewer samples would be required to obtain an accurate estimate of the food waste percentage.

Typically, an estimate of the composition of waste is presented as three numbers: (1) the Sample Mean; (2) the Confidence Level; and (2) the Confidence Interval. The Sample Mean is the average percentage of a given material found in the samples sorted. For example, after sorting thirty samples of refuse, there will be a list of 30 percentages of paper waste. If the average of the 30 percentages of paper is 35%, then the Sample Mean of paper is 35%.

The Confidence Level and the Confidence Interval are intertwined concepts. Together, they allow statements to be made about the entire population from the sample taken. The Sample Mean is simply the average value of the samples; it is unlikely that the percentage of a given type of waste for the entire population matches the Sample Mean exactly. The Confidence Level and the Confidence Interval provide a way to convey how much the samples tell us about the entire population.

The Confidence Level indicates the degree of certainty that the Confidence Interval contains the population mean value. For example, if the Confidence Interval - 33% to 37% for paper - is based on a Confidence Level of 90%, we can be 90% confident that the population's percentage of paper waste is contained in that interval. In waste characterization studies, a 90% Confidence Level is a widely accepted standard.

The third number used in describing the composition of the refuse is the Confidence Interval. This is an expression of the uncertainty regarding the population Mean. For example, our Sample Mean of 35% for paper waste may have a Confidence Interval of ±7%, at a 90% Confidence Level. That is, based on our number of samples and results obtained, we would expect that 90% of the time, the amount of paper waste in the refuse of the entire population would be between 28% and 42%.

In recommending the number of samples of refuse and recyclables to sort for the Phase I residential WCS, not only was the level of accuracy of the estimate considered, but also the degree of variability for various material categories found in the PWCS, as well as the cost of providing this estimate and the variability of materials being sorted. As noted above, the variability of some material in the refuse is greater than other materials. Yard waste is much

more variable than food waste. Therefore, for a given number of samples, the estimate of some materials will be more accurate than the estimate for others. Sorting a few hundred samples of refuse may provide a Confidence Interval of ±8% for paper, but a ±30% for yard waste. To achieve a ±8% for yard waste would require significantly more samples and be prohibitively expensive.

In practical terms, "variability" simply means the variation we are likely to find between samples. If 10 samples are sorted, and each sample has between 28% to 32% of a given waste type, we can be pretty certain that the percentage of this waste type for the population as a whole lies in this general range. But if these same 10 samples are sorted, and find results of 1%, 80%, 20%, 65%, and so forth, there is much less certainty about the percentage of this waste type in the entire population. There is a point of diminishing returns for waste sampling. After that point, the cost of achieving small increases in accuracy is high. Below that point, significant increases in accuracy can be achieved with relatively little cost.

Weighing all of these factors it was determined that at least 200 samples of refuse per stratum be sorted. Additional samples might be slightly helpful in improving accuracy, but the amount of improvement diminishes as more samples are taken. The value of 200 samples reflects an appropriate number of samples to achieve useful accuracy at a reasonable cost.

The results of PWCS showed relatively little variability in the City's paper recycling stream. Paper had a relative uncertainty of 0.52% at a 90 percent confidence level which is substantially below the goal of + 7.5% relative uncertainty at a 90% confidence level. It is estimated that by sorting 40 samples per strata, the goal of + 7.5% can be achieved for paper. On the other hand, the PWCS results show that the MGP stream was substantially more variable than was paper. Using results from this study, we estimate that by sorting 160 MGP samples per strata, the goal of + 7.5% relative uncertainty could be achieved for the MGP.

To define the universe (or population) that is to be sampled, DSNY’s Bureau of Cleaning and Collection (BCC) will provide a list of refuse and recycling collection routes currently active citywide for each season. Using standard random selection methods, sample routes will be

selected that fall within census tracts corresponding to the eight income/density strata. Samples will also be weighted to account for variations in setout size of early versus late week refuse collections. The following table summarizes the total number of residential samples to be taken over the four seasons.

Table 2.1.3-1
Samples for Phase I - Four Seasons

Waste Stream Component	Total Samples	Samples per Strata
Residential Refuse	1,600	200
Residential Paper Recycling	320	40
Residential MGP Recycling	1,280	160
Total Residential Samples	**3,200**	**400**

2.1.4 Size of Samples

Samples weighing 200 pounds (lbs) for refuse and 125 lbs for MGP and paper recycling will be collected from each sample load. As with the number of samples, past research on our own and other jurisdictions' waste streams confirms that this sample weight is adequate to ensure statistically significant results.

Studies by the USEPA and academic sources (e.g., Klee, Design and Management for Resource Resource Recovery: Quantitative Decision- Making, Ann Arbor Science, 1980) suggest that as the size of the refuse samples increases beyond 200 to 300 pounds, the statistical benefits associated with the larger sample size are outweighed by the incremental increase in the cost of analysis. As a result, the minimum refuse sample weight of 200 pounds has been the industry standard for MSW composition studies in the United States for the past 15 years (including statutory requirements where such studies are mandated by state or local law).

The considerations in selecting a minimum sample size for recyclables are significantly different. Unfortunately, there is little literature, or scientific study, or established industry practice upon which to draw in order to defend a minimum sample size for mixed recyclables. This may be, in part, due to the relative immaturity of this particular field of study. However, based upon the consultants' collective experience with waste characterization studies, a minimum of 125 pounds per sample was chosen. An explanation of the basis for this value is summarized below.

Appropriate minimum sort sample size, regardless of the materials being sorted, is a function of the mass and variability of the individual components within the material being analyzed. If, for example, the study were to examine the weight of individual grains of sand within a sample, the minimum sample size would be smaller, given that grains of sand have a relatively low mass, and variability in mass between individual grains is also relatively low. In this example, it is intuitive to suppose that a reasonable minimum size for a sort sample would be a few ounces of sand. The accepted minimum sample size for refuse (200 pounds) takes into account the average mass and volume of individual refuse components and the variability between the largest and smallest of these items (from a cigarette butt to a TV, for example). Components making up the recyclables stream are significantly more homogeneous (in terms of mass and volume) than those found in refuse. Not only are there significantly fewer components in recyclable samples, the variability between the largest and the smallest of these items is similarly low, in a relative sense.

2.2 Phase I Street Basket Waste Characterization Methodology

The methodology for characterizing street basket waste will be similar to that for residential waste, but will not differentiate among housing density and income strata. Instead, we will randomly select 200 routes from among the 647 dedicated street basket routes throughout the City each season. Grab samples weighing 200 lbs will be taken from these sample trucks at specified transfer stations, for sorting into the same material categories used for residential waste characterization. Additional observations and classifications will be made to assess the misuse of street baskets by residents and businesses for curbside waste disposal. The methodology for the street basket portion of Phase I will also be informed by prior research on this topic in Seattle.

2.3 Phase I Multi-Unit Waste Characterization Methodology

Due to the complexity of Phase I and the multi-unit component in particular, this aspect of the study will not be undertaken until the winter sampling season. Out of over 180,000 multi-unit apartment buildings in the City, 125 will be randomly selected in a stratified sample reflecting

variation in income and housing density of their census tract, size and other characteristics. Waste will be collected from these buildings in dedicated trucks and sorted using a similar methodology to the residential component of the WCS. During the sampling period, each sample building will undergo site visits by BWPRR outreach staff to record structural information and to interview superintendents and residents about recycling arrangements. These data will be supplemented by structural data from databases maintained by City housing agencies. We will apply various multivariate statistical techniques, including multiple regression, to examine the correlation between building characteristics and waste composition.

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ATTACHMENT IV

COMMERCIAL WASTE QUANTITIES AND PROJECTIONS FOR PLAN PERIOD

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COMMERCIAL WASTE QUANTITIES AND PROJECTIONS FOR PLAN PERIOD

1.0 INTRODUCTION

This section discusses the quantities of waste generated within the City that are collected and managed by private carters, i.e., the Commercial Waste stream. These waste quantities were examined in detail as Volume II of the Commercial Waste Management Study (CWM Study), March 2004, which is provided as Appendix E of the SWMP. The information in this section is a summary of that report. "Commercial Waste," as the term is used here, is comprised of three types of waste as defined in DSNY Rules: (1) putrescible waste[1]; (2) non-putrescible waste[2]; and (3) fill material[3], which can be characterized as follows:.

1. Putrescible waste – Waste generated daily by the City's business establishments that is office waste with small quantities of putrescible material, and also includes restaurant and other waste type of Municipal Solid Waste from commercial sources. Significant amounts of office waste are recycled directly at the source by carters that primarily collect recyclable office paper from commercial buildings and deliver it to recyclers, exporters or paper manufacturers. Consistent with DSNY rules, putrescible waste referred to in this report is inclusive of the fractions that are disposed and recycled. Some additional recycling occurs at the City's putrescible transfer stations, where old corrugated containers, commonly referred to as cardboard (OCC), and concentrated loads of office paper are diverted to recyclers.

2. Non-putrescible waste – Inert waste generated from commercial and residential demolition, new construction and renovation projects. This waste can vary significantly with the volume of construction activity in the City. It is comprised of a range of inert materials, some of which is recycled. The non-recycled fraction of the waste is densified and transferred to the City's non-putrescible transfer stations for disposal. This report also refers to this waste as construction and demolition (C&D) debris to distinguish it from fill material, which is also a category of non-putrescible waste.

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[1] Putrescible solid waste is solid waste containing organic matter having the tendency to decompose with the formation of malodorous by-products.

[2] Non-putrescible solid waste, as defined in DSNY rules (Subchapter A of 4 RCNY 16), is solid waste, whether or not contained in receptacles, that does not contain organic matter having the tendency to decompose with the formation of malodorous by-products, including but not limited to dirt, earth, plaster, concrete, rock, rubble, slag, ashes, waste timber, lumber, Plexiglas, fiberglass, ceramic tiles, asphalt, sheetrock, tar paper, tree stumps, wood, window frames, metal, steel, glass, plastic pipes and tubes, rubber hoses and tubes, electric wires and cables, paper and cardboard.

[3] Fill material, as defined in DSNY rules, is only clean material consisting of earth, ashes, dirt, concrete, rock, gravel, asphalt millings, stone or sand, provided that such material shall not contain organic matter having the tendency to decompose with the formation of malodorous by-products.

3. Fill material – A subset of non-putrescible waste, this is inert waste from non-building construction, comprised of materials such as excavated fill, stone rubble and road millings that are graded into materials such as sand and aggregate and stockpiled for reuse at the City's fill material transfer stations. Almost all fill material is reused in other building projects.

Significant quantities of materials in each of the above categories are recycled. This report also provides information on recycling within the putrescible waste category. The sum of waste disposed and waste recycled equals the waste generated in each category.

2.0 PUTRESCIBLE COMMERCIAL WASTE

A 2003 baseline estimate of commercial putrescible waste was developed using three different methodologies:

- A Facilities Based Method developed estimates of Commercial Waste processed using the following methods: inventoried Commercial Waste handled at the City's private transfer stations, using DSNY's Transfer Station Reporting System; surveyed out-of-City disposal facilities or transfer stations that receive direct deliveries of Commercial Waste originating in the City; and surveyed recyclers in the region to identify the quantify of recycled Commercial Waste from the City handled by processors, brokers, exporters and end users.

- An employment-based waste generation model was developed using industry sector employment at the two-digit SIC code level and waste generation factors for these types of industries based on a search of industry literature on this subject; and

- A survey of the City's licensed carters conducted by DSNY in cooperation with the Business Integrity Commission for the first six months of 2003 that identified the quantities of waste and recycled materials that was tipped at in-City transfer stations, tipped at out-of-City facilities or delivered to recyclers.

These methodologies are described in detail in Volume II of the CWM Study, which is provided as Appendix E of the SWMP. Table IV 2-1 shows the Calendar Year 2003 estimate of commercial putrescible waste.

Table IV 2-1
2003 Estimate of Putrescible Solid Waste - Disposed and Recycled

Material/Destination	2003 Estimate TPY	TPD
Waste Disposed	2,261,355	7,248
Waste Recycled	824,116	2,641
Total Generation (Disposed & Recycled)	3,085,000	9,889
Recycling Percentage	27%	

The 2003 baseline waste estimate was allocated among the five boroughs using data on carter collection routes obtained from the BIC-DSNY carter survey. Based on this borough allocation, and using projected employment over this period, the quantity of Commercial Waste generated (both disposed and recycled) was forecast for the period of the SWMP for each borough. The relative proportions of waste generated by each borough change as a function of changes in projected employment over time. The forecast assumes that the percentage of materials recycled by each borough would remain constant at 2003 levels[4] for the period of the SWMP. These projections are discussed in Volume II of the CWM Study.

Table IV 2-2 shows the generation of commercial putrescible waste by borough, through the year 2025. It should be noted that the tonnages for 2006 and beyond have been adjusted based upon new employment projections provided by NYMTC in June 2005. The projections previously used showed employment between 2005 and 2025 increasing by 9.13%. The updated projections forecast an increase of 20.48% over that same time period.

3.0 NON-PUTRESCIBLE (C&D AND FILL) COMMERCIAL WASTE

Table IV 3-1 presents the DSNY-reported quantities of clean fill and non-putrescible C&D waste, which together equal the total quantity of C&D debris in the City, for 2003. Total tons are estimated at 8.64 million by using data from the first three quarters of 2003 from DSNY Quarterly Transfer Station reports, and assuming that the fourth quarter would average 100% of the third quarter for fill, and 90% of the third quarter for C&D.

[4] Percentages developed from 2003 BIC-DSNY City carter collection truck and fax-back surveys data plus recycling at City transfer stations plus estimated recycling through the deposit container redemption system.

Table IV 2-2
Generation of Commercial Putrescible Waste by Borough, 2003 through 2025[(1)(2)]

	2003 (tons)	2006 (tons)	2010 (tons)	2015 (tons)	2020 (tons)	2025 (tons)
Bronx	398,000	448,000	465,000	484,000	504,000	525,000
Brooklyn	599,000	652,000	679,000	710,000	745,000	780,000
Manhattan	1,306,000	1,261,000	1,336,000	1,390,000	1447,000	1,496,000
Queens	623,000	683,000	711,000	737,000	764,000	790,000
Staten Island	160,000	185,000	201,000	219,000	237,000	256,000
Total (tons/yr)	3,086,000	3,229,000	3,392,000	3,541,000	3,698,000	3,848,000

Notes:

(1) 2003 derived by multiplying generation quantities (CWM Study, Volume II, Appendix D, Table 1.5-1) by borough of origin (CWM Study, Volume II, Appendix D, Table 1.5-2). 2006 through 2025 derived from employment-generation factors.

(2) Numbers may not add due to rounding.

Table IV 3-1
DSNY-Reported Quantities of Clean Fill and Non-Putrescible C&D Waste

Item	2003[(2)]
Tons per day input[(1)]	
Non-Putrescible C&D	8,626
Clean Fill C&D	19,069
Total C&D	27,695
Tons per year input	
Non-Putrescible C&D	2,691,390
Clean Fill C&D	5,949,450
Total C&D	8,640,840
Clean fill as percent of Total C&D	68.9%

Notes:
(1) Based upon 312 days per year of operation.
(2) 2003 consists of first three quarters, plus fourth quarter estimated at 90% of third quarter for non-putrescible and 100% of third quarter tonnages for fill material.

Reported quantities of C&D ranged from 6.35 million tons in 2000 to 7.9 million tons in 2002. Average daily tonnage is in the 20,000 to 25,000 range, and a baseline number of 7,058,704 tons was calculated for the year 2003, as the baseline total for C&D debris. Of the total C&D, approximately 60% was determined to be clean fill material. Because of the significant variability in total quantities of C&D generated over these periods, future estimates of generation use two different baseline totals for the year 2006.

Quantities of non-putrescible waste, which include C&D debris and fill material, were estimated based upon waste generation rates derived from a literature search for three types of residential and commercial construction projects: new construction, demolition and renovation. A regression analysis using data from F.W. Dodge on actual and projected construction activity over the period of 2000 to 2007 in the City for each of the respective categories was used to develop a trend line for the generation of C&D waste over the period of the SWMP. Non-building-related C&D, which would include clean fill, was estimated by obtaining waste generation factors expressed as tons per $1,000 of activity. These factors were applied to the value of this construction in the City obtained from F.W. Dodge. Details of these estimates are discussed in Volume II of the CWM Study.

As discussed in Volume II of the CWM Study, data for non-putrescible waste for the years 2000 through 2002 showed that, on average, clean fill represented approximately 60% of the total amount of C&D, and non-putrescible C&D represented the remaining 40%. However, the 2003 data shows that clean fill appears to be accounting for an ever larger percentage of C&D debris, totaling almost 70%. Therefore, in allocating the total quantity of C&D waste into non-putrescible and clean fill components, a range was derived, with clean fill constituting between 60% and 70% of the total material, and C&D constituting between 30% and 40% of the total.

Tables IV 3-2 and IV 3-3 disaggregate the total estimate for C&D debris into the fill material and non-putrescible categories used by the City in regulating its transfer stations, on a tons per year basis. Two tables were developed to reflect the substantial difference in total non-putrescible waste generation during the period 2001-2002 and the year 2003. In these tables, fill is shown as ranging from 60% to 70% of the total C&D, with the remainder allocated to the non-putrescible category. These tables utilize the 2003 baseline quantity of C&D material, and utilize the previously described methodology to project these quantities for the period of the SWMP.

Table IV 3-2
Range of Quantities of Non-Putrescible and Fill Material, 2006-2025
(Based upon Average Data for 2000-2002, in Tons per Year)

Year	Average (2000-2002) Estimate (Using 1.96)				
		Non-Putrescible		Fill	
	Total	30%	40%	60%	70%
2006	6,355,000	1,907,000	2,542,000	3,813,000	4,449,000
2010	6,896,000	2,069,000	2,759,000	4,138,000	4,827,000
2015	7,310,000	2,193,000	2,924,000	4,386,000	5,117,000
2020	7,699,000	2,310,000	3,079,000	4,619,000	5,389,000
2025	8,077,000	2,423,000	3,231,000	4,846,000	5,654,000

Table IV 3-3
Range of Quantities of Non-Putrescible and Fill Material, 2006-2025
(Based upon 2003 Data, in Tons per Year)

		Upper Estimate (Using 2.97)			
		Non-Putrescible		Fill	
Year	Total	30%	40%	60%	70%
2006	8,660,000	2,598,000	3,464,000	5,196,000	6,062,000
2010	9,437,000	2,831,000	3,775,000	5,662,000	6,606,000
2015	9,983,000	2,995,000	3,993,000	5,990,000	6,988,000
2020	10,482,000	3,145,000	4,193,000	6,289,000	7,337,000
2025	10,957,000	3,287,000	4,383,000	6,574,000	7,670,000

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ATTACHMENT V

BIOSOLIDS, MEDICAL WASTE AND DREDGE SPOILS MANAGEMENT

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BIOSOLIDS, MEDICAL WASTE AND DREDGE SPOILS MANAGEMENT

1.0 BIOSOLIDS

Biosolids are defined as the solid organic matter recovered from the sewage treatment process. The City produces approximately 1,200 wet tons (300 dry tons) of biosolids every day. After ocean disposal of biosolids was banned in 1988, the City was required to find alternative land-based use for this material. All of the terms of the previous Consent Order entered into with the NYSDEC to comply with the requirements of 6 NYCRR Part 360 were satisfied in July 1998 with the implementation of the long-term program described herein. Recognizing the value of biosolids and that they are safe when used according to regulations, the New York City Department of Environmental Protection (NYCDEP), implemented a program to beneficially use biosolids. Today, 100% of the City's biosolids are processed for beneficial use and result in products that fertilize crops and improve soil conditions for plant growth.

1.1 City Biosolids Beneficial Use Program

Biosolids and products derived from biosolids are valuable resources that contain nutrients essential to plant growth. The use of biosolids products reduces agricultural use of chemical fertilizers. Application of biosolids increases soil productivity by improving soil texture, stimulating root growth and increasing water-holding capacity. Further, plants grown in soils where biosolids have been applied are more resistant to disease and drought conditions.

The City's biosolids are managed through the use of short-term (3-year) contracts and long-term (15-year) contracts. This mix provides for a very efficient program which NYCDEP anticipates that it will continue to pursue over the planning period; the biosolids program provides for the stability of long-term contracts with well developed markets and the cost effectiveness of short-term contracts that can respond to emerging market opportunities.

NYCDEP's current biosolids contracts involve the land application of biosolids and/or biosolids conversion into products such as compost, liming agents or pellets. Through processes, discussed below, 100% of the City's biosolids are prepared for beneficial use. All of these processes meet

or exceed all federal, state and local regulations for the control of contaminates and the destruction of disease causing organisms. The results are products that are easy to handle and have characteristics similar to many agricultural processes.

1.1.1 Land Application

Approximately 8% of the City's biosolids are spread on land to return nutrients to the soil directly. Biosolids are spread less than one-quarter-inch thick and sometimes are plowed into the soil. When necessary, biosolids material undergoes a lime stabilization process prior to land applying the material. Pursuant to a 15 year contract expiring in 2013 with R. J. Longo Construction Co., Inc, - Environmental Protection and Improvement Control, Inc. (EPIC) A Synagro Company, the biosolids material is transported via railroad for direct land application to corn crops and grazing land in Virginia and to wheat crops and grazing land in Colorado. EPIC's contract also provides for the liming of biosolids materials at a Colorado facility prior to land application, as necessary (see Section 1.1.4 for further discussion of alkaline treatment). EPIC's contracted allocation is between 225 and 510 wet tons per day. NYCDEP allocates approximately 24% of the City's production to EPIC at a cost of $14,000,000 annually, depending on production.

1.1.2 Thermal Drying

Approximately 51% of the City's biosolids are heated to dry the material and reduce pathogens. Fertilizer pellets are formed during the process. City biosolids are made into pellets at a facility through a 15-year contract with New York Organic Fertilizer Company (NYOFCO), A Synagro Company, in the Hunts Point section of the Bronx. NYOFCO's contracted biosolids allocation is between 510 and 825 wet tons per day and the contract cost is, on average, about $32,000,000, annually. The NYOFCO contract expires in 2013.

These pellets can be used directly on the land or mixed with other materials to make special fertilizer blends. Pellets from the NYOFCO facility are sold nationwide. They are used primarily in Florida's citrus groves and, in the past, NYCDOT has used them in highway beautification projects around the City.

1.1.3 Composting

Approximately 10% of the City's biosolids are composted. To compost the biosolids, they are mixed with a bulking agent, such as wood chips. The bulking agent allows more oxygen to penetrate the mixture, providing an ideal environment for decomposition. The resulting compost product is similar to peat moss and used as mulch or soil conditioner at golf courses, nurseries, home gardens, lawns, etc. NYCDEP has contracted with Tully Environmental Co., Inc. (Tully) for biosolids (dewatered sludge) composting at the truck-fed Natural Soils Products facility in Good Springs, Pennsylvania. Tully's contracted allocation is between 75 and 150 wet tons per day. The cost of this contract is approximately $3,400,000 annually depending on production. Under the contract's terms, the City may use up to ten (10) percent of the Contractor's compost product for community outreach, public participation and public education efforts and projects within New York City, at no additional cost to the City. The product has been used at Port Richmond, Tallman Island and Ward's Island Wastewater Treatment Plants, as well as at the Queens Botanical Gardens and the Randall's Island Sports Complex. This is a 3 year contract that expires in 2007.

1.1.4 Alkaline Treatment

Approximately 31% of the City's biosolids are mixed with a highly alkaline material, such as lime or Portland cement, and is subjected to high temperature. This process results in a product which resembles soil and is used as an agricultural liming agent. The City's biosolids are alkaline treated at a facility in Colorado through a 3-year contract (with a one year renewal) entered into in 2005 with R. J. Longo Construction Co., Inc, - Environmental Protection and Improvement Control, Inc. (EPIC) A Synagro Company. EPIC's contracted allocation is between 150 and 300 wet tons per day. The cost of the EPIC contract is approximately $7,900,000 annually, depending on production.

NYCDEP has also entered in a 15-year contract that expires in 2013 with a Tully and Hydropress Environmental Services, Inc. Joint Venture for regional alkaline stabilization and for backup composting facility services in Good Springs, Pennsylvania. The Tully/Hydropress Joint Venture

contracted allocation is between 100 and 200 wet tons per day, based on monthly averages. The cost of the Tully/Hydropress Joint Venture contract is approximately $2,900,000, annually, depending on production. The Tully/Hydropress Joint Venture products are beneficially used for land application with a possibility for energy production.

2.0 MEDICAL WASTE MANAGEMENT

Medical waste includes all waste generated by licensed health services providers, including, but not limited to, voluntary and proprietary hospitals, residential health care facilities, diagnostic and treatment centers, clinical laboratories, walk-in clinics, and physicians' and dentists' offices. This waste stream includes: (1) pathological and infectious waste defined in state and federal regulations as Regulated Medial Waste (RMW), also known as red-bag waste; and (2) other solid waste generated by health service providers, which is similar in composition to commercial and institutional waste, i.e., Non-Regulated Medical Waste, known as black-bag waste. In addition, certain materials generated within the New York City Health and Hospitals Corporation (HHC) are recycled, as discussed in Section 2.1.

RMW definitions are contained in 42 U.S.C. 6992 et seq., and 40 CFR part 259, New York State Environmental Conservation Law 27-1501 et seq., and Public Health Law 1389 and et seq., and regulations thereunder, and in the New York City Administrative Code Section 16-120.1 and DSNY Rules there under (Local Law 57 of 1985, as amended, banned the disposal of black-bag waste at City landfills and Local Law 75 of 1989 required medical waste generators to file disposal plans). In addition, federal, state and local laws, including those cited above, address unique medical waste management issues associated with red-bag and black-bag waste. This regulatory framework establishes requirements that are applicable to the containment, transport and disposal of both types of waste.

The City's red- and black-bag waste is managed and enforced pursuant to this regulatory framework, as follows:

1. Licensed private vendors are responsible to collect and dispose of all red-bag waste and the majority of black-bag waste from the City's health services providers. The DSNY collects black-bag waste from small-quantity generators only (medical/dental offices in residential buildings) pursuant to DSNY Rules.

2. The Department provides collection services for source separated recyclables generated by the (HHC and other not-for-profit health service providers.

3. Local Law 75 of 1989 requires that generators of RMW dispose of it separately from black-bag waste. To ensure the separation and proper disposal of RMW, medical waste generators are required to file medical waste removal plans on an annual basis with the DSNY's Environmental Police Unit (EPU). The EPU also conducts physical inspections of all facilities required to submit an RMW removal plan to ensure that the facilities are disposing of RMW in conformance with their filed removal plans. Notices of Violations (NOVs) are issued to medical waste generators that fail to file a removal plan, or that don't file in a timely manner. The EPU also issues NOVs to generators that fail to adequately separate their RMW or that fail to certify that the material was transported and disposed of by a licensed medical waste hauler. Most NOVs issued by the EPU are returnable to the City's Environmental Control Board. To bolster the effectiveness of its medical waste enforcement program, the DSNY is in the process of amending its Rules to increase the fines associated with certain NOVs. Currently, fines associated with violations of Local Law 75 range from $2,500 to a maximum of $10,000.

4. HHC continues to refine its waste management practices through improved procedures and the involvement of private vendors of medical waste collection and disposal services. As a consequence, the quantity of red-bag waste generated by HHC has declined as recycling rates have increased. Private vendors of medical waste management services have worked to provide more cost-effective collection and disposal services for both red- and black-bag waste and have reduced the amount of material erroneously set-out as red-bag waste at HHC facilities. These medical waste management vendors have also provided technical assistance on improving source separation of recyclables to medical facilities that generate solid waste.

2.1 Waste Reduction, Reuse and Recycling Measures

The HHC is an integrated healthcare delivery system and the largest municipal health care provider in the country. HHC consists of 11 acute care hospitals, 5 long-term care facilities, 6 diagnostic and treatment centers and a myriad of community-based clinics located throughout the five boroughs of the City. As a leader in the provision of health care services to diverse communities, HHC has developed waste management programs that are regulatory compliant, environmentally sensitive and consistent with best practices followed in the health care industry.

HHC waste management efforts emphasize the control of inefficient supply chain management and its relationship to preventable operating costs. Within this emphasis, HHC efforts focus on three primary categories of waste management activities: improper storage of materials (e.g., departmental hoarding of supplies, unnecessary dispersion of inventory supplies in patient rooms); inefficient supply procurement practices (e.g., inappropriate inventory par levels for perishable supplies and clinically unnecessary replacement of unused supplies for new product introductions); and establishing supplier contract agreements that eliminate supply packaging before delivery (e.g., incorporating reusable containers to replace delivery boxes). HHC waste reduction and recycling activities are coordinated locally at the facility level by network administrators responsible for daily facility operations. In addition, HHC corporate offices facilitate the establishment of product and/or service contracts specifically structured to contribute HHC solid waste management objectives. HHC has instituted a number of successful initiatives that contribute to efficient waste management practices, promote waste reduction goals and encourage participation in recycling activities. Several of these programs are outlined as follows:

1. HHC has organized all acute care, long-term care, diagnostic and treatment centers and community-based clinics into seven vertically integrated health care networks. Within each HHC health care facility, departments (waste generation zones) coordinate and monitor waste management activities and compliance with proper recycling goals.

2. HHC staff are routinely provided in-service education on a myriad of regulatory compliance topics which include environmental health issues. Targeted environmental health training programs are specifically provided to HHC housekeeping and support staff to ensure awareness of HHC waste management requirements. These programs include departmental training initiatives and contract vendor-provided programs designed to maintain best practices in areas such as non-regulated waste management, recycling and proper disposal techniques.

3. HHC continues to evaluate products utilized, their acquisition cost and disposal, to identify best industry practices that will contribute to HHC's waste management objectives and allow for the continued provision of quality health care services. As an example, HHC approved a pharmaceutical prime vendor service contract that results in the elimination of product packaging (boxes) for all pharmaceutical products ordered by HHC facilities. The HHC prime vendor program requires that the service provider deliver all products in reusable secured containers. Pharmaceutical commodities represent the largest single product group at HHC totaling approximately $120 million in annual expenses. This initiative demonstrates how HHC coordinates supply chain management contracting with prudent environmental health best practices (e.g., waste reduction).

4. HHC facilities have instituted recycling programs and established designated disposal and collection points for recycling materials. In the area of recycled paper products which include white bond paper, computer printouts, corrugated and other high-grade office paper, HHC recovered 1,899 tons of paper during FY 2004 (July 3, 2003 to June 30, 2004). HHC will continue to develop and implement paperless electronic communication systems to encourage the reduction of overall paper use at HHC facilities.

5. HHC is embarking on a 10-year major capital improvement plan involving the renovation and/or building of new HHC hospitals and health care facilities. A component of this capital improvement initiative is the installation of electric hand dryers in public restrooms and staff locker rooms. The intent is to significantly reduce the use of paper towels at HHC facilities and a resultant reduction of material in the HHC waste stream. While appropriate infection control practices do not allow for the absolute removal of paper towels in a health care facility, the installation of hand dyers is anticipated to materially impact on an area responsible for approximately 60% of paper towel waste.

6. HHC facilities with operating kitchens work with reusable cookware and have installed dishwashers to ensure appropriate cleaning. As a result, disposable food service cookware is not being placed into the HHC waste stream.

7. HHC utilizes linen sheets throughout all acute and long-term care facilities. HHC also operates a central laundry facility and a contract vendor service to clean and process upwards of 16 million pounds of laundry annually. Consequently, the use of disposable sheets has been phased out at HHC facilities. Minor exceptions to the use of disposable linen exists in acute care settings where clinical practice necessitates (i.e., operating rooms).

8. HHC has established several sharps collection contracts with vendors responsible for the collection, removal, sterilization of sharps used at HHC facilities. Other than HHC clinical staff using the sharps, no other HHC personnel are involved in the handling of sharps. This sharps management model prevents needle sticks among housekeeping personnel and the inadvertent introduction of sharps into HHC's waste stream.

3.0 DREDGE SPOILS MANAGEMENT

3.1 Introduction

The dredging of navigation channels, berthing piers, anchorage areas and other facilities within the New York Harbor complex is necessary to maintain the harbor and its water-dependent facilities. The harbor routinely requires dredging because fine-grained sediments, transported by

rivers and within the estuaries, settle and accumulate on the sea floor, causing shoaling which interferes with safe navigation. The success of ocean commerce within the Port of New York and New Jersey depends on regular and predictable maintenance dredging, as well as new work dredging. Existing channel depths must be maintained to allow safe clearance, and deeper navigation channels must be excavated for modern cargo ships if the viability of the Port is to continue.

Due to concerns about contaminants associated with some dredged materials, many environmental and citizens groups sought an end to the ocean dumping of dredged material. To address these concerns, a July 24, 1996 letter ("The 3 Party Letter"), signed by former United States Environmental Protection Agency (USEPA) Administrator Carol Browner, former Secretary of Transportation Frederico Pena, and former Secretary of the Army Togo D. West, Jr. to several U.S. Congressional Representatives from New Jersey, called for the closing of the Mud Dump Site (MDS) and the establishment of a "remediation area." The closure of the Mud Dump to contaminated materials subsequently occurred in late 1997 with the establishment of the Historic Area Remediation Site (HARS) at a portion of the former MDS.

With the closure of the MDS and due to past and present pollution, the management of dredged material from many areas of the harbor has become increasingly difficult. This is primarily due to either a lack of dredge management options or the high cost of the limited number of options currently available. Likewise, it has become very difficult to obtain the necessary permits from the United States Army Corps of Engineers (USACE) for offshore disposal, except for the cleanest of materials.

As a direct result of this, the management of dredged materials within the New York Harbor complex has largely been focused on upland management alternatives. Water-based disposal or reuse of dredged material has been limited to the remediation of the HARS site, placement in confined disposal facilities, and the beneficial use of dredged material for habitat enhancement and/or development.

3.2 Dredged Materials Management Plan (DMMP)

To allow for continued operation of the harbor complex, a DMMP was prepared for the Port of New York and New Jersey. The DMMP required identification of successful management alternatives for dredged materials. Developed with the input of federal, state and local agencies, as well as concerned private entities, the DMMP identified options to manage material generated from both federal and non-federal maintenance and deepening of the Port through the year 2040.

The DMMP identified a wide variety of preferred and contingency management options for dredged material. These options included:

- Contaminant Reduction – With the states' lead and USACE's support, a multi-million dollar, multi-year data collection and analysis program was initiated to identify and track down the sources of pollution that are contaminating dredged material.
- Remediation of the HARS – Use of dredged material to beneficially remediate the HARS.
- Habitat Creation/Restoration – The DMMP included several different habitat applications (e.g., restoring habitat by filling existing degraded pits, creating fish reefs, and creating shellfish & bird habitats).
- Land Remediation – Using amended or processed dredged material for the remediation of landfills and brownfields in the region.
- Decontamination Technologies – The USEPA, the USACE, and New Jersey have investigated several innovative dredged material treatment methods. The products of these treatments have several potential uses (e.g., construction material, or clean fill).
- Containment Options – Several in-shore pit options are either in use or have been considered as contingency to meet the region's short- and mid-term management needs. The pits are sited in existing impacted areas and in close proximity to the dredged material sources to avoid adverse environmental impact.

3.3 Dredged Material Management Alternatives

3.3.1 Water-Based Management of Dredged Materials

Even with the increased restrictions placed upon the in-water disposal of dredged materials from the harbor complex, some materials are clean enough to allow continued disposal at the HARS site. In addition, other in-water management alternatives also continue to be used for managing some dredged materials. These include the use of confined disposal facilities for the disposal of

dredged materials and the use of selected dredged material for habitat enhancement and restoration opportunities in the region. The primary, current in-water management alternatives for dredged material are discussed below.

3.3.1.1 Ocean Disposal

Since the 1996 agreement to limit ocean disposal of dredged material, the only materials that have been transported to the HARS site are clean materials, suitable for capping the previous materials disposed at the site. The designation of the HARS in September 1997 allowed the beginning of the remediation of contaminated dredged materials dumped prior to modern environmental regulations. Only sediments classified as Category I (clean, uncontaminated sediments that cause no adverse biological effects) are permitted for placement at the HARS.

Using dredged material from the harbor to cover existing sediments at the HARS represents an environmentally beneficial use of this resource. Bottom sediments at the HARS, which may have the potential to cause adverse effects, can be capped with cleaner sediments dredged from the harbor complex, which meet the criteria of the Ocean Dumping Act, and will not cause adverse effects. Placement of this material at the HARS serves to remediate the site by reducing impacts to acceptable levels and improving habitat conditions for bottom dwelling organisms. Dredged materials from the harbor complex are currently being taken to the HARS site from several dredging projects within the region, including the harbor deepening efforts being jointly undertaken by the USACE and the Port Authority of New York and New Jersey. Materials taken to the HARS site include virgin materials removed as part of the harbor deepening project consisting primarily of clay, till and rock. Substantial remaining capacity is available at the HARS for the placement of additional clean materials.

3.3.1.2 Confined Disposal Facilities

In the mid to late-1990s, the Port Authority permitted a confined disposal facility within Newark Bay for the management of dredged material, primarily for Port Newark and Port Elizabeth. The Newark Bay Confined Disposal Facility (NBCDF) has accepted materials for disposal over the

past 10 years and is currently being utilized on a contingency basis by the Port Authority if upland restoration alternatives are not available for the use of dredged material. Additional capacity remains within the NBCDF.

3.3.1.3 Habitat Enhancement and Development

Primarily rock materials that have been dredged as part of the harbor deepening project in the Port of New York and New Jersey have been utilized in the development of additional marine habitats. Rock materials have been placed at various in-water locations for the development of new reef areas to enhance fish habitat. Materials for the deepening of portions of the Kill Van Kull, which has involved the removal of significant amounts of rock, have been utilized for the development and/or enhancement of fishing reefs.

3.3.2 Upland Disposal Management Alternatives

Due to the restrictions placed upon the disposal of dredged materials within the HARS or former MDS, the vast majority of dredged material, removed from within the harbor complex, is currently managed through upland disposal alternatives. Primary upland alternatives include, but are not limited to, landfill disposal, land reclamation, and landfill closures in New York and New Jersey. Additional upland alternatives that have been or continue to be used within the harbor complex include on-site or near-site dewatering and management; research and development applications for the decontamination and reuse of dredged materials; and the use of processed dredged material for the remediation of abandoned mines, such as the recent Bark Camp demonstration project in Pennsylvania, which was concluded in the past few years. A discussion of the more significant upland dredge material management alternatives that have primarily been used for non-HARS materials within the Port of New York and New Jersey are provided in the next sections.

3.3.2.1 Landfill Disposal

Disposal of dredged material within existing landfills continues to be utilized as a management alternative for dredged material within the region. Many of the smaller dredging projects that occur within the New York Harbor complex are transported to landfills for disposal after the

dewatering or processing of these materials. Although DSNY has not conducted any dredging recently, materials removed from most of their marine-based facilities in the past were routinely transported to out-of-state landfills for disposal.

3.3.2.2 Land Reclamation

Several projects, primarily within New Jersey, have been utilizing processed dredged materials in the reclamation of existing sites, and the capping and/or remediation of brownfield sites and former landfills. Dredged material is stabilized through a process that involves the addition of Portland cement, fly ash and/or other admixtures for use in these applications. Sites have been reclaimed for future development as commercial/industrial uses, golf courses and other uses. Several sites that have been utilized, that are currently accepting processed dredge materials, or are pursuing approval for the acceptance of these materials are discussed below:

- OENJ Orion-Elizabeth Site – This former garbage landfill site was remediated, capped and redeveloped through the use of processed dredged materials.
- OENJ Bayonne Site – This site has been using processed dredge materials for the past several years and is near completion. Present plans are that the site will be redeveloped as a golf course.
- OENJ Port Reading Site (Jersey City) – The Port Reading site has been proposed as a potential land reclamation site for the use of processed dredged material; however, it is not currently accepting material.
- Seaboard Koppers Site (Kearney) – The remediation of this site will involve the use of approximately 1.0 million cubic yards of dredged material that will be stabilized through the addition of Portland cement and other admixtures.
- ENCAP Site – This site in the Hackensack Meadowlands is fully permitted and has an estimated capacity of 2.5 million cubic yards. The project will involve the capping of four landfills in Lyndhurst, Rutherford and North Arlington, New Jersey and the potential redevelopment of the site for mixed commercial and residential uses and a golf course.
- FDP Enterprises (Jersey City) – This site is fully permitted and has an estimated capacity of 1.0 million cubic yards of processed dredged material, which will be used to complete a proposed wetland fill of approximately 53 acres along Pen Horn Creek.

3.3.2.2 Landfill Closures

Several landfills have used or are currently approved for the use of processed dredged material as an alternative grading material. In addition to several landfills within the New York and New Jersey area that have or are currently utilizing dredged material, additional "orphan" landfills with the Hackensack Meadowlands complex are also being evaluated for the potential use of dredged material. Major landfill closure projects that have or will utilize processed dredged material as components of their closure include the following:

- Pennsylvania and Fountain Avenue Landfills (Brooklyn) – Processed dredged material was used as an alternative grading material at these closed landfills as part of the overall closure process. This phase of the closure effort is largely completed.
- Fresh Kills Landfill – The Fresh Kills Landfill has recently received a Beneficial Use Determination (BUD) from the New York State Department of Environmental Conservation (NYSDEC) for the use of processed dredged material as an alternative grading material to assist in the closure of the landfill. An estimated three to four million cubic yards of material may potentially be used as part of this effort. Initial materials for use at the landfill may come from access dredging within Fresh Kills Creek and approximately 680,000 cubic yards from Phase 1 of the Harbor Deepening Project.
- Landfill 1E (Hackensack Meadowlands) – This landfill located in the Hackensack Meadowlands is fully permitted for the acceptance of processed dredged material. Dredged materials are currently processed off-site before being transported to the landfill for use. Capacity is approximately 1.5 million cubic yards.

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ATTACHMENT VI

RECYCLING, WASTE PREVENTION AND COMPOSTING

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RECYCLING

1.0 STATUS OF CURRENT PROGRAMS

1.1 Waste Prevention Programs

More detailed information on DSNY's waste prevention program is available on line at http://www.nyc.gov/html/dsny/html/reports/recywprpts.shtml.

1.1.1 Overview

Many waste prevention lessons were learned over the past 15 years, including the following:

- Focus must be placed upon behavior change and not on conceptual understanding. DSNY's waste prevention focus groups and survey research in 1996 found that that the term *waste prevention* is not well understood by New Yorkers. Therefore, DSNY focused on asking New Yorkers to consider specific waste prevention practices (e.g., buying second-hand goods) and services (e.g., utilizing the NYC Stuff Exchange), and provided reasons why the practices or services are worthwhile (e.g., money savings). DSNY's public education approach also reflects findings presented in a King County, Washington report on *Changing Behavior: Insights and Applications*, which suggests focusing on showing people what they lose by not preventing waste, telling success stories, and appealing to emotions. DSNY's waste prevention website (http://www.nyc.gov/html/nycwasteless/html/home/home.shtml) and other public education initiatives are designed accordingly, to inspire and empower people to take practical actions.

- Encourage New Yorkers to take responsibility to prevent waste, and provide examples that show how they have the power to do so. DSNY's public opinion research suggests that most residents believe waste prevention should be left to manufacturers and legislators. Therefore, DSNY has sought to tailor messages and methods to communicate opportunities for residents to take on the responsibility to prevent waste, and to show New Yorkers how they can assert their power to prevent waste.

- Consider stakeholders beyond DSNY. DSNY recognizes that many initiatives are beyond the scope of a local government's solid waste agency acting on its own. Whether at the federal, state or local level, public and political support is necessary. Examples of initiatives beyond the direct control of DSNY include implementing the European approach that requires manufacturers to take back various items (e.g.,

computers, tires, packaging), charging advanced disposal fees (e.g., tax packaging and other items as a waste prevention incentive), and instituting quantity-based user fees for residents and institutions.

- Focus on money savings. DSNY's market research indicates that most New Yorkers feel that environmentally beneficial products often cost more than "regularly" packaged items. It is important for DSNY to provide examples of waste-preventing products that are both practical and cost effective. DSNY has sought to convey this message through programs such as NYC WasteLe$$ Business and NY Wa$teMatch – and will continue to rely on this message as an important theme to promote waste prevention. Further, waste prevention, including reuse of durable items, can generate jobs and economic wealth in addition to solid waste reduction. This highlights the importance of developing programs that are at least in part sustained by the private sector and organizations with a stake in generating this wealth. This maximizes the cost-effectiveness, sustainability and impact of programs that receive DSNY funding.

- Target all sectors of the City. A lesson learned from DSNY's study is that there are waste prevention opportunities within all sectors of society – including the general public, tourists, schools, large and small businesses, government and other institutions. By targeting the broadest possible spectrum of waste generators, DSNY maximizes the potential for waste prevention.

- Spend resources wisely. While it is important to target all sectors, it also is important to spend resources on those initiatives most likely to result in the cost-effective prevention of waste. This is particularly challenging, however, given the obstacles of measuring waste prevention achieved by any one initiative, as learned in DSNY's 2000 consultant study on *Measuring Waste Prevention in New York City*. DSNY's research on waste prevention measurement demonstrates that different programs can be expected to yield varying results at varying costs, and that the results of waste prevention efforts may not always be measurable or cost effective.

- Continue Community-Based Efforts. The term *community-based social marketing* has emerged to characterize an approach to encourage environmentally desirable (i.e., sustainable) behaviors. This approach is based on the premise that initiatives to promote behavior change (e.g., voluntary waste prevention and recycling actions) can prove effective when they are carried out by community-based organizations, are service-oriented and otherwise involve direct contact with people. However, removing barriers to behavior change (e.g., inconvenience) and enhancing the benefits of these changes (e.g., charging user fees for trash removal from residents and institutions) are important components of success.

DSNY has sought to integrate community-based communication strategies into its programs where practical. Efforts include working directly with the City's schools, civic organizations, business organizations and trade associations. DSNY also managed a City Council-funded Waste Prevention Community Coordinator Project.

1.1.2 New York Stuff Exchange

DSNY established a telephone system in 1999 called the NYC Stuff Exchange to promote reuse outlets throughout the City. The system provides information on the existing array of community, non-profit and charitable organization-based programs that accept or distribute donated items for reuse. The system also lists numerous organizations that offer rental and repair services. The NYC Stuff Exchange contains approximately 10,000 unique listings and can accommodate up to 64 callers at a time. Listings are drawn from the New York City Yellow Pages, with additional outreach to non-profit organizations.

The NYC Stuff Exchange was launched as a pilot program on Staten Island in October 1999 and expanded Citywide in April 2001. Advertisements were placed Citywide for three months in subway cars, subway stations and bus shelters, and inside buses and the Staten Island Ferry. Posters and information to solicit listings were distributed via direct mail and community outreach to a large number of non-profit organizations interested in receiving materials donations. Information about the NYC Stuff Exchange was placed on DSNY's website in 2001 and on DSNY's NYCWasteLe$$ website in 2002.

The Stuff Exchange initially averaged 100 calls per day in 2001. Over the period of 2001 through 2006, the system has consistently received roughly 100 to 200 calls per month. While this program demonstrates that there is a public demand for readily accessible information on where to donate, buy and sell second-hand goods in the City, DSNY will improve the accessibility of the system by launching a companion Stuff Exchange website in summer 2007. See SWMP Section 2.4.4 for additional details about the development and launch of the website.

1.1.3 NY Wa$teMatch

NY Wa$teMatch, a DSNY-sponsored industrial materials exchange program, was launched in April 1997. The Industrial Technology Assistance Corporation (ITAC) is under contract with the City University of New York (CUNY) to manage the NY Wa$teMatch program on behalf of DSNY. The Long Island City Business Development Corporation (LICBDC) was subcontracted by ITAC from 1997 through mid 2001 to provide technical assistance, marketing and materials exchange matchmaking assistance. Beginning in 2001, ITAC assumed full responsibility for all functions of the materials exchange in accordance with its ongoing funding agreement with DSNY.

Since its inception in 1997, NY Wa$teMatch has diverted approximately 15,000 tons of material from disposal and helped program participants realize roughly $2.3 million in savings and revenues. In Year 1, the program diverted 254 tons of material and generated $110,000 of customer savings and revenues. By Year 7 (FY 2004), it diverted 3,920 tons of material and generated $840,599 in customer savings and revenues, as shown in Table VI 1.1.3-1.

Table VI 1.1.3-1

NY Wa$teMatch Program

Period	Tons Diverted	Value of Materials
4/97-3/98	254	$110,185
4/98-3/99	1,346	$141,892
4/99-3/00	1,250	$85,182
4/00-3/01	1,986	$189,532
4/01-3/02	3,814	$506,976
4/02-3/03	3,301	$665,015
4/03-3/04	3,920	$840,599

The transactions facilitated by NY Wa$teMatch have been diverse. For example, one business donated 15 tons of paint, resulting in $10,000 in avoided disposal costs and over $35,000 in avoided procurement costs for City parks and nonprofit organizations. Another successful transaction involved the donation of washing machines and dryers from a renovated hotel to a nonprofit organization. The transaction resulted in avoided disposal costs and a tax benefit for the donor, and purchasing cost savings of more than $9,000 for the recipient.

DSNY's investment in the program has been reduced from $751 per ton in the first year to approximately $36 per ton in the seventh. The decrease in cost to DSNY is largely attributable to the ability of NYWa$teMatch staff to innovatively solve waste management challenges and to meet DSNY's requirements to diversify its funding base. The diversified funding requirements are in recognition of the fact that much of the positive impact of NY Wa$teMatch is cost savings for businesses rather than for DSNY. NY Wa$teMatch staff continually develop new marketing strategies and target audiences, pursue new funding sources and institute cost-saving operational enhancements.

FY 2005 and FY 2006 were transition years for Wa$teMatch, a time during which the program moved from direct administration by ITAC and oversight by the City University of New York (CUNY), to a program that is entirely overseen and operated by CUNY. This transition occurred both because of ITAC's changing mission as an organization and as a result of DSNY's desire to expand the Wa$teMatch Program to a broader customer base. The new program launch will take place in FY 2007 and is expected to result in a greater number of exchanges. For current information on Wa$teMatch please go to http://www.wastematch.org/.

1.1.4 Materials for the Arts

DSNY continues to fund Material for the Arts (MFTA), a program established by the City's Department of Cultural Affairs (DCA) and supported with funding by DSNY and the City Department of Education, and with foundation and private sector funding. MFTA provides materials to non-profit arts organizations and schools in the City. Entering its 26th year, MFTA has been funded by DSNY since 1990. In accordance with a FY 1996 inter-agency agreement between DSNY and DCA, DSNY required MFTA to devise a long-range strategic plan and diversify its funding sources. MFTA raised more than $800,000 between 1997 and 2004.

In 1997, MFTA and the Department of Education entered into an inter-agency agreement to expand access to public school art teachers, which required a larger facility to accommodate the increase in the number of people who can obtain donated materials during their visits to the warehouse. In 2000, MFTA moved to a 21,000-square-foot facility in Long Island City, Queens – doubling its space while expanding outreach to both donors and recipient groups. In its ongoing efforts to tie together the different facets of arts and environmental education, MFTA also conducts reuse education workshops with interested City teachers and other educators.

Since 2002, MFTA has offered professional development workshops to New York City educators, artists, therapists, after-school teachers, senior care providers and parents. What initially started off as one workshop a month has now grown into a full blown education program with weekly workshops, a cluster of talented teaching artists, a soon-to-be completed Reuse Education Center with two permanent workshop/classrooms and thousands of people educated in the areas of reuse, waste reduction and the arts.

Each of the workshops includes a facilitator led discussion, hand-outs and designated time for construction and presentation of projects. MFTA's exceptional facilitators make sure that all participants leave with an understanding of how techniques and projects can be turn-keyed and easily taught to other staff and constituents. The program offers a wide variety of workshops from Hat Making to Doll Making, from Jewelry Making to Musical Instrument Making. All of this has been made possible by Friends of Materials for the Arts (Friends of MFTA).

A non-profit organization, Friends of MTFA, was established in 2002 to assist MFTA with its fundraising efforts. Friends of MFTA is responsible for all funds raised from private sector and individual benefactors.

A $100,000 grant from a private foundation enabled MFTA to launch an interactive website (www.mfta.org) in the fall of 2003. The website allows MFTA users to make appointments, check inventory and update "wish lists" online. Allowing site users access to these online functions has reduced the amount of staff time previously spent on related administrative tasks. The website has been well received and MFTA developed a campaign in FY 2004-2005 to promote the site to its various target audiences. The campaign was subsequently implemented and has resulted in exposing MFTA to a broader customer and user base.

As MFTA's material and financial donations have increased both the estimated value of the redistributed material has increased and the cost to DSNY per redistributed ton has decreased, as would be desired.

1.1.5 Environmentally Preferable Purchasing

An outgrowth of DSNY's NYCitySen$e project with government agencies implemented in the late 1990s, and its contracted procurement policy research, was DSNY's issuance of an Environmentally Preferable Purchasing (EPP) Guide and a series of classes for City Agency purchasing personnel. In cooperation with the Department of Citywide Administrative Services (DCAS), the Procurement Training Institute, and the Mayor's Office of Operations, six trial EPP classes were conducted for City Agency Chief Contracting Officers and other procurement personnel in the spring of 2001. Based upon class evaluations, the Procurement Training Institute incorporated the class into its list of regular course offerings that same year.

DCAS's Division of Municipal Supply Services (DMSS) writes and administers contracts for products that contain recycled-content and/or prevent waste. In its November 2003 report, Environmental Procurement: Purchasing Goods that Promote Recycling and Prevent Waste, DCAS reported on its contracts for FY 2000-2003. The report highlights its requirement contracts that provide City agencies with opportunities to purchase recycled-content products. It presents a multitude of activities including contracts for the purchase of alternative fuels vehicles, alternative fuels, paper goods including office supplies, non-paper recycled products such as carpet tiles, and salvage of surplus items including vehicles and heavy equipment. All FY 2003 contracts for printing and writing paper meet a minimum 30%-recycled content level.

In FY 2003, DCAS reported the estimated market value of contracts for materials with recycled content reached $32.7 million, which is the estimated amount anticipated for purchase by City agencies through requirement contracts developed by DMSS. The estimated value of contracts for materials with environmentally preferable products, those that contain recycled content, reduce waste, use less energy and are less toxic, reached $35.1 million in FY 2004 and $54.5 million in FY 2005. More information on the DCAS Environmentally Preferable Procurement can be obtained at http://www.nyc.gov/html/dcas/html/vendors/vendors.shtml.

1.1.6 NYCWasteLe$$ Website

The award-winning NYCWasteLe$$ website is the City's one-stop waste prevention and recycling resource (http://www.nyc.gov/html/nycwasteless/html/home/home.shtml), which received the Silver 2004 Communication Excellence Award by the Solid Waste Association of North America (SWANA). The website includes practical tips, resources, measurement tools and case studies presented in three sections: (1) NYCWasteLe$$ individual; (2) NYCWasteLe$$ government; and (3) NYCWasteLe$$ business.

NYCWasteLe$$ is a highly interactive and informative site intended to motivate and assist City businesses, government agencies and the general public to prevent waste. The website evolved from two waste-prevention technical assistance programs conducted with City businesses, hospitals and schools, and government agencies from 1996 through 2001. Two separate comprehensive website sections were established to document the background, findings and case studies garnered from each project.

The former NYCity$ense section was revamped and launched in September 2002 as the NYCWasteLe$$ government site. The NYCWasteLe$$ Business Project section was revamped and launched in January 2004 as the NYCWasteLe$$ business site. All three sections are now uniform in style and content structure and are housed under one URL address for the entire NYCWasteLe$$ website – (http://www.nyc.gov/html/nycwasteless/html/home/home.shtml)

Efforts taken by DSNY to promote the site to the public included:

- E-mailed announcements to Borough Presidents, City Council members, Community Boards, City-based State Senators and Assembly Members, government agencies, and solid waste and environmental advocacy organizations, publications and list serves.
- Announcements and inclusion of inserts about NYCWasteLe$$ in the consumer newsletters sent out with Keyspan Energy bills, Con Edison bills, and City Department of Environmental Protection (NYCDEP).
- Links to NYCWasteLe$$ added to the City and DCAS website.
- A postcard campaign with Go-Card in local bars and restaurants.
- A poster campaign with Go-Poster in outdoor public areas around the City.
- Distribution of NYCWasteLe$$ postcards at City Department of Parks MulchFest events.
- Letters about NYCWasteLe$$ with postcards for distribution to local business development corporations, business improvement groups, environmental organizations, community-based civic organizations, libraries, public schools and religious institutions.

Following the site's public launch in 2004, visitors to the website have ranged from 19,000 to 30,000 per month. This level of response has been maintained; as of September 2006, the site was receiving an average of 1,100 hits per day or roughly 31,000 hits per month

1.1.7 Special Waste and Household Hazardous Waste (HHW)

HHW includes household wastes that are flammable, corrosive, poisonous or otherwise potentially dangerous, including solvents, pesticides, hobby chemicals and other household items that would be regulated as hazardous wastes if generated by businesses or government agencies. These wastes are not accepted at DSNY's Special Waste sites due to NYSDEC permit restrictions.

Although HHW is a small percentage of the municipal waste stream, the hazard posed by relatively small quantities is not insignificant. HHW can injure DSNY workers, can pose a poisoning and fire hazard when accumulated in homes, and can contribute to the toxicity load of

the City's wastewater system. DSNY has sought to work with other City agencies (e.g., Department of Health, NYCDEP) in addressing HHW concerns that extend to areas beyond hazards posed when HHW is discarded with trash.

Despite potential dangers, HHW may be disposed in the regular trash (automotive batteries and motor oil are exceptions). Therefore, DSNY is limited in its ability to keep HHW out of the waste stream, but sponsored a pilot HHW collection in 1991, and provided one-day HHW collections in each of the five boroughs in 1993 and 1994. Although the program was popular, collection and recycling or disposal at licensed hazardous waste facilities is an expensive proposition.

In 1994, DSNY's one-day events in each borough received over 60,000 pounds of HHW from approximately 1600 households. The contractor costs to receive and dispose the collected HHW at licensed hazardous waste Treatment Storage and Disposal Facilities (TSDFs) for the five collection days totaled $210,000, in addition to the $500,000 DSNY spent to advertise the program. Statewide, the NYSDEC calculates costs of approximately $100 per HHW collection day participant in collections conducted throughout New York State in an NYSDEC report issued in 2000. Costs per participant are somewhat lower for permanent facilities (i.e., located at a fixed site and open on a regular schedule), but do not include the initial costs to construct the facilities. In addition, siting a permanent facility may face substantial community opposition. In addition, DSNY views HHW management as a challenge that multiple City agencies have a vested interest to address, including NYCDEP, Health, Fire and Emergency Management.

NYSDEC awards reimbursement funding for HHW programs in the state, including funds that reimbursed a portion of DSNY's costs for its former HHW program. However, the potential for partial reimbursement for expenses after the fact cannot be counted on to sustain an ongoing program in the City during tight budget times. Therefore, despite the availability of some potential NYSDEC funding, DSNY's HHW collection program was discontinued due to fiscal constraints in 1995.

The Special Waste program, however, began accepting specific HHW in Staten Island in 1996. This drop-off program expanded from its pilot program site in Staten Island to one site in each borough on July 16, 2001. Residents are able to bring motor oil, fluorescent light tubes, household batteries, latex paint, automotive batteries, motor oil filters, transmission fluid, thermostats and other mercury-added consumer products to any of the five locations. Residents must show a valid New York State driver's license and vehicle registration with a City address, and the service is solely for residential materials.

Although DSNY discontinued its HHW collection day service after 1994, the agency continues to explore HHW management options and activities in other jurisdictions. An informal survey conducted by DSNY in 2004 revealed that of 30 major U.S. cities, only the City and El Paso, Texas do not provide HHW collection services. Other jurisdictions provide one-day drop-off collection locations and/or permanent facilities that accept HHW from residents. Therefore, DSNY expects to release an RFP in FY 2007 to secure a future HHW drop-off event contractor. Subject to the timeframe for completing the City procurement process, the contract should be in place by FY 2008-9. See SWMP Section 2.4.6 for additional information.

1.2 Curbside Recycling Program

For detailed information about DSNY's Curbside Recycling Program, see Appendix A, "New York City Recycling in Context," which is also available on line at http://www.nyc.gov/html/dos/html/recywprpts.html. For more information specifically regarding processing and marketing, see Appendix B, "Processing and Marketing Recyclables in New York City," which can also be found on line at http://www.nyc.gov/html/dsny/html/reports/recywprpts.shtml

1.2.1 Overview

DSNY collects Recyclables set out by residents, public schools, government agencies and institutions, while private carters collect Recyclables from commercial establishments. Extensive outreach and public education, coupled with enforcement efforts, enabled the City to achieve approximately a 20% recycling rate in FY 2001.

Residents, institutions and government agencies are required to recycle newspapers, magazines, catalogs, paper, mail, envelopes, soft-covered books, phone books, paper bags, corrugated cardboard, glass bottles and jars, plastic bottles and jugs, beverage cartons, foil and other metal items, including bulk metal.

Budget cutbacks resulted in the suspension of the collection of glass and plastic in July 2002 and reduced the frequency of Citywide collection to alternate week from weekly service in July 2003. When the Program was restored to pre-July 2002 levels (see below), DSNY updated all of its public-education materials to highlight the use of clear bags or labeled recycling bins for all Recyclables. Previously, regulations required that residents use blue translucent bags for designated metal, glass and plastic items.

Plastic recycling returned in July 2003, and on April 1, 2004, the collection of glass and weekly recycling collection resumed for all materials collected by DSNY for recycling.

DSNY leaf and yard waste collection was also suspended in the fall of 2002, but was resumed in the fall of 2004. Leaf collection occurs in CDs, based upon the abundance of fall leaves and the availability of permitted compost facilities. These areas include all of Staten Island and Bronx Community Boards 7, 8, 10, 11 and 12.

1.3 Summary of Public Education Programs

More information regarding public education initiatives can be found on line in the report entitled, "NYC Recycles – More than a Decade of Outreach Activities by the NYC Department of Sanitation, FY 1986-1999,"at http://www.nyc.gov/html/dsny/html/reports/recywprpts.shtml.

1.3.1 Overview

DSNY's public education and advertising campaigns continue to evolve and adapt with the City's waste prevention, recycling and composting programs.

The budget cuts of 2002 resulted in significant public education and advertising efforts to instruct New Yorkers on materials that temporarily were no longer accepted for recycling collection. Efforts then shifted in 2003 and 2004 to educating New Yorkers on the phased-in return of plastic, and then glass, to the City's Recycling Program. Since 2004, DSNY has brought New Yorkers up-to-speed on the full reinstatement of all the of the agency's recycling services and has undertaken new public education initiatives.

Every day, thousands of New Yorkers call 311 to request waste prevention and recycling literature, and/or to obtain recycling decals for labeling containers used to set out Recyclables. The 311 phone system vastly improves the way that the City functions. The service provides City residents with around-the-clock access to non-emergency municipal services, including a broad array of sanitation services, from requests for literature to appointments for removal of CFCs from appliances to be set out for recycling.

1.4 Community Outreach

1.4.1 Overview

Community outreach has always been an important component of DSNY's waste prevention, recycling and composting programs. Until July 2002, the residential Recycling Program (both Curbside and mechanized) was fully operational Citywide – there had been no significant program changes for more than four years and the biggest issue facing the BWPRR Outreach Unit was reducing contamination. Recycling of newspapers, magazines and corrugated cardboard was firmly entrenched and needed very little educational support. Mixed paper recycling, because of its link to privacy issues, was not as widely accepted and was more difficult to enforce.

In July 2002, an extensive outreach effort conducted in 2001-2002 included a special focus on Community Board 3 in western Queens. Information was disseminated to 1,576 private homes and 405 multi-unit dwellings in Elmhurst. The effort took five months, from December 2001 to April 2002.

During 2004, the Outreach Unit visited all public and private schools and set them up internally for the proper collection of Recyclables. Thereafter, in fall 2004 and 2005, each school on the routes was revisited every September through December in order to maintain updated records of custodians and administrators, and as a constant reminder of proper recycling procedures. These school recycling education visits are continuing and include working with all levels of authority to seek to ensure proper procedures are in place throughout the entire building. Refer to SWMP Section 2.4.7.3 for information on the Golden Apple Awards program for City schools.

1.4.2 Suspension of Recycling

When the collection of glass and plastic was temporarily suspended in 2002, the mechanized collection from apartment buildings, schools and institutions was also discontinued, with Recyclable metal accepted only via curbside collection. These changes required deployment of BWPRR outreach staff to instruct schools, residences and institutions about the program changes. Upon the suspension of mechanized metal, glass and plastic recycling collection service, outreach began involving site visits to all of the public and private schools, and to all of the residential buildings that use dumpsters, to provide instructions about the new procedures for setting out metal. In 2003, outreach focused on instructions pertaining to biweekly collection and the resumed collection of plastics for recycling.

Brooklyn's 179 public schools that received mechanized recycling collection were visited between July 2002 and January 2003. Bronx's 102 mechanized public schools, the 140 mechanized schools in Queens, and Manhattan's 26 mechanized schools were also visited between November 2002 and December 2003. The mechanized schools in Staten Island were re-educated between January and April 2003.

Beginning in May 2004, with the restoration of the full program, outreach staff revisited all mechanized residential buildings, schools and institutions that receive DSNY recycling collection service. One-on-one outreach and education never ceases in the five boroughs, due in part to the ever-changing immigrant population and the transient nature of City residents. To obtain current information available on school recycling initiatives and guidelines visit DSNY's website at http://www.nyc.gov/html/nycwasteless/html/recycling/recycling_schools.shtml.

1.4.3 Residential Recycling Enforcement

Effective enforcement remains a challenge and limitation to maximizing recycling. Residents of 60% of the City's housing stock are apartment dwellers, and DSNY's research suggests that apartment dwellers are not concerned about enforcement given the difficulty of identifying individual non-complying apartments. A primary incentive for apartment dweller recycling is convenience. Therefore, enforcement efforts focus on seeking to ensure that apartment buildings set aside recycling collection areas for residents as required. Limited storage space undermines the ability of landlords to provide optimal convenience.

1.5 Current Status of Institutional Recycling Programs

1.5.1 Department of Education

DSNY continues to work with the Department of Education to promote recycling in schools. DSNY outreach efforts to schools are discussed in Section 1.4.

1.5.2 Metropolitan Transit Authority

As presented in the 2000 SWMP Modification, the Metropolitan Transit Authority (Transit Authority) privatized its collection of trash, and opted for post-collection processing to recover recyclables. DSNY believes that recycling at subway stations could serve as an invaluable reminder to New Yorkers and visitors of the City's commitment to recycling. Other major cities (e.g., Toronto, Washington, D.C.) provide source-separation recycling services in subways,

indicating that logistical challenges can be resolved. Even in Washington, D.C., where security concerns resulted in removal of recycling receptacles from MetroRail station platforms in April of 2004, receptacles remain outside the fare gate areas. However, the City does not have the authority to require the Transit Authority to establish subway source-separation recycling. This power rests with New York State; the Transit Authority is a public authority subject to the Public Authority law and pursuant to which it is required to recycle various post-consumer items for which markets exist.

1.5.3 City Housing Authority

The City Housing Authority (NYCHA) manages housing locations occupied by more than 85,000 households, providing affordable housing for low- and moderate-income residents throughout the five boroughs. NYCHA also administers a Citywide Section 8 leased housing program, which provides federally funded housing subsidies to low-income families.

NYCHA reports that due to the recent changes in the City's Recycling Program, most of the outreach material NYCHA created is no longer applicable. Therefore, NYCHA relies on the mass mailings and other outreach efforts of DSNY. NYCHA continues to place recycling information in resident newsletters and in the NYCHA newspaper, and otherwise distributes information to residents.

DSNY contracted with the Council on the Environment of New York City (CENYC), through the Waste Prevention Coordinators Program, to spend a portion of the funds provided by the City Council to launch waste prevention and recycling programs at NYCHA locations. During 2002 and 2003, CENYC's Waste Prevention and Recycling Service launched initiatives that included food waste composting, establishment of a center for donating reusable goods, sneaker recycling, and reuse of landscape waste (e.g., as wood chips).

The refrigerator replacement program, whereby the New York State Power Authority replaced refrigerators at NYCHA developments and recycled the old, energy-inefficient units, ended in 2003 and continues to replace and recycle stoves. In 2004, NYCHA installed 1,400 food waste disposals in NYCHA housing units in Brooklyn in an effort to address rodent issues.

Recycling at NYCHA locations remains a challenge for the City. DSNY's waste characterization study that is currently underway, and new market research DSNY plans to conduct to learn more about public attitudes toward, and understanding of, recycling may lead to new and improved initiatives undertaken by DSNY.

1.6 Status of Current Commercial Recycling Education and Enforcement

1.6.1 Overview

Businesses in the City are required to recycle in accordance with regulations promulgated pursuant to Local Law 87 of 1992 (LL87), and are subject to enforcement, including fines for non-compliance. There are over 500-million square feet of commercial office buildings, retail stores, restaurants and supermarkets in the City. According to the NYMTC employment forecast, there were 3,574,500 employees in the City in 2002. The 2000 Census estimated there are 226,296 firms in the City. Food and/or beverage service establishments must recycle corrugated cardboard, glass bottles and jars, plastic bottles and jugs, metal cans, and aluminum foil products. All other businesses must recycle corrugated cardboard, office paper, magazines, catalogs, phonebooks, newspaper and textiles (for companies with more than 10% textile waste).

DSNY will continue to work with Local Development Corporations (LDCs), Business Improvement Districts (BIDs) and Chambers of Commerce. These organizations will be asked to reach out to City businesses to promote commercial recycling through their newsletters and other venues. They also will be invited to co-sponsor with DSNY informational meetings with the local merchants to discuss commercial recycling topics.

1.6.2 Outreach and Education

Recycling outreach and education is provided for office buildings, stores and churches by DSNY's Commercial Outreach Coordinator at meetings with property management, building tenants and building janitorial staff. Building management also is provided with DSNY public education materials for distribution to their staff and tenants.

In December 2001, DSNY issued "Recycling: It's not a Choice, It's the Law – Handbook for NYC Businesses." The handbook presents the commercial recycling regulations so that they are easy to understand. It discusses what to recycle, how to recycle, where to post signs (with sample signs included), how to avoid a ticket, frequently asked questions, and where to call for more information. Approximately 23,000 copies have been distributed to commercial businesses, including during site visits by DSNY's Commercial Recycling Outreach Coordinator (approximately 9,000), response to a direct mailing to businesses (approximately 4,000), and from requests received (approximately 10,000) by the Sanitation Action Center (SAC) and the Mayor's 311 City Help Line that replaced SAC services when it came on line in 2002.

Retail stores, restaurants and supermarkets are visited by DSNY's Commercial Outreach Coordinator, who provides information on the recycling requirements, answers questions, offers guidance and distributes informational materials. BIDs, LDCs and Chambers of Commerce also are enlisted to disseminate information. Outreach and educational efforts will continue, and will be enhanced by new initiatives. Letters will be sent to property management companies to offer the services of DSNY's Commercial Outreach Coordinator. DSNY also will work with local real estate boards to promote recycling.

1.6.3 Enforcement

As part of a specific effort to target commercial recycling, DSNY's Outreach staff occasionally accompany DSNY's Sanitation Police during their inspections and assisted them to properly apply the commercial regulations. Summonses are issued, where necessary, to violators. The program's combination of enforcement and education has had a positive effect in helping businesses understand the regulations.

1.7 Status of Current Composting Programs

More detailed information on DSNY's composting program can be found on line in the report entitled, "Composting in New York City: A Complete Program History," at http://www.nyc.gov/html/dsny/html/reports/recywprpts.shtml. For more information about backyard composting see, "Backyard Composting: A Comprehensive Program Evaluation," at

http://www.nyc.gov/html/dsny/html/reports/recywprpts.shtml. For more information on the MSW composting research project, see "New York City MSW Composting Report: Summary of Research Project and Conceptual Pilot Facility Design," at http://www.nyc.gov/html/dsny/html/reports/recywprpts.shtml. In addition, to obtain information on composting events and information on how to compost visit http://www.nyccompost.org/.

1.7.1 Overview

DSNY's composting program consists of: (1) seasonal leaf, yard waste, and Christmas tree collection service; (2) yard waste compost facilities in Staten Island, the Bronx and Brooklyn; (3) food waste composting at the Rikers Island Correctional Facility; (4) compost education and give-back programs in cooperation with the City's four Botanical Gardens; (5) research studies including MSW composting; and (6) other initiatives.

As a result of the City's budget cuts in FY 2002, this program was scaled back to the yard waste composting facility serving private landscapers at Fresh Kills and the Rikers Island Compost Facility. The other facilities – Soundview Park and the Spring Creek Compost Facility – received no DSNY leaf or yard waste deliveries during this period. All the material delivered to these sites by DSNY through the fall of 2001 was maintained on site but not actively composted; over time, without any human intervention, the successful in-place composting of this material has occurred. The composting program resumed in the fall of 2004, subject to the limited availability of permitted composting sites.

1.7.2 Leaf, Yard Waste and Christmas Tree Collection and Composting

In 1999, DSNY completed the multi-phase expansion of the leaf, yard waste and Christmas tree composting collection service to all districts with high leaf generation within the Bronx, Brooklyn and Queens. Leaves and Christmas trees collected by DSNY were taken to compost sites in the Bronx, Brooklyn and Staten Island to make finished compost readily available Citywide. During the fall of 2001, 20,647 tons of leaves were collected by DSNY and deposited at four compost facilities. DSNY estimates that 28,000 tons of leaves per year could eventually be recycled through resumption of its expanded leaf-composting program.

Yard waste compost facilities have all been sited in areas that are under the jurisdiction of the City Department of Parks and Recreation ("Parks"), with the exception of DSNY's facility at Fresh Kills. In accordance with a 1997 Memorandum of Understanding (MOU) between DSNY and Parks, DSNY provides compost for Parks to use in environmental restoration and other Parks maintenance and beautification projects Citywide in exchange for the temporary use of Parks sites. Parks' sites used for this project are in remote or underutilized areas, with disturbed or severely compromised topsoil.

DSNY's cooperative venture with Parks was an important achievement. Facilities were sited in Ferry Point Park in the Bronx, Idlewild Park in Queens, Canarsie Park in Brooklyn, Spring Creek and Soundview Park in the Bronx. Of these park sites, only the Soundview Park facility is currently permitted by the NYSDEC. At Spring Creek, DSNY has been unable to obtain a permit since 2001. In 2001, an MOU was entered into by Parks and DSNY, allowing DSNY to clean up and secure the site with perimeter fencing. After the work was completed, a truck scale, construction trailer, asphalt millings pad and utilities were installed.

See SWMP Section 2.4.8 for information about a new rule that will require paper bag set out for leaves and a spring yard waste pilot to be conducted in Staten Island

1.7.3 Composting at Fresh Kills

DSNY continues to compost leaves, yard waste and Christmas trees at the Fresh Kills compost facility, which was constructed in 1998. Since 2002, the Fresh Kills Compost Facility has been DSNY's only fully funded leaf and yard waste composting operation. In the leaf delivery season in 2001, it received 3,800 tons of leaves. Landscapers have continued to deliver yard waste, and are charged a tipping fee of $10 per cubic yard, that is lower than the cost to tip their loads at a transfer or disposal facility. Landscapers typically deliver approximately 6,000 tons per year to the Facility. Periodically, DSNY reviews the tipping fee to determine whether it is competitive enough to attract the maximum number of private landscapers, while covering DSNY's operating costs.

In 2004, DSNY completed the construction of a solid waste transfer station at Fresh Kills adjacent to the compost facility, which included a truck scale that can weigh both landscaper and DSNY leaf collection vehicles that enter and leave the compost facility. Also, the operations pad was resurfaced and a surface of millings was put down for the first time to cover the entire composting area. This upgrade gives the Fresh Kills facility a working surface that is less prone to surface erosion and flooding.

1.7.4 Rikers Island Compost Facility

DSNY's in-vessel food waste compost facility on Rikers Island became operational in 1996. The facility is equipped with two concrete bays and agitating equipment manufactured by International Process Systems ([IPS], now U.S. Filter). All air in the facility is pumped through a biofiltration system to prevent the release of odors, and the building is kept under negative air pressure at all times to prevent odors from escaping without filtration. In addition, the facility features the world's largest translucent photovoltaic panel roofing system installation, which was funded by the New York Power Authority and provides 40 kilowatts of power to the facility.

Facilities using the IPS technology have been constructed throughout the United States for composting sewage sludge. The Rikers Island facility is the first to exclusively compost large quantities of food waste. DSNY also has used the facility to test operational issues, odor containment and cost. Food is collected primarily from the kitchens, and consists of unserved food, spent flour and unusable bread collected from the bakery. Compost manufactured at Rikers Island is utilized on-island in the Department of Correction Inmate Farm Project. The compost is particularly beneficial, as soil quality on Rikers Island is very poor, consisting mostly of landfill material. Compost has also been taken by the Parks Department in Brooklyn and Queens for use in environmental restoration and ballfield rehabilitation projects. Currently, the facility composts approximately 5,600 tons per year (tpy) and costs approximately $60 per ton.

1.7.5 Composting Outreach and Education at Four Botanical Gardens

Since July 1998, through a collaborative agreement with the City Department of Cultural Affairs, DSNY funded the City's four Botanical Gardens to provide composting outreach, education and technical assistance to City residents, businesses and institutions. The compost projects established at the New York Botanical Garden in the Bronx, and at the Brooklyn Botanic Garden, Queens Botanical Garden and Staten Island Botanical Garden, enabled DSNY to conduct projects throughout the City, including composting assistance to the City Housing Authority, leave-it-on-the-lawn education to inform New Yorkers of the benefits of recycling grass clippings, and compost "give-back" events. The FY 2002 budget cuts eliminated DSNY funding of the program. Funding for the Botanical Gardens was reinstated in FY 2005 and continues. With assistance from the four Botanical Gardens, compost "give-back" events will be held in every leaf collection borough in fall and spring. These events are also used to promote the sale of backyard compost bins to City residents at a reduced price

1.7.6 Municipal Solid Waste Composting Research Project

For the complete report, please refer to Appendix C, "New York City MSW Composting Report - Summary of Research Project and Conceptual Pilot, January 2004," or the report is accessible on line at http://www.nyc.gov/html/dsny/html/reports/recywprpts.shtml.

In 1992, the City's first comprehensive SWMP recommended that DSNY assess MSW composting more fully as a "major component of the waste management system," and encourage the City to build a facility so as to "extensively analyz[e] and carefully evaluat[e]" its potential. MSW composting technology presents some promising opportunities because it can exist alongside existing recycling operations, take advantage of certain collection efficiencies and recover Recyclables discarded with trash. But most importantly, this technology can recover nearly all of the degradable material, which comprises over 50% of the residential waste stream, and turn it into a usable end product.

In 2001, DSNY launched a study of MSW composting to: (1) explore the state of MSW composting technology; (2) examine the quality of compost produced; and (3) present a theoretical proposal for how such technology can be further tested within the City. The MSW composting study constitutes the full assessment that the SWMP recommends, and like the SWMP, also proposes that the City seriously consider building a pilot facility to learn more about this promising technology. Please see Appendix C for a copy of the report, "New York City MSW Composting Report – Summary of Research Project and Conceptual Pilot Facility Design, January 2004."

SWMP Section 2.4.8 provides additional information on a food waste composting feasibility study and the establishment of a City Composting Facility Siting Task Force.

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ATTACHMENT VII

RATIONALE FOR AMENDING LOCAL LAW 19

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RATIONALE FOR AMENDING LOCAL LAW 19

1.0 INTRODUCTION

The success of recycling in New York City (City) is a testament to those City public officials who crafted Local Law 19 of 1989 (LL19) to help launch and advance the City's Recycling Program. Important provisions of LL19 include mandatory recycling requirements for City residents, businesses and institutions; authorization of enforcement that includes penalties for those who do not set out Recyclables in accordance with the law; and other standards that helped to establish the City's Recycling Program as one of the strongest in the nation.

However, lessons learned during the past 15 years demonstrate that changes to LL19 are needed. Specifically, the tonnage mandates in LL19 have led to years of litigation over whether the City was in compliance with the statute. In the most recent decision on this matter, the New York State Supreme Court recognized that these tonnage mandates were "simply unattainable." The City therefore believes that LL19 should be amended to reflect what DSNY is actually collecting from residents and institutions. As the tonnage diversion requirements of LL19 are not attainable, they should be replaced by laudable and aggressive percentage goals.

Furthermore, LL19 should reflect the standards and methods of calculating recycling diversion established in most other urban jurisdictions throughout the nation. This will enable city-to-city comparisons that do not put the City at a disadvantage.

2.0 IMPORTANT CONSIDERATIONS

The rationale for amending LL19 of 1989 is based on the following conclusions and considerations, and is discussed in greater detail on the pages to follow.

- **The City should apply an adaptive recycling goal that reflects fluctuations in the waste stream**. Quantities of municipal solid waste (MSW) and Recyclable materials fluctuate with demographic and economic changes. For example, as the economy grows and population changes, it can be expected that the quantity of Recyclable material in the waste stream also changes over time. Quantity of Recyclables as a percentage of DSNY-managed Waste may change over time. A flat tonnage diversion requirement does not capture these changes. However, a percentage goal –

based on the quantity of recyclable material as a percentage of total waste generation – does capture the variability. Therefore, an adaptive recycling rate that reflects actual changes in generation of waste and Recyclable material in the waste stream should replace the current static tonnage requirement.

- **The City must recognize the inherent limitations of applying a tonnage diversion requirement to DSNY**. Establishment of mandatory tonnage requirements for DSNY implies that DSNY has direct control over how much City waste ultimately is recycled. DSNY can (and does) provide frequent (i.e., weekly) Recyclables collection service, conduct massive public education campaigns and enforce the recycling law by issuing summonses. But, DSNY cannot force people to recycle through the agency's implementation of the LL19 administrative code. Establishment of recycling percentage goals will help address the inherent limitations of achieving the current tonnage requirements.

- **The City should set realistic recycling goals**. The initial results of the 2004 Preliminary Waste Characterization Study suggest that 34% of the curbside waste stream consists of paper, metal, glass and plastic materials currently designated for recycling under the Curbside Recycling Program. There have been periods when 34% of the waste stream has been less than the current 4,250-tpd-tonnage requirement. Consequently, current LL19 tonnage mandates have required a "capture rate" (tons of DSNY-collected Recyclables divided by estimated total tons of Recyclables generated by New Yorkers) of greater than 100% -- an unattainable requirement.

- **The City should apply recycling industry norms and City waste composition data in setting realistic recycling goals**. It is not realistic to set a goal of capturing 100% of Recyclable materials in the waste stream through recycling. Given the challenges of recycling education and enforcement in the City discussed within the SWMP, goals should be ambitious but not unrealistic. Although other U.S. cities do not track actual capture rates, a rate of 70% is considered within the industry to be at the extreme end of what can be expected to be captured by curbside collection programs. This should be the target capture rate, but not a mandated achievement. This rate, combined with an estimate of 34% designated paper and MGP composition in the waste stream, and the limited short-term potential of other forms of curbside and containerized diversion, argues for a 25% diversion goal.

- **The City should consider experience in other jurisdictions**. The City should revise its diversion goals to be consistent with other U.S. cities. For example, no other U.S. city expresses diversion goals as tonnage requirements. Among those cities that do have state-legislated diversion mandates, all use percentages. Similarly, New York State does not mandate that localities recycle specific tonnage amounts. Instead, the New York State Department of Environmental Conservation (NYSDEC) calculates the state's recycling rate on a percentage basis and, in calculating this recycling rate, it includes recycled commercial and industrial materials that LL19 does not allow the City to count.

- **The City should examine the restrictions on what is counted as recycling diversion**. No other major U.S. city restricts the materials counted towards diversion goals to exclude the recycling and reuse of inert materials from construction and demolition (C&D) debris and fill waste (with the exception of Seattle, which does so by choice, not by law). Portland, Oregon counts redeemed beverage containers from its bottle and can deposit law in its recycling rate. LL19, however, restricts the materials that are counted toward diversion. Any material that would end up in the DSNY -managed Waste stream if not for recycling should be included in the calculation of the LL19 recycling diversion rate.

- **Set goals that reflect "apples to apples" comparisons**. Most major U.S. cities with diversion rate goals set a target rate of 30% or lower. Exceptions are Los Angeles and San Francisco (50% mandated by the State of California), and Portland and Seattle (60% by 2010, under non-binding city ordinances). However, these goals are not comparable to the City due to: (1) calculation methods used; and (2) the fact that they count diversion of commercial and industrial materials toward attainment of goals.

3.0 A 25% DIVERSION GOAL FOR THE CURBSIDE WASTE STREAM

While it is not reasonable to require DSNY to achieve mandatory recycling levels, it is reasonable to establish percentage-based recycling goals that DSNY must seek to attain through provision of collection services, effective contracts for processing and marketing collected Recyclable materials, public education and enforcement.

The curbside waste stream (which also includes a small amount of containerized waste) is the largest fraction of DSNY-managed Waste. It includes refuse and recycling generated by residents, City agencies and non-profit institutions. Since 1989, this stream has been the focus of DSNY's extensive Recycling Program that targets paper, metal, glass and plastic Recyclables for diversion.

DSNY's Preliminary Waste Characterization Study, conducted in May and June of 2004 and attached in Appendix D, found that an estimated 34% of the curbside waste stream consists of paper, metal, glass and plastic materials currently designated for recycling collection by DSNY from residents and public institutions in the City. Although the waste characterization study findings are very preliminary, the 34% figure suggests that this is the sum total of all potentially recyclable paper, metal, glass and plastic materials that is either properly recycled or improperly thrown out with the refuse.

Knowledge of the baseline presence of designated paper and MGP in the overall waste stream, combined with a realistic target capture rate, allows the calculation of a realistic target diversion rate goal. In the City, applying the current level of knowledge, realistic goals are derived as follows:

- Preliminary waste characterization data indicate that approximately 34% of the waste stream is potentially Recyclable Paper and MGP;
- To achieve a 25% diversion rate for these materials would require a capture rate of 71% (25% diversion ÷ 34% total designated Paper and MGP); and
- Both a 25% diversion goal and a 70% capture goal are ambitious, yet reflect a cognizance of the realities of the waste stream and human behavior.

Given the challenge of attaining 25% diversion through paper and MGP recycling alone, as discussed above, it is recommended that an overall goal of 25% from the curbside and containerized waste stream be set through 2007, to be revisited after that time should the serious barriers to composting and other forms of curbside diversion change.

4.0 35% DIVERSION GOAL FOR THE DSNY-MANAGED WASTE STREAM

In addition to the curbside/containerized waste stream generated by residents and some public/non-profit institutions, DSNY manages a number of other waste stream categories. These include:

<u>For Disposal</u>:

- Other DSNY Refuse Collections (Bulk Refuse, Lot Cleaning, Street Dirt, Residual Refuse from Self-Help recycling drop-off centers).
- Refuse collected by other public agencies and non-profit institutions outside of the curbside/containerized system, and disposed of under DSNY's export contracts.

For Composting, Recycling or Reuse:

- Interagency clean fill and road material (inert C&D debris from public construction projects reused at DSNY facilities for road building, paving, landscaping and erosion control).
- Asphalt and millings (inert debris from City Department of Transportation [NYCDOT] road work used at DSNY facilities for road building, paving, landscaping and erosion control).
- Clean dirt (from lot cleaning used in DSNY projects for landscaping and erosion control).
- Abandoned automobiles (collected and recycled under private contract to DSNY)[1]
- Redeemed beverage containers.[1]
- Furniture and other donated goods handled by the DSNY-funded non-.profit organization "Materials for the Arts"
- Automobile Tires (from lot cleaning).
- Bulk Metal (from self-help recycling drop-off centers, lot cleaning operations and special Housing Authority collections).
- Wood and Grass dropped off by private landscapers at DSNY's leaf composting sites.
- Clean fill and road material (dropped off by private firms at DSNY facilities for road building, paving, landscaping and erosion control).[1,2]

With the exception of the last two categories, which fall under the classification of "Commercial Technical Assistance," other DSNY-managed Wastes come entirely from government agencies within the City and City non-profit institutions entitled to DSNY assistance. Some of these wastes are disposed of, some are diverted for reuse or recycling. Together, they represent a distinct waste stream that is managed by DSNY. For this reason, it makes little sense to exclude many of these items from the calculation of "diversion."

[1] Currently excluded from counting as diversion under LL19.
[2] Private sector materials.

The diversion rate from this waste stream, due to the high presence of reusable inerts that it comprises, is very high. But overall, this diversion adds only modestly to the diversion achieved from the curbside and containerized waste stream. There is no apparent reason to exclude any forms of diversion in the calculation of an overall rate, and a near-term (2007) goal of 35% diversion for the total DSNY-managed Waste stream, including the currently "excluded" materials, is reasonable.

5.0 DIVERSION GOALS IN OTHER CITIES

Each year, the trade journal Waste News publishes basic program data on the 30 most populous U.S. cities. Among U.S. cities, New York stands alone in mandating a flat diversion tonnage.

Although the Waste News Annual Municipal Recycling Survey does not gather data on what municipalities can count towards the diversion goals they report, DSNY's research into the methods in use in other municipalities reveals no restrictions of the type imposed in New York.

For example, in California, which requires municipalities to meet a 50% diversion mandate for the combined residential, institutional, commercial and industrial waste streams – or face monetary penalties – jurisdictions are explicitly permitted to include the beneficial reuse of clean fill, C&D debris and asphalt in Section 41781.3 of the Public Resources Code.[3]

California municipalities are not required by the state to break out or report diversion by material type, or even to directly measure the amount of waste recycled or otherwise diverted from disposal. Instead, California's waste regulatory agency, the California Integrated Management Board, estimates each jurisdiction's generation tonnage using results of a statewide waste characterization conducted in 1999, which is adjusted annually to reflect inflation, taxable sales, employment and population shifts in that jurisdiction. Diversion is then calculated from this estimate by subtracting the tonnage of waste disposed, using the following formula:[4]

[3] At www.ciwmb.ca.gov under "Diversion Rate Measurement", accessed August 17, 2004.
[4] CIWMB "What is Diversion?" no date, www.ciwmb.ca.gov/lglibrary/dsg/whatis.htm, accessed March 4, 2004.

California Diversion Rate: estimated tonnage of total waste - directly measured tons of refuse disposed = estimated tonnage of total waste

Any tonnages estimated to have been generated, but not directly measured as disposed, are assumed to have been recycled, composted, reused or prevented. Municipalities are not required to report the composition of diverted materials, or to break down diverted tonnages by their particular method of diversion.

More can be learned about what is counted toward diversion in California municipalities by looking at local solid waste management planning in some of the state's larger cities. In San Francisco, Norcal Inc., the private firm that serves all residential and institutional generators, as well as most commercial sources, recently constructed a C&D recovery facility for materials generated by commercial and residential sources. Wood and metal are among the materials recovered at the facility, as are cement, sheet rock, brick and other inert solids, which make up 15% of the over 6,400 monthly tons processed at that facility alone – all of which count toward diversion.[5] Among San Francisco city agencies, 75% of diversion, or an annual tonnage of 72,143 tons, consists of C&D debris – nearly all of which is inert material reused in fill and erosion control.[6]

San Jose and Alameda County also count C&D debris recycling in their rate calculation.[7] And, in Los Angeles, the L.A. City Bureau of Sanitation's AB 939 Report for 2000 shows that diversion of commercial and public C&D materials "including concrete, asphalt, soils and mixed construction and demolition debris" is counted towards that city's diversion rate.[8]

[5] Quillen, Maurice B. and Robert Reed. " Mixed C&D Recycling On-Line in San Francisco." Biocycle, February 2004.
[6] http://temp.sfgov.org/sfenvironment/aboutus/recycling/municipal.pdf accessed August 10, 2004.
[7] Quillen, Maurice B. and Robert Reed. " Mixed C&D Recycling On-Line in San Francisco." Biocycle, February 2004.
[8] Los Angeles City Bureau of Sanitation. AB 939 Report for 2000, p. 3-13 at www.lacity.org/san/publications/publications.cfm, accessed August 10, 2004.

Florida similarly permits counting of diversion through C&D recycling in its 30% diversion requirements for combined residential and commercial wastes applied to counties of 75,000 or greater in population. Its Statute 403.706(4)(a) requires that no more than one-half of this percentage be met by a combination of yard waste, white goods, C&D debris and process fuel diversion.[9]

In Portland, Oregon the waste reduction plan addresses the city's 60% diversion goal (again for combined residential and commercial tonnages) by 2005, and explicitly states that "the C&D sector contributes a large amount of materials to the waste stream and will be the primary focus for the SW&R division to increase recovery."[10] Its non-binding city policy NCP-ENN.2.03 notes that for the city to achieve its goals, "it will be necessary to place a stronger emphasis on the recycling and waste prevention of food, *construction and demolition* and fiber (office paper) waste."[11] (emphasis added).

In short, there is simply no precedent for excluding the counting of beneficial reuse of inert materials, or abandoned automobile recycling, from a city's diversion rate. In passing LL19 of 1989, an unintended result has been under-reporting of the City's recycling diversion rate in comparison with other cities due to the methodology inherent in the legislation.

When the difficult task of isolating any city's residential/institutional paper, metal, glass and plastic recycling tonnages from municipal C&D recovery and commercial recycling tonnages (including C&D recovery) is complete, the factor that undermines the City's recycling potential in comparison with other cities is quite clear. That factor is the City's relative lack of yard waste – and all that such yard waste entails for increasing curbside diversion in leafy cities with ample

[9] Florida Department of Environmental Protection, Solid Waste Management in Florida 2001-2002, at www.dep.state.fl.us/waste, accessed August 11, 2004.
[10] City of Portland. "Beyond 60%: Program Strategies for Achieving the 2005 Solid Waste Recycling Goal," at www.portlandonline.com, accessed August 11, 2004.
[11] City of Portland. "Beyond 60%: Program Strategies for Achieving the 2005 Solid Waste Recycling Goal," at www.portlandonline.com, accessed August 11, 2004.

backyards and open spaces for compost siting.[12] The diversion rates for residential/institutional paper and MGP achieved in the City before the cuts to the program in 2002 are comparable with, and in many cases superior to, rates achieved in other major cities.

6.0 70% COMBINED WASTE DIVERSION GOAL BY 2015

So what should be counted as the City's official diversion rate? The NYSDEC's Division of Solid and Hazardous Materials requires an Annual Recycling Report from all New York State municipalities that gathers data on residential, institutional and commercial waste management and counts diversion as recycling, reuse or composting of a broad range of categories including reuse of inert materials, recycling of automobile bodies, and even beneficial land use application of biosolids and paper mill sludge, in addition to paper, metal, glass, plastic and other materials recycling; and food waste, yard waste and leaf composting. For calendar year 2003, the most recent DSNY report to the NYSDEC, this method yielded a diversion rate of 54% for DSNY-managed and Commercial Wastes combined.

It is DSNY's conclusion that the materials considered by New York State to count towards diversion should be counted by the City in fulfillment of a non-mandatory 70% combined diversion goal, to be achieved by 2015. Such a goal is in step with the most ambitious in the nation as well as with reporting standards in place in municipalities throughout the U.S.

[12] Isolating municipal diversion rates to compare with what the City is limited to counting as diversion under the current provisions of LL19 is an exercise that must be done for each city, based on published and unpublished data, and constantly updated. For a discussion of how the City compares to other U.S. cities in this regard, see the DSNY's New York City Recycling - In Context, August 2001 and Processing and Marketing Recyclables in New York City, August 2003.

7.0 THE 70% DIVERSION GOAL SHOULD INCLUDE BOTTLE BILL REDEMPTION

In calculating the City's diversion rate, beverage containers redeemed by New Yorkers at retail locations pursuant to the New York State Returnable Beverage Container Act (the "Bottle Bill") should be included in the City's diversion rate goal. In June 2004, the City Independent Budget Office testified before the City Council in favor of an expanded Bottle Bill, and cited NYSDEC's estimate that 1.4 billion containers were redeemed in the City in 2001.

To consider the recycling tonnage impact of the Bottle Bill in the City, it is necessary to convert the estimated number of redeemed containers to a weight estimate. Extrapolating from a July 2000 Michigan Great Lakes Protection Fund study of the Michigan Bottle Bill, which calculated that 3.9 billion deposit containers resulted in 271,000 tons of redeemed Bottle Bill material, it is roughly estimated that more than 97,000 tons of beverage containers were redeemed for recycling in the City in 2001.

DSNY's promotional materials, including the agency's web site, encourage people to return bottles and cans for the deposit. Thus, DSNY actively promotes recycling via the redemption system and should be allowed to include the tonnage in the diversion rate calculation.

Furthermore, there is precedent in other states to include redeemed bottles and cans, and no apparent basis for exclusion in reporting. For example, Oregon has a Bottle Bill, and Portland includes the tonnage in its diversion rate.

It also appears inconsistent that LL19 allows the City to include recycling of automotive batteries but not redeemed beverage containers. This discrepancy is puzzling since there is a reverse distribution system operated by retailers in the automotive battery industry similar to the private sector infrastructure for redemption of deposit bottles and cans.

Excluding redeemed bottles and cans also places the City on uneven footing with other municipalities located in states without a Bottle Bill. These locales do not lose recyclable beverage containers to the redemption system, enabling them to appear to recycle these materials at a higher rate than can be counted in the City.

Finally, while efforts to promote producer responsibility by industry is discussed in this SWMP as an area to explore, the exclusion of redeemed beverage containers indicates negative implications for calculation of future diversion rates of additional items recycled in cooperation with the private sector. For example, if the City or state succeeds in establishing a system whereby sellers of electronics or other consumer products take responsibility (voluntarily or as a result of legislation), shouldn't the recycling results be counted in the City diversion totals? Otherwise, the City will provide itself with a disincentive to take steps to encourage or require those who profit from the sale of "problem wastes" to take responsibility for recycling these wastes, since the City will be "robbing" itself of materials included in the recycling diversion rate. Therefore, the exclusion of redeemable beverage containers appears to set a conflicting precedent for allowing inclusion of other DSNY-managed materials that may occur in the future when there is private sector involvement in acceptance of items from the public for recycling.

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EXHIBIT 1

New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials
Annual Recycling Report

47-15-51PU (1/06)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID & HAZARDOUS MATERIALS

ANNUAL REPORT - PLANNING UNIT RECYCLING REPORT

1. Report Year: **2005**	2. Planning Unit New York City Department of Sanitation		
3. Address, City, State, Zip: Bureau of Waste Prevention, Reuse and Recycling, 44 Beaver Street, 6th floor, New York, NY 10004		4. Phone 917-237-5656	
5. Contact Person Robert Lange	6. E-mail rlange@dsny.nyc.gov		

7. Sources of Disposal and Recycling Data (type YES where applicable)						
Scale weights	yes	Hauler surveys		Estimates	yes
Truck counts		Facility surveys	yes	Other	yes

WASTE DISPOSED

If you include more than 10,000 tons of solid waste IMPORTED from another P. U., please specify on a separate sheet.
Do not report tons of ash that is disposed of or recovered from incineration, as such would constitute double counting

	Landfilled		Waste-to-Energy		Out of State
	Within PU tons	Outside PU (exported tons)	Within PU tons	Outside PU (exported tons)	Outside PU (exported tons)
Municipal Solid Waste		4,6664208.51		447062.37	
C & D (disposed)		1,726,775.81			
Non-Haz. Industrial Waste					
Sewage Sludge (wet/dry?)					

Names of DISPOSAL FACILITIES that received your waste tons listed above (add additional sheets, if necessary):

DSNY does not have information on disposal facilities receiving NYC commercial waste, either inside or outside New York State. Full details on disposal facilities receiving DSNY-managed waste are already on file with the DEC.

RECYCLABLES RECOVERED

Do not report recyclables that result from the Returnable Container Act or are part of a Beneficial Use Determination.

Category	Material	Tons	Material	Tons	Material	Tons
PAPER	Newspaper	178,652.66	Magazines		Corrugated	58,633,84
	Office Paper		Junk Mail		Paperboard	
	Mixed Paper	532,338.73	Other – specify type:			
GLASS	Glass - Clear	20,031.55	Glass - Brown	4,860.98	Glass - Mixed	44,376.32
	Glass - Green	10,153.04	Other – specify type:	448.65		
METAL	Containers	19,509.44	Aluminum	4,875.58		
	Enameled Metal Appliances (white goods)			18,366.95		
	Other – specify	Ferros household items and bulk		428,041.81		
	Other – specify	Abandoned auto bodies		9,347		
PLASTIC	PET #1	15,873.62	Mixed Plastic			
	HDPE #2	15,764.75	Other Plastics - specify			
CO-MINGLED	Glass, metal. and Plastic containers collected co-mingled			63,921		
	Deposit containers redeemed under NYS Bottle Bill (tons)					
	Other Co-mingled Mix: please describe mix:					

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID & HAZARDOUS MATERIALS
ANNUAL REPORT - PLANNING UNIT RECYCLING REPORT (continued)

Category	Material	Tonnage	Material	Tonnage
YARD WASTE	Leaves	11434.8	Mixed Yard Waste	
	Grass	5496.4	Brush	
ORGANICS	Food Waste	4565.6	Other – Xmas trees	1489.8
RUBBER	Tires (in tons 100 tireston	1,846	Other Rubber	
WOOD	Wood Pallets		Lumber	
C & D (recycled - not disposed)	Asphalt	279,302.4	Petroleum Contaminated	
	Concrete/Brick/Rock/Fines	1,977.118	Other C & D/Inert (incl.	4,964,343.8
SEW. SLUDGE	Sludge that was composted	594,356	<==Is this figure WET tons or DRY tons?	Wet

ADDITIONAL RECYCLABLES NOT LISTED ABOVE (see Appendix A for some examples)

Recycled Material	End Use or Destination Facility	Tonnage
textiles and furniture	Materials for the Arts - reuse	717.6
batteries, special wastes, paint	DSNY special waste sites - recycling	93.1
CFC refrigerants	Refron - recycling	8.93
Oil, oli filters, antifreeze	DSNY Bureau of Motor Equipment - recycling	123.55

Names of RECYCLING FACILITIES from where you derived your recycled tons (add additional sheets, if necessary):

DSNY does not have information on recycling facilities receiving NYC commercial recycling, either inside or outside New York State. Full details on recycling facilities receiving DSNY-managed waste are already on file with the DEC.

Estimate the percent of total recycled tons reported that were	a) managed by Planning Unit	26%
	b) managed by private sector	74%
Estimate the percent of total recycled tons reported that were	a) picked up curbside:	99.5%
	b) collected via drop-off:	0.5%

If applicable, please add any information about Waste Prevention, Recycling Metrics, Best Practices or other aspects of your Waste Reduction and Recycling or disposal programs not reflected in this report

please see attached

Appendix A - Examples of Other Recyclables

Recycled Material Type	End Use or Destination Facility	Tonnage
#4 Plastic	ABC Plastic Lumber Inc.	10.74
Latex Paint	Sherman Wilson - made into new latex paint	7.5
Textiles	Good Will - donated for reuse	20
Electronics	Monitors 'R' Us - Dismantled for scrap	43
Paper Mill Sludge	Used in paper mix for animal bedding	1,000
Foundry Waste	U. Becher Asphalt - used in asphalt mix	300

Appendix B - Description of Selected Categories

Material	Component Categories	Examples
Paper	Newsprint	Newspaper that may include certain amounts of other paper
	Corrugated Cardboard	Multi-layer kraft corrugated shipping boxes and inserts.
	Paperboard/Chipboard/Boxboard	Cereal boxes, shoe boxes, gift boxes, lightweight cardboard.
	Office Paper	Copy paper, computer printout, ledger and letterhead paper.
	Mixed	Mixed recyclable paper, news, junk mail, magazines, etc.
	Other Paper	Tissue paper, towels, or as specified.
Plastic	PET (#1)	Soda bottles, liquor bottles.
	HDPE (#2)	Milk jugs, shampoo bottles.
Glass	Other Glass	Ceramic glass, light bulbs, plate glass
Metal	Containers	Food cans, Pet food cans, soda cans, hair spray, aerosols
	Aluminum	Soda cans (non-deposit), juice cans, foil and foil pans.
	White Goods/Enameled metal	Refrigerators, washing machines, stoves, other appliances.
	Other Metal	Coat hangers, scrap metal.
	Other Metal	Siding, cookware, machine parts, utensils, electrical wiring
Organics	Food Waste	Kitchen scraps, dog food, food processing wastes.
	Other Organics	Brewery waste, fish processing waste.
Wood	Lumber	Plywood sections, particle board.
	Other Wood	Crates, sawdust, animal bedding.
C & D (recycled)	Asphalt	Roofing shingles, siding, road surfacing.
	Concrete/Brick/Rock	Gravel, house bricks, stones.
	Petroleum Contaminated Soil (PCS)	PCS made into a product - not PCS that is landfilled
	Other C&D	Sheetrock, plaster, insulation.
Sewage Sludge	Sewage sludge composted	Sludge from POTWs that is composted, not landfilled. Note that the amount will be converted to dry tons for calculations

Appendix C - Sample Volume to Weight Conversion Factors

If you have more specific or accurate conversion factors for your materials, you can use your own conversion factors and advise DEC of your factors and calculations.

MATERIAL	EQUIVALENT		MATERIAL	EQUIVALENT	
GLASS-whole bottles	1 cubic	0.35 tons	GLASS-crushed mechanically	1 cubic yard	0.88 tons
GLASS-semicrushed	1 cubic	0.70 tons	GLASS-uncrushed-manually	55 gallon	0.16 tons
PAPER-high grade loose	1 cubic	0.18 tons	NEWSPRINT-loose	1 cubic yard	0.29 tons
PAPER-high grade baled	1 cubic	0.36 tons	NEWSPRINT-compacted	1 cubic yard	0.43 tons
PAPER-mixed loose	1 cubic	0.15 tons	CORRUGATED-loose	1 cubic yard	0.15 tons
			CORRUGATED-baled	1 cubic yard	0.55 tons
PLASTIC-PET-whole	1 cubic	0.015 tons	PLASTIC-HDPE-whole	1 cubic yard	0.012 tons
PLASTIC-PET-flattened	1 cubic	0.04 tons	PLASTIC-HDPE-flattened 1	1 cubic yard	0.03 tons
PLASTIC-PET-baled	1 cubic	0.38 tons	PLASTIC-HDPE-baled	1 cubic yard	0.38 tons
PLASTIC-styrofoam	1 cubic	0.02 tons	PLASTIC-mixed, grocery	45 gallon bag	0.01 tons
ALUMINUM-cans-whole	1 cubic	0.03 tons	FERROUS METAL-cans-	1 cubic yard	0.08 tons
ALUMINUM-cans-flattened	1 cubic	0.125 tons	FERROUS METAL-cans-	1 cubic yard	0.43 tons
WHITE GOODS-uncompacted	1 cubic	0.10 tons	WHITE GOODS-compacted	1 cubic yard	0.5 tons
YARD WASTE (uncompacted)	1 cubic	0.10 tons	FOOD WASTE	55 gal drum	0.20 tons
YARD WASTE (compacted)	1 cubic	0.20 tons	MSW (Compacted)	1 cubic yard	0.50 tons

Appendix D - NYSDEC REGIONAL AND CENTAL OFFICE ADDRESSES

SEND A COPY OF THIS REPORT TO YOUR REGIONAL OFFICE **AND** A COPY TO THE DEC CENTRAL OFFICE

DEC Region	Address and Phone
1	Regional Solid & Haz Materials Engineer (631) 444-0375 Loop Road Bldg 40 - SUNY, Stony Brook, NY 11790-2356
2	Regional Solid & Haz Materials Engineer (718) 482-4894 1 Hunters Point Plaza, 47-40 21st Street, Long Island City, NY 11101-5407
3	Regional Solid & Haz Materials Engineer (845) 256-3136 21 South Putt Corners Road, New Paltz, NY 12561-1696
4	Regional Solid & Haz Materials Engineer (518) 357-2346 1150 North Westcott Road, Schenectady, NY 12306-2014
5	Regional Solid & Haz Materials Engineer (518) 897-1241 1115 Route 86, P.O. Box 296, Ray Brook, NY 12977-0296
6	Regional Solid & Haz Materials Engineer (315) 785-2522 317 Washington Street, Watertown, NY 13601-3787
7	Regional Solid & Haz Materials Engineer (315) 426-7419 615 Erie Blvd. West, Syracuse, NY 13204-2400
8	Regional Solid & Haz Materials Engineer (585) 226-5408 6274 E. Avon-Lima Road, Avon, NY 14414-9519
9	Regional Solid & Haz Materials Engineer (716) 851-7220 270 Michigan Avenue, Buffalo, NY 14203-2999
DEC Central Office in Albany	Bureau of Solid Waste, Reduction & Recycling (518) 402-8706 625 Broadway, 9th Floor, Albany, NY 12233-7253 Attn: Recycling Reporting Section

New York City Department of Sanitation, Notes to 47-15-51PU (1/06)
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID & HAZARDOUS MATERIALS, "ANNUAL REPORT - PLANNING UNIT RECYCLING REPORT 2005"

Note 1: New York City only collects data on transfer stations, not disposal end sites. We cannot comment on location of disposal as being in or out of state

Note 2: On paper categories

- all commercial paper is classified as mixed
- DSNY paper includes magazines office, beverage cartons, and all other types of mixed paper

Note 3: On Glass
Other glass includes plate and other noncontainer glass.

Note 4: on Metal
“Containers” represents ferrous containers only
Aluminum includes containers and other aluminum (foil, other)
Ferrous bulk includes commercial metal recycling; all other metal tonnages are DSNY-managed recycling only

Note 5: on Plastic
All tonnages are for DSNY-managed recycling only.

Note 6: On Commingled
Commercial glass, plastic, and metal container recycling is not broken out, and is reported under commingled.

WASTE REDUCTION AND REUSE
SOURCE REDUCTION STRATEGIES

METHOD OF REDUCTION	MATERIALS	TONS (if available)
EDUCATIONAL STRATEGIES		**765 tons**
Consumer Source Reduction Shopping Tips	"**Waste Prevention Shopping Tips**", a virtual shopping tour, is maintained on the **NYCWasteLe$$ website: www.nyc.gov/nycwasteless**. This feature provides information to consumers on how to make environmentally friendly purchasing decisions for a variety of everyday services and products.	
Junk Mail Reduction Campaign	A section for "**Waste Prevention Tips for Your Home**" includes infomration on how to reduce junk mail. A downloadable pdf of DSNY's **"Stop Junk Mail" post card** is also available on the site. With the cooperation of the Direct Marketing Association, anyone can fill out the card and send it in to the DMA to be removed from national mailing lists.	
Source Reduction Literature, News Articles, Events, etc.	In August 2005, BWPRR launched the NYCWasteLe$$ website on NYC.gov: **www.nyc.gov/nycwasteless**. The new website serves as New York City's one-stop resource for waste prevention and recycling information. Key sections include: waste less at home, waste less at agencies & schools, waste less in business, new homes for old stuff, and recycling in NYC. The 2005 Web Trends report (which started in September 2005) indicates that the site received 5,281 average hits and 401 average visitors per day who had an average visit length of nearly 13 minutes. The top visited pages in include: Recycling in NYC, What to Recycle, New Homes for Old Stuff, and Electronics Recycling.	
	Materials for the Arts (MFTA – www.mfta.org), a program of the Department of Cultural Affairs, with additional funding from the Departments of Sanitation and Education, provides donated, used goods to nonprofit arts organizations and schools. In FY 2005, MFTA received more than 2,158 material donations and diverted 765 tons of material from the waste stream to educational and arts organizations in need. The estimated value of the redistributed material is over $4.57 million.	765
	DSNY estabished the **Materials Exchange Development Program** with the City College of New York in Fall 2005 to conduct a survey of existing materials exchange programs within New York City and then develop a one day conference and other technical assistance programs aimed at improving the effectiveness and sustainability of local materials exchanges and increasing public access to such services. The survey began in Spring 2005 and will continue throughout the Summer of 2006.	

WASTE REDUCTION AND REUSE
SOURCE REDUCTION STRATEGIES

METHOD OF REDUCTION	MATERIALS	TONS (if available)
STRATEGIES FOR BUSINESSES AND INSTITUTIONS		**5,628 tons**
Waste Audits, Operational Changes, Sector Specific Source Reduction, Office Paper Reduction, Exchange Services	The "**waste less in business**" section of the NYCWasteLe$$ website provides detailed waste prevention information on numerous general and business sector specific topics. It also contains measurement tools and detailed lists of recycling vendors, donation outlets, case studies, and resources available to NYC businesses.	
	BWPRR oversees the **NY Wa$teMatch program** (www.wastematch.org), a materials exchange program for industrial materials, in conjunction with the City University of New York and the NYC Industrial Technology & Assistance Corporation. In addition to running an on-line exchange service, NY Wa$teMatch provides businesses with waste assessments and technical assistance. For calendar year 2005, NY Wa$teMatch programs diverted 5,628 tons of industrial material from the NYC waste stream, saving participants $672,961.	5,628

LEGISLATION / REGULATION		
Source Reduction Procurement Policies	DSNY promotes Environmentally Preferable Purchasing through the "**Green Purchasing**" page on the NYCWasteLe$$ website: www.nyc.gov/nycwasteless. This page is located on the "waste less at agencies & schools" section of the website.	
	In Spring 2005, DSNY sponsored an **Environmentally Preferable Purchasing class** for Agency Chief Contracting Officers and other City procurement professionals in coordination with the City's Procurement Training Institute.	

WASTE REDUCTION AND REUSE

STRATEGIES IMPLEMENTED WITH THE GOAL OF INCREASING RECYCLING

MATERIALS

METHOD OF REDUCTION		TONS (if available)
EDUCATIONAL STRATEGIES		
Educational Materials	BWPRR produced a "Recycle More, Waste Less" bookmark to add to the public education materials that are available, for free, to all NYC residents. Materials can be ordered by calling 311 (NYC Citizen Service Center) or through the DSNY website: www.nyc.gov/sanitation. Materials are also distributed by DSNY outreach staff at public events. In 2005, DSNY distributed a total of 920,442 recycling education materials to NYC residents. These materials include items such as decals, flyers, building posters, etc.	
Golden Apple Awards	The Golden Apple Awards helps students appreciate how their ideas, values, and actions can make New York City a cleaner and greener place to live. The program consists of three contests (Reduce & Reuse Challenge, Super Recyclers, and Team Up to Clean Up) where schools compete against other schools within their grade division to win cash prizes. The program offers schools an opportunity to raise much-needed funds, while undertaking community service projects that demonstrate that they are recycling and reducing waste. To promote the 2005 Golden Apple Awards program, DSNY mailed copies of the 2005 contest brochure to NYC schools in the fall and also sent reminder postcards. All 2005 participating schools received certificates for entering. In June 2005, both the Sanitation and NYCWasteLe$$ websites posted descriptions of the winning entries.	
NYC Compost Project Website	To encourage New Yorkers to leave their grass clippings on the lawn and to participate in home composting, DSNYcreated the NYC Compost Project Website: www.nyccompost.org. The calendar section contains information on composting workshops available for free to all NYC residents. Workshops are conducted by the members of the NYC Compost Project: Brooklyn Botanic Garden, Queens Botanical Garden, Staten Island Botanical Garden, Lower East Side Ecology Center, and The New York Botanical Garden.	
OTHER STRATEGIES		
Electronics Recycling Events	The New York City Department of Sanitation sponsored five electronics recycling events in October 2005, one in each borough. To hold these events, the Department of Sanitation worked with the Lower East Side Ecology Center and received support from Best Buy and Intel. To notify New Yorkers about the events, BWPRR sent out citywide mailers, ran ads in local newspapers, and posted information on the DSNY and NYCWasteLe$$ websites. Approximately 4,300 New Yorkers participated in the October 2005 electronics recycling events, dropping off nearly 196 tons (391,885 pounds) of electronic equipment and 1,432 pounds of cell phones.	196

ATTACHMENT VIII

DEPARTMENT OF SANITATION OPERATIONS

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DEPARTMENT OF SANITATION OPERATIONS

1.0 EXISTING OPERATIONS

The Department of Sanitation (DSNY) is the City agency responsible for managing the City's solid waste stream through the collection, disposal and recycling of residential, institutional and state- and federal agency-generated waste within the City (DSNY-managed Waste). It is also responsible for cleaning the City's streets, sidewalks and vacant lots, and in the winter, is responsible for clearing the snow and ice from approximately 6,000 miles of City streets. The agency is also tasked with the removal of abandoned vehicles from City streets, and the collection of waste from litter baskets located throughout the City.

DSNY operates 59 district garages, and manages a fleet of 2,040 rear-loading collection trucks and 450 mechanical brooms. In Fiscal Year (FY) 2006, the DSNY collected and disposed of approximately 11,800 tons of waste per day. The City's Curbside Recycling Program provides weekly collection of metal, glass, plastic and paper designated Recyclable materials, and in FY 2006, had a diversion rate of 16%.

2.0 INTERIM EXPORT

Since delivery of waste to the Fresh Kills Landfill ceased in 2001, the City has relied on Interim Export contracts for disposal (Interim Export). Under these existing Interim Export contracts, all DSNY-managed Waste is: (1) tipped at in-City, private transfer stations and transferred primarily by trailer (except for approximately 320 tpd transferred by rail from Waste Services' East 132nd Street Transfer Station and 1,800 tpd transferred by rail from the Harlem River Yard, both in the Bronx) to out-of-City disposal sites; or (2) direct-hauled in collection vehicles to out-of-City transfer stations or disposal facilities. Table VIII 2-1 lists both the in-City and out-of-City transfer stations or disposal sites that receive waste delivered by or on behalf of DSNY under current Interim Export contracts. Interim Export contracts are let by bid for specific wastesheds or boroughs. These contracts have a three-year term with two one-year renewal terms at DSNY's option. DSNY anticipates maintaining Interim Export contracts in effect until the Long Term Export facilities for specific boroughs are available for use.

Table VIII 2-1

Facilities Utilized for Interim Export

Borough Served	Facility Name/Operator	Facility Address	Maximum Capacities Available for DSNY-managed Waste(tpd)
Bronx	**Waste Management/ Harlem River Yard**	98 Lincoln Avenue, Bronx, NY	1,800
	Waste Services	920 East 132nd Street, Bronx, NY	1,000
Brooklyn	**Waste Management of NY**	215 Varick Street, Brooklyn, NY	1,400
		485 Scott Avenue, Brooklyn, NY	1,400
	IESI NY Corp.	110 50th Street, Brooklyn, NY	1,075
		577 Court Street, Brooklyn, NY	425
	BFI – Waste Services	598-636 Scholes Street, Brooklyn, NY	220
	Solid Waste Transfer and Recycling	444 Frelinghuysen Avenue, Newark, NJ	500
	LIPCo (Covanta)	1499 Route 1 North, Rahway, NJ(1)	125
	ONYX Waste Services, Inc.	301 Maltese Drive, Totowa, NJ	250
Manhattan and Staten Island	**Waste Management of NY**	666 South Front Street, Elizabeth, NJ	750
		864 Julia Street, Elizabeth, NJ	725
	Solid Waste Transfer and Recycling	444 Frelinghuysen Avenue, Newark, NJ	250
	TransRiver Marketing L.P.	Covanta, Essex County, NJ(1)	1,700
	Bridgewater	15 Polhemus Lane, Bridgewater, NJ	250
	ONYX	301 Maltese Drive, Totowa, NJ	250
Queens	**ONYX Waste Services, Inc.**	30-35 Fulton Street, Patterson, NJ	825
		301 Maltese Drive, Totowa, NJ	300
		264 Broadway, Jersey City, NJ	375
	Solid Waste Transfer and Recycling	444 Frelinghuysen Avenue, Newark, NJ	250
	Tully Environmental	127-20 34th Avenue, Queens, NY	900
	TransRiver Marketing L.P.	Covanta, Hempstead, NY(1)	250
	Waste Management of NY	38-50 Review Avenue, Queens, NY	958
	Waste Management	864 Julia Street, Elizabeth, NJ	250
	Trans River Marketing	183 Raymond Blvd., Newark , NJ	250
	Seneca Meadows/IESI [2]	172-33 Douglas Ave, Jamaica, NY	400

Note:

(1) Denotes a waste-to-energy facility.

(2) The permit for the facility at this address is held by American Recycling Management.

tpd = Tons per day.

3.0 CERTIFICATION OF DISPOSAL CAPACITY

As an element of its process to award Interim Export contracts to transfer stations or disposal facilities for three-year terms with two one-year renewals, DSNY conducts a due diligence investigation of the permit compliance status and available capacity of all the disposal facilities proposed by prospective contractors. After assuring adequate disposal and back-up disposal capacity, DSNY also contracts for an extra margin of disposal capacity to assure that disruptions at a given facility will not affect its ability to export waste. Prior to the expiration of an Interim Export contract, DSNY initiates a new bid cycle for specific wastesheds on a schedule that allows sufficient time for completion of a new contract award prior to the expiration of an existing contract. As required during the process of negotiating and approving Long Term Export contracts, DSNY will continue this cycle of Interim Export contract awards to ensure that it has sufficient disposal capacity for every wasteshed during the transition to Long Term Export contracts.

The 20-year service agreements that DSNY has negotiated or is negotiating for Long Term Export are of three types: those with private transfer station operators for wastesheds serving the Bronx, Brooklyn CDs 1, 3, 4, and 5, and Queens CDs 1 through 6 include waste transfer, transport and disposal service components; those serving the four Converted MTS and the Staten Island Transfer Station, which will be operated by DSNY forces, include only transport[1] and disposal components; and the contract with the Essex County Resources Recovery Facility that will serve Manhattan CDs 1,4, 7, 9, 10 and 12.

For both the private transfer stations and the Converted MTSs, the contractor at the beginning of each contract year must provide evidence satisfactory to the City that it has permitted and uncommitted disposal capacity at authorized disposal sites sufficient to dispose of the annual tonnage from the respective wasteshed for at least five years. To meet the Disposal Capacity Guarantee, the Contractor must provide at least two different sites designated, respectively, as

[1] Depending on the outcome of the MTS Procurement, transfer and transport contract(s) for the Converted MTSs may involve the use of transloading facilities. The FEIS in Section 40.3.5 discusses potential facilities in the New York harbor region that could serve this purpose.

the Primary Disposal Capacity and the Reserve Disposal Capacity. Each authorized disposal site shall have permitted and uncommitted capacity to dispose of the annual tonnage for a five year period throughout the term of the agreement.

The City has the sole discretion to approve an Authorized Disposal Site offered by a contractor as Primary or Reserved Disposal Capacity. Such approval is based on the City's due diligence investigation establishing, among other things, that the disposal site has all required governmental approvals, is operating in compliance with applicable law, has a Host Community Agreement allowing acceptance of waste regardless of origin and has the disposal capacity as represented by the contractor.

The contract for disposal of the Manhattan wastesheds designated for delivery to Essex County Resource Recovery Facility will provide for a commitment of five years of disposal capacity at this facility and also secure arrangements for bypassing certain quantities of DSNY waste, when planned and unscheduled outages at this facility reduce its throughput.

Based on the certifications made to it under the terms of the Long Term Export contracts, the City will submit certifications to NYSDEC of five-year disposal or treatment capacity in accordance with 6 NYCRR Part 360-15.9(i). As long-term service agreements are awarded, these disposal capacity certifications will be included in SWMP Compliance Reports.

4.0 WASTE TIRE RECYCLING AND MANAGEMENT

Approximately five million waste tires, posing special waste management problems, are generated in the City every year. Unshredded tires disposed of in landfills eventually rise to the landfill surface and impair cover operations. Tires dumped illegally contribute to urban blight and, when dumped in vacant lots, streets and highways, create fire and other public health and safety hazards. Because of the special waste management problems tires pose and to separate out tires for potential recycling and beneficial use, DSNY ceased the collection of tires from residences in the early 1990s.

Many City residents, when buying new tires, opt to dispose of their old tires at the place of purchase. For those who do not, DSNY has established tire acceptance points at all 59 of its garages and at its five Household Special Waste Drop-off sites located in every borough. At these acceptance sites, City residents may dispose of up to four passenger car tires at a time. Through its waste tire acceptance program and as a result of street cleaning and vacant lot clean-out operations, DSNY handles more than 2,000 tires per week.

Through its private tire removal contract, DSNY promotes tire recycling and beneficial use by affording vendors a number of options for tire recycling or beneficial use. In fulfillment of these terms, DSNY's current tire contractor transports the tires in a closed tractor trailer container to a Connecticut resource recovery facility to be beneficially used as a feedstock for the production of electricity. Approximately, 110,000 tires were recycled or beneficially used in FY 2006, along with approximately 7,000 tire rims.

5.0 VACANT LOT DEBRIS PROGRAM (LOT CLEANING)

Under the vacant lot clean-up program, DSNY removes debris and bulky items from vacant privately owned or City lots in the City where residents and others have engaged in illegal dumping activities. The focus of lot cleaning operations is the removal of solid waste (not dirt). Lot cleaning loads are then sorted and metal, tires and dirt are removed from the waste and recycled or reused. Through the lot cleaning program, DSNY diverted for recycling or reuse approximately 7,000 tons of tires, metal and dirt in FY 2006. The number of vacant lots has decreased citywide due to increased development. In FY 2006, 6,449 lots were cleaned.

Lots are identified to be cleaned through complaints from residents in letters, e-mails and through calls to 3-1-1, as well as through recommendations from Community Boards, elected officials. The lot cleaning schedule is then determined by the ownership of the lot. City-owned lots are cleaned immediately. Accessible privately-owned lots are cleaned after appropriate notice has been sent to the owner. Inaccessible privately-owned lots require an access warrant that must be obtained through a court process. A lot with a structure on it is required to be referred to the New York City Department of Health and Mental Hygiene for cleaning.

6.0 HOUSEHOLD SELF HELP BULK DROP-OFF PROGRAM

DSNY suspended its Household Self Help Bulk Drop-off program at the end of FY 2002. Thereafter, residents were informed that metal bulk items should be placed at the curb for collection on a recycling collection day and non-metal bulk items should be set out for collection on a regular refuse collection day. In the event that the program is to be revived during the planning period, DSNY will consider developing and seeking permits for Household Self Help Bulk Drop-off facilities at a site in each borough, including at its Household Special Waste Drop-off facilities or at other existing DSNY facilities.

7.0 STORM/EMERGENCY EVENT DEBRIS SPOIL MANAGEMENT PLAN

DSNY has had ongoing discussions with the New York City Office of Emergency Management (OEM) regarding the recycling of debris generated during storm and emergency events. As a result of these discussions, DSNY and OEM have agreed that, where practicable, the recycling of debris will be a component of the City's Storm/Emergency Event Debris Spoil Management Plan.

ATTACHMENT IX

COMMERCIAL WASTE – STATUS OF EXISTING PROGRAMS

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COMMERCIAL WASTE –STATUS OF EXISTING PROGRAMS

1.0 INTRODUCTION

This attachment summarizes the status of Commercial Waste management within the City, and draws extensively on information reported in the Commercial Waste Management Study (CWM Study) (Appendix E) that was published in March of 2004. Commercial Waste quantities and projections for the period of the SWMP are provided in Attachment IV: Waste Quantities and Projections for Plan Period.

2.0 TYPES OF COMMERCIAL WASTE

Commercial Waste is defined in DSNY's Rules, and the term is comprised of three types of waste: (1) putrescible waste[1]; (2) non-putrescible waste[2]; and (3) fill material[3], which can be characterized as follows:.

1. Putrescible waste – Waste generated daily by the City's business establishments that is office waste with small quantities of putrescible material, and also includes restaurant and other waste type of Municipal Solid Waste from commercial sources. Significant amounts of office waste are recycled directly at the source by carters that primarily collect recyclable office paper from commercial buildings and deliver it to recyclers, exporters or paper manufacturers. Consistent with DSNY rules, putrescible waste referred to in this report is inclusive of the fractions that are disposed and recycled. Some additional recycling occurs at the City's putrescible transfer stations, where old corrugated containers, commonly referred to as cardboard (OCC), and concentrated loads of office paper are diverted to recyclers.

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[1] Putrescible solid waste is solid waste containing organic matter having the tendency to decompose with the formation of malodorous by-products.

[2] Non-putrescible solid waste, as defined in DSNY rules (Subchapter A of 16 RCNY Chapter 4), is solid waste, whether or not contained in receptacles, that does not contain organic matter having the tendency to decompose with the formation of malodorous by-products, including but not limited to dirt, earth, plaster, concrete, rock, rubble, slag, ashes, waste timber, lumber, Plexiglas, fiberglass, ceramic tiles, asphalt, sheetrock, tar paper, tree stumps, wood, window frames, metal, steel, glass, plastic pipes and tubes, rubber hoses and tubes, electric wires and cables, paper and cardboard.

[3] Fill material, as defined in DSNY rules, is only clean material consisting of earth, ashes, dirt, concrete, rock, gravel, asphalt millings, stone or sand, provided that such material shall not contain organic matter having the tendency to decompose with the formation of malodorous by-products.

2. Non-putrescible waste – Inert waste generated from commercial and residential demolition, new construction and renovation projects. This waste can vary significantly with the volume of construction activity in the City. It is comprised of a range of inert materials, some of which is recycled. The non-recycled fraction of the waste is densified and transferred to the City's non-putrescible transfer stations for disposal. This report also refers to this waste as construction and demolition (C&D) debris to distinguish it from fill material, which is also a category of non-putrescible waste.

3. Fill material – A subset of non-putrescible waste, this is inert waste from non-building construction, comprised of materials such as excavated fill, stone rubble and road millings that are graded into materials such as sand and aggregate and stockpiled for reuse at the City's fill material transfer stations. Almost all fill material is reused in other building projects.

3.0 PRIVATE TRANSFER STATION SYSTEM

Currently, there are 54 transfer stations holding 18 putrescible station permits, 22 non-putrescible station permits and 20 fill material station permits. (Five facilities have dual permits, i.e., putrescible/non-putrescible, and one facility has three permits, but the total number of actual facilities is 54.) This total includes two intermodal facilities that accept waste in sealed containers for transloading onto railcars. The total number of the transfer stations in the City has declined significantly over time. In 1990, 153 transfer stations were in operation as compared to 96 in 1996 and currently, in 2006, only 54. Tables IX 3-1, 2 and 3 list the City's existing transfer stations by type of facility.

Table IX 3-1
Putrescible Transfer Station Permits[1]

Company	Address	Zone	Permitted Throughput (Tons Per Day)[2]	Community Board
A & L Cesspool Service Corp.	38-40 Review Avenue, Long Island City, NY 11101	M-3	N/A	QN2
American Recycling Mgt. LLC	172-33 Douglas Avenue, Jamaica, NY 11433	M-1	400	QN12
BFI Waste Systems of NJ, Inc.	115 Thames Street, Brooklyn , NY 11237	M-1	560	BK1
BFI Waste Systems of NJ, Inc.	598-636 Scholes Street, Brooklyn, NY 11237	M-3	220	BK1
Hi-Tech Resource Recovery	130 Varick Avenue, Brooklyn, NY 11237	M-3	560	BK1
IESI NY Corporation	325 Casanova Street, Bronx, NY 10474	M-3	225	BX2
IESI NY Corporation	110-120 50th Street, Brooklyn, NY 11232	M-3	1,000	BK7
IESI NY Corporation	577 Court Street, Brooklyn, NY 11231	M-3	745	BK6
Metropolitan Transfer Station	287 Halleck Street, Bronx, NY 10474	M-1	825	BX2
New Style Recycling	49-10 Grand Avenue, Maspeth, NY 11378	M-3	50	QN5
Regal Recycling Co., Inc.	172-06 Douglas Avenue	M-1	178	QN12
Tully Environmental, Inc.	127-20 34th Avenue, Queens, NY 11368	M-3	900	QN7
USA Waste Services of NYC, Inc.	98 Lincoln Avenue, Bronx, NY 10455	M-2	4,000	BX1
Waste Management of NY, LLC	215 Varick Avenue, Brooklyn, NY 11231	M-3	4,250	BK1
Waste Management of NY, LLC	38-50 Review Avenue, Lic, NY 11101	M-3	958	QN2
Waste Management of NY, LLC	485 Scott Avenue, Brooklyn, NY 11222	M-3	1,500	BK1
Waste Management of NY, LLC [3]	Oakpoint Avenue/Barry Street, Bronx, NY 10474	M-3	N/A	BX2
Waste Services of New York, Inc.	941 Stanley Avenue, Brooklyn, NY 11208	M-1	375	BK5
Waste Services of New York, Inc.	920 East 132nd Street, Bronx, NY 10454	M-3	2,999	BX1

Notes:

(1) Some facilities have dual permits (for example, putrescible/non-putrescible) and appear on both lists of permits.

(2) Source: DSNY Quarterly Transfer Station Report summary (third quarter 2003). Throughput is NYSDEC permitted throughput.

(3) Intermodal facility, no processing.

N/A = Not Applicable

Table IX 3-2
Non-Putrescible Transfer Station Permits [1]

Company	Address	Zone	Permitted Throughput (tons per day)[2]	Community Board
A.J. Recycling, Inc.	325 Faile Street, Bronx, NY 10474	M 3	1,200	BX2
American Recycling, Mgt. LLC	172-33 Douglas Avenue	M 1	750	QN12
Astoria Carting Co., Inc.	538-545 Stewart Avenue, Brooklyn, NY 11222	M 3	300	BK1
Atlas Roll-off Corp.	889 Essex Street, Brooklyn, NY 11208	M 1	1,125	BK5
City Recycling Corporation	151 Anthony Street, Brooklyn, NY 11222	M 3	1,500	BK1
Cooper Tank & Welding, Inc.	222 Maspeth Avenue, Brooklyn, NY 11211	M 3	1,875	BK1
Crown Container Company	126-46 34th Avenue, Flushing, NY 11368	M 3	281	QN7
Decostole Carting Co.	1481 Troy Avenue, Brooklyn, NY 11203	M 1	300	BK17
Flag Container Services, Inc.	11 Ferry Street, Staten Island, NY 10302	M 3	2,250	SI1
GADS INC	594 Scholes Street, Brooklyn, NY 11211	M3	544	BK1
G.M. Transfer Inc.	216-222 Manida Street, Bronx, NY 10474	M 3	330	BX2
IESI NY Corporation – 548 Varick	548 Varick Avenue, Brooklyn, NY 11222	M 3	1,350	BK1
John Danna And Sons, Inc.	318 Bryant Avenue, Bronx, NY 10474	M 3	405	BX2
Kid's Waterfront Corp.	1264 Viele Avenue, Bronx, NY 10474	M 3	750	BX2
New Style Recycling Corp.	49-10 Grand Avenue, Maspeth, NY 11378	M 3	225	QN5
Point Recycling, Ltd.	686 Morgan Avenue, Brooklyn, NY 11222	M 3	300	BK1
Regal Recycling, Ltd.	172-06 Douglas Avenue, Jamaica, NY 11433	M 1	266	QN12
Stokes Waste Paper Co., Inc.	17-25 Van Street, Staten Island, NY 10310	M 1	844	SI1
Thomas Novelli Contract. Corp.	94-20 Merrick Blvd., Jamaica, NY 11433	M 1	375	QN12
Waste Management of NY, LLC	123 Varick Avenue, Brooklyn, NY 11237	M 3	5,250	BK1
Waste Management of NY, LLC	620 Truxton Street, Bronx, NY 10474	M 3	1,050	BX2
Waste Management of NY, LLC	75 Thomas Street, Brooklyn, NY 11222	M 3	1,850	BK1

Notes:

(1) Some facilities have dual permits (for example, putrescible/non-putrescible) and appear on both lists of permits.

(2) Source: DSNY Quarterly Transfer Station Report summary (third quarter 2003). Throughput is NYSDEC permitted throughput.

Table IX 3-3
Fill Material Transfer Station Permits[1]

Company	Address	Zone	Permitted Allowable Storage Volume (Cubic Yards)[2]	Community Board
Allocco	540 Kingsland Avenue, Brooklyn, NY 11222	M-3	10,666	BK 1
Bronx City Recycling, Inc	1390 Viele Avenue, Bronx, NY 10474	M-3	1,400	BX 2
Bronx County Recycling, LLC	475 Exterior Street, Bronx, NY 10451	M-2	20,000	BX 1
Consolidated Edison Co. of New York	276-290 Avenue C, NY, NY 10003	M3	250	MN 6
Durante Brothers	31-40 123rd Street, Flushing, NY 11354	M3	14,696	QN 7
Felix Equities	290 East 132nd Street, Bronx, NY 10454	M3	300	BX1
Evergreen Recycling of Corona	The Corona Meadows Yard, Corona, NY 11368	M3	50,000	QN 7
Grace Associates, Inc.	151-45 Sixth Road, Whitestone, NY 11357	M1	25,000	QN 7
Interstate Materials Corporation	211 Johnson Street, Staten Island, NY 10309	M-3	75,000	SI 3
J.A. Bruno	280 Meredith Avenue, Staten Island, NY 10314	M-3	40,000	SI 2
Justus Recycling	3300 Provost Avenue, Bronx, NY 10475	M1	11,000	BX 10
Keyspan Energy	287 Maspeth Avenue, Brooklyn, NY 11201	M3	10,000	BK 1
Maspeth Recycling	58-08 48th Street, Maspeth, NY 11378	M3	30,000	QN 5
N.Y. Paving	37-18 Railroad Avenue, LIC, NY 11101	M1	500	QN 2
Pebble Lane Associates, Inc.	57-00 47th Street, Maspeth, NY 11378	M3	7,500	QN 5
Russo Recycling	248-12 Brookville Blvd., Rosedale, NY 11422	M1	20,000	QN 13
T. Novelli	94-07 Merrick Blvd., Jamaica, NY 11433	M-1	1,500	QN 12
Tilcon New York, Inc.	980 East 149th Street, Bronx, NY 10455	M3	80,000	BX 1
T.M. Maintenance	451 Spencer Street, Staten Island, NY 10314	M3	25,000	SI 2
Vanbro	1900 South Avenue, Staten Island, NY 10314	M3	400,000	SI 2

Notes:

(1) Some facilities have dual permits (for example, putrescible/non-putrescible) and appear on both lists of permits.

(2) Source: DSNY Quarterly Transfer Station Report summary (third quarter 2003). Throughput is NYSDEC permitted throughput.

4.0 REGULATION, ENFORCEMENT AND MONITORING

4.1 Regulation

Commercial Waste transfer stations locate where suitable zoning, transportation access, proximity to wastesheds and economics are favorable. The regulation of private transfer stations has evolved over time and become increasingly stringent. In addition to ensuring that transfer stations are sited in industrial districts established by law, DSNY promulgated new siting rules for transfer stations in 2004 (discussed below), and requires the completion of an environmental review in connection with the permitting of all new transfer stations and for renewals that involve significant modifications.

Prior to 1990, putrescible waste transfer stations were regulated locally by the City Department of Health, while non-putrescible waste transfer stations required permits from DSNY. Such facilities were (and are) required to meet certain performance standards required by the Zoning Resolution with respect to odor, noise, dust, smoke and enclosure, and comply with the City's Noise Code and Air Code. Permits from the NYSDEC were also required under Title 6 of the New York Codes, Rules and Regulations [NYCRR], Part 360 under the State's Solid Waste Management Act in 1988.

4.1.1 City Regulation of Transfer Stations

DSNY was given additional authority to promulgate regulations to control and supervise non-putrescible waste transfer stations pursuant to Local Law 49 of 1989. Local Law 40 of 1990 gave DSNY the responsibility for also regulating putrescible waste transfer stations and required DSNY to promulgate more detailed rules for the transfer station industry. DSNY adopted rules for putrescible waste transfer stations in 1990 and additional rules in 1991, requiring facilities previously permitted by the City Department of Health to apply for new DSNY permits. A substantial number of operating transfer stations were initially unable to obtain a new DSNY permit, so to force such facilities to come into compliance, DSNY issued notices of violation of $10,000 or more, and entered into a series of compliance agreements giving the operators a limited amount of time to come into compliance or cease operating.

The NYSDEC revised its 6 NYCRR Part 360 transfer station regulations in 1993. DSNY adopted additional rules for non-putrescible waste transfer stations and fill material transfer stations in 1994, and in 1996, the City Council enacted Local Law 42, which created a Trade Waste Commission (TWC) (now named the Business Integrity Commission [BIC]) to regulate the commercial carting industry in the City. BIC reviews the qualifications of private carting companies, licenses the approximately 124 putrescible carters that operate serving commercial establishments in the City, and establishes rates applicable to collection of commercial waste. The law also required transfer station applicants to undergo review by the TWC.

4.1.2 NYSDEC Permitting Criteria

A transfer station permit issued by NYSDEC must assure, to the maximum extent practicable, that the permitted activity will pose no significant adverse impact on public health, safety or welfare or environmental or natural resources, and that the activity will comply with the provisions of Part 360 and with other applicable laws and regulations. State regulations require an environmental review for NYSDEC putrescible and non-putrescible waste transfer station permits, but not for fill material transfer stations. NYSDEC is empowered to impose conditions on transfer station permits, including but not limited to inspection, financial assurance, technical data gathering and reporting, data analysis, quality control, quality assurance, sampling, monitoring (including the imposition of on-site environmental monitors), reporting and verification.

4.1.3 Environmental Review of Transfer Station Applications

DSNY requires an environmental review for all new transfer stations (including fill material transfer stations), and for transfer stations seeking an increase in permitted capacity. DSNY's environmental review is guided by the City Environmental Quality Review (CEQR) Technical Manual, which was revised in 2001, in addition to supplemental technical guidance employed by City agencies such as the City Department of Environmental Protection (NYCDEP) (e.g., for fine particulate air emissions). DSNY's environmental review is undertaken for new transfer stations and for increases of capacity for existing transfer stations, and includes, as appropriate,

an evaluation of the standard CEQR categories. Since 2001, the analysis of air impacts must also include a consideration of fine particulate matter 2.5 microns and smaller in diameter ($PM_{2.5}$), using methodology approved by the NYCDEP.

DSNY files and circulates its environmental review documents and determination of significance with community boards, appropriate elected officials and interested parties. In addition, beginning in March 2003, the NYSDEC adopted an Environmental Justice policy, which potentially affects applicants for NYSDEC transfer station permits and permit modifications. NYSDEC now reviews such applications to determine whether they are subject to this policy, and, if they are, the applicant may be required to take additional procedural steps to ensure compliance with the Environmental Justice policy in the application.

DSNY's review of transfer station applications includes a consideration of detailed documents, including an engineering report, site plan, odor control plan, drainage details, traffic quantity and routes, and other matters. An Environmental Assessment Statement (EAS) must be submitted that discusses each of the environmental impact categories, and whether the proposed action would reasonably be expected to result in a significant adverse environmental impact based on established thresholds and criteria in the 2001 CEQR Technical Manual. DSNY staff review the majority of the required impact categories, while the NYCDEP reviews air quality, noise and odor studies, and the City Department of Transportation (NYCDOT) reviews any required traffic studies. In addition applicants must also provide to DSNY copies of their Part 360 NYSDEC application. DSNY issues permits to operate, while NYSDEC typically requires both a permit to construct and a permit to operate a facility. Therefore, DSNY generally issues its permit only after NYSDEC issues its permit.

4.1.4 Coordination with NYSDEC on Environmental Reviews

The joint environmental review responsibilities for transfer station permits involving both DSNY and the NYSDEC were set forth in a consent order in City of New York v. New York State Department of Environmental Conservation, Supreme Court, Albany County, Index No. 7218/91 (Consent Order). Pursuant to this Consent Order, since 1992 DSNY and NYSDEC have served

as co-lead agencies in conducting the necessary environmental review for new putrescible and non-putrescible waste transfer stations, and for certain operating transfer stations that had never received a NYSDEC permit. For fill material transfer station permits, DSNY requires an environmental review, but NYSDEC does not. DSNY permit renewals are not subject to an environmental review, unless significant modifications are proposed.

In addition to compliance with environmental review and other NYSDEC and DSNY permitting procedures, transfer station operators are required to comply with the City's Zoning Resolution performance standards for the relevant zoning classification (M3, M2 or M1), as well as the more detailed Air Code (including odor) and Noise Code provisions. Commercial Waste vehicle operators must abide by relevant Vehicle and Traffic laws, including restrictions on vehicle idling and parking and requirements to use designated truck routes; Waste Hauling Vehicles must meet certain operational requirements.

4.1.5 DSNY Siting Rules

A number of events led to changes in DSNY's siting rules over time. These events are more fully described in Section 2.4, Volume I of the CWM Study (Appendix E).

In general, DSNY's 1998 siting rules prohibited new non-putrescible waste and fill material transfer stations from locating in an M1 district or less than 400 feet from a residential district, public park, school or other non-putrescible waste transfer station. The rules for putrescible waste transfer stations were similar, with differences in the buffer distances required. Under the 1998 rules, non-putrescible waste transfer stations located in an M1 zone could not operate between 7:00 p.m. and 6:00 a.m. Putrescible waste transfer stations could not receive solid waste on Sunday mornings between 4:00 a.m. and noon.

Other requirements included the submission of an annual engineering report certifying that the facility complies with the Zoning Resolution and the City Health Code, and a truck transportation plan specifying all truck routes to and from the facility. The rules also required a transfer station operating under an interim authority in an M1 district to obtain a full permit

within five years. The 1998 rules were the subject of an environmental assessment. DSNY found that the rules would not cause a significant adverse impact on the environment and would not lead to transfer stations located within geographical proximity that would result in transportation, air quality or noise impacts. DSNY found that the 1998 rules would offer greater environmental protection to the surrounding community than previous requirements.

A coalition of community organizations and others filed suit challenging the 1998 siting rules, however, as insufficiently restrictive. In its ruling, the Court noted that it had certain concerns about the 1998 rules, and as a result DSNY committed to promulgate revised siting rules. The 1998 siting rules remained in effect pending the promulgation of the revised siting rules.

In 2003, DSNY adopted interim siting rules which prohibited new non-putrescible waste and fill material transfer stations or expansions, prohibited new putrescible waste transfer stations to be permitted, and allowed expansions of putrescible waste transfer stations in Brooklyn CD #1 and Bronx CD #2 only upon a showing that the requested capacity would be offset by closing permitted capacity at another transfer station within the same CD. DSNY identified these two CDs as appropriate for an offset requirement under the interim siting restrictions as they had the highest number of transfer stations in the City. In addition, pursuant to the interim rules, DSNY could authorize the operation of an intermodal facility at which waste arrives and remains in sealed containers and is transloaded onto a rail car or vessel for further transport.

In 2004, DSNY revised is transfer station regulations with respect to restrictions on the siting of new facilities and expansions of existing facilities. In effect, the rules prohibit new net transfer station capacity in Brooklyn CD 1 and in Bronx CD 2, and allow no new transfer stations in Queens CD 12. Larger buffer distances from residential districts, schools and parks are required for new transfer stations in community districts with relatively higher numbers of transfer stations. See Chapter 4 (Section 4.4.2) for more information on the new siting rules.

In 2004, DSNY promulgated additional rules governing sites used for the transloading of sealed intermodal containers of solid waste from one type of transportation mode to another, such as from truck to rail, or from truck to barge.

4.2 Enforcement

DSNY is the agency responsible for the majority of the transfer station inspections. Unlike NYSDEC inspections, DSNY is primarily responsible for regulating the maintenance and operation of facilities, instead of the design. Twenty-two (22) officers – 17 Environmental Police Officers and 5 Environmental Lieutenants – comprise DSNY's Permit and Inspection Unit (PIU) and conduct the on-site inspections.

Full inspections are conducted at putrescible transfer stations and non-putrescible transfer stations as much as 25 times a month and at fill material transfer stations approximately twice a month. The one- to two-hour inspection examines a variety of potential violations concerning transfer station management procedure, cleanliness, noise, machine maintenance and general operation. The inspector measures and evaluates the current level of waste on site as well as reviews recent record logs. Unscheduled drive-by inspections usually last roughly 15 minutes and occur twice as frequently as full inspections. Up to 240 to 250 drive-by inspections are conducted per month and generally evaluate "quality of life" issues and a general maintenance check.

Table IX 4.2-1, Enforcement Summary Chart, summarizes regulations applicable to the City's transfer stations, the enforcement agency, describes the legislation from which the agency derives is enforcement powers and the punishment that can be exacted.

Table IX-4.2-1
Enforcement Summary Chart
II. City Level – New York City Department of Sanitation (DSNY)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
16 NYCAC 16-131.1 - Title 16 – Sanitation, Chapter 1 – (16-131.1) Dept. of Sanitation	*Issuance, renewal, suspension and revocation of permits.* The commissioner shall be responsible for the issuance, renewal, suspension and revocation of permits as required by section 16-130. An application for such a permit shall also be presented by DSNY to the City Trade Waste Commission (now known as Business Integrity Commission [BIC]) for review.		DSNY	In addition to any other penalties, any violation of section 16-129, 16-130, 16-131, 16-131.2, 16-131.3 or 16-131.5 of this chapter, or article 157 of the City Health Code, shall be punishable by a civil penalty of not less than $25,000 nor more than $10,000 for the first violation, not less than $5,000 nor more than $10,000 for the second violation committed in a period of three years, and $10,000 for the third and any subsequent violation committed in such period. In the case of a continuing violation, every day's continuance thereof may be deemed to be a separate and distinct violation.
16 NYCAC 16-131.2 - Title 16 – Sanitation, Chapter 1 – (16-131.2) Dept. of Sanitation	*Additional powers of the commissioner.* In addition to any other enforcement procedures authorized by law, the commissioner shall have the powers described in this section. (a) The commissioner may order any person violating section 16-130 or 16-131 of this chapter or Article 157 of the New York City Health Code to discontinue such violation immediately. (b) 1. If the commissioner finds that premises for which a permit is required pursuant to section 16-130 of this chapter are being used either without such permit or in a manner which poses an imminent threat to public health or safety.		DSNY	

Table IX 4.2-1 (Continued)
Enforcement Summary Chart
II. City Level – New York City Department of Sanitation (DSNY)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
16 NYCAC 16-133 - Title 16 – Sanitation, Chapter 1 – (16-133) Dept. of Sanitation	*Concerned with transfer station enforcement.* Any person who violates any provision of section 16-129, 16-130, 16-131, 16-131.2, 16-131.3 or 16-131.5 of this chapter, or Article 157 of the New York City Health Code, shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine not to exceed $25,000, or by imprisonment for a term of not more than one year, or by both such fine and imprisonment.		DSNY	In addition to any other penalties, any violation of section 16-129, 16-130, 16-131, 16-131.2, 16-131.3 or 16-131.5 of this chapter, or Article 157 of the New York City Health Code, shall be punishable by a civil penalty of not less than $2,500 nor more than $10,000 for the first violation, not less than $5,000 nor more than $10,000 for the second violation committed in a period of three years, and $10,000 for the third and any subsequent violation committed in such period. In the case of a continuing violation, every day's continuance thereof may be deemed to be a separate and distinct violation. Civil penalties shall be recovered in a civil action brought in the name of the commissioner or in a proceeding before the ECB, provided however that civil penalties for violations of Article 157 of the New York City Health Code may only be recovered as provided by law for violations of the New York City Health Code.

Table IX 4.2-1 (Continued)
Enforcement Summary Chart
II. City Level – New York City Department of Sanitation (DSNY)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
24 NYCAC - Title 24 – Environmental Protection and Utilities, Chapter 1 – Air Pollution Control	*Air Pollution Control.* *Limits visible emissions from a motor vehicle §24-143.* *Limits emissions of dense smoke §24-142.* *Limits emissions of odorous air contaminant §24-141.*		NYCDEP DSNY	*Various, set forth in §24-178.*
24 NYCAC - Title 24 – Environmental Protection and Utilities, Chapter 2 – Noise Control	*Noise Control*. Zoning standards for air, odor and noise must be complied with. Transfer stations must annually submit a certified engineering report to DSNY that attests to the facility's compliance with such zoning standards. Noise Code must be complied with.		NYCDEP DSNY	*Various, see §24-257.*
24 NYCAC - Title 26 (Housing and Buildings), Chapter 1 (Department of Buildings), Subchapter 3 (Building Construction)	*Requirement of permit*. It shall be unlawful, on and after December 6, 1968 to construct, alter, repair, demolish or remove any building in the City, or to erect, install, alter, repair or use or operate any signs or service equipment in or in connection therewith, unless and until a written permit therefore shall have been issued by the commissioner in accordance with the requirements of this subchapter and the requirements of the building code, subject to such exceptions and exemptions as may be therein provided.			

Table IX 4.2-1 (Continued)
Enforcement Summary Chart
II. City Level – New York City Department of Sanitation (DSNY)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
16 RCNY 4-02 (Rules of the City of New York)	*Regulates non-putrescible waste transfer stations***.** Any person who owns, operates, maintains or controls a non-putrescible waste transfer station shall comply with 1) the state ECL and all permit conditions; 2) Titles 16 and 24 of the Health and Administrative Codes of the City of New York (Air Pollution and Noise Control); 3) Subchapter 3 of Chapter 1 of Title 26, and Chapter 1 of Title 27 of the Administrative Code of the City of New York (Building Code); 4) the Zoning Resolution of the City of New York; 5) the New York City Health Code; and 6) all other applicable local and state laws and rules including general transportation and vehicular transport routes.	NYSDEC For environmental review: NYCDEP, NYCDOT, NYCDCP.	DSNY	
16 RCNY 4-03	*A permit is required to operate a non-putrescible waste transfer station.*		DSNY	The permit may be suspended or revoked upon violation of the terms of Subchapter 16, any of the applicable sections of the Administrative Code or the ECL, or any applicable permit condition, law or rule.

Table IX 4.2-1 (Continued)
Enforcement Summary Chart
II. City Level – New York City Department of Sanitation (DSNY)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
16 RCNY 4-06 and 16 RCNY 4-05	*A permit is required to operate and maintain construction and demolition debris transfer stations.*		DSNY	The permit may be suspended or revoked upon violation of the terms of Subchapter 16, any of the applicable sections of the Administrative Code or the ECL or any applicable permit condition, law or rule.
16 RCNY 4-06	*Governs the operation and maintenance of construction and demolition debris transfer stations.* Operations must avoid any nuisance or condition hazardous to public health or safety.		DSNY	
16 RCNY 4-07	*A permit is required to operate a fill material transfer station.*		DSNY	The permit may be suspended or revoked upon violation of the terms of Subchapter 16, any of the applicable sections of the Administrative Code or the ECL or any applicable permit condition, law or rule.
16 RCNY 4-08	*Governs the operation and maintenance of fill material transfer stations.*		DSNY	

Table IX 4.2-1 (Continued)
Enforcement Summary Chart
II. City Level – New York City Department of Sanitation (DSNY)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
16 RCNY 4-11	*Regulates putrescible waste transfer stations*. Like non-putrescible waste transfer stations, putrescible waste transfer stations are required to comply with all state and local laws and rules, including general transportation and vehicle transport routes.		DSNY	
16 RCNY 4-14	*Permits for putrescible waste transfer stations must include written plans for the control of noise and odors.*		DSNY	Permits are subject to suspension and revocation for violation of the terms of Chapter 4 or any applicable section of the Administrative Code or any other applicable permit condition, law or rule.
16 RCNY 4-16	*Establishes design and equipment requirements for putrescible waste transfer stations.*		DSNY	
16 RCNY 4-17	*Establishes operation and maintenance rules for putrescible waste transfer stations.*		DSNY	
34 RCNY 4-13	*New York City Truck Routes Rules.* NYCDOT is charged generally with the management and oversight of the City truck route network – coordinating and engineering, educational, informational and enforcement efforts. Works with the NYPD to identify or respond to chronic route violations to ensure that trucks remain on designated truck routes and do not use residential streets.		NYPD DSNY	

Table IX 4.2-1 (Continued)
Enforcement Summary Chart
II. City Level – Business Integrity Commission (BIC)
(formerly known as the Trade Waste Commission [TWC], Organized Crime Control Commission)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
Local Law 42 (1996)	*Created a new City agency called the TWC (formerly) responsible for regulating and licensing "private carters" in accordance with all local laws governing the regulation of the trade waste industry.*			
Section 16-502 of the RCNY	*Established the Business Integrity Commission consisting of the commissioners from Department of Business Services, Department of Consumer Affairs (DCA), Department of Investigation (DOI), NYPD and DSNY.*	Department of Business Services, DCA, DOI, NYPD and DSNY.		
6 RCNY 5-12	*Licensees that collect or transport designated recyclable materials must transport them to putrescible or non-putrescible waste transfer stations or other facilities that accept such materials for recycling or reuse.*			
6 RCNY 2-186 and 16 RCNY 1-10	*Such materials may not be brought to a solid waste disposal facility containing recyclable materials in detectable amounts. Private transporters are required to recycle recyclable materials and to take them to transfer stations or other facilities that accept such materials.*			

Table IX 4.2-1 (Continued)
Enforcement Summary Chart

II. City Level – New York City Department of Buildings (NYCDOB)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
Not Applicable	*Enforces the building code, zoning resolutions, state multiple dwelling law, electrical code and other local laws related to building construction and alteration. Also issues building and construction-related licenses.*			

II. City Level – New York City Department of Environmental Protection (NYCDEP)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
Zoning Resolution of the City of New York	*Regulations in Manufacturing Zones 42-00*		NYCDEP NYCDOB DSNY	

Table IX 4.2-1 (Continued)
Enforcement Summary Chart

II. City Level – New York City Department of Sanitation (DSNY)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
NYCAC §16-130, §16-131, §16-133	*A Local Law to amend the NYCAC, in relation to regulation of the use of piers or land as non-putrescible waste transfer stations and putrescible waste transfer stations, transfer of permitting jurisdiction with respect to putrescible waste transfer stations from DSNY in connection therewith, issuance, renewal, suspension and revocation of permits, permit enforcement, and penalties in connection therewith and in connection with other violations of Chapter 1 (DSNY) of Title 16 (Sanitation) of such code, and the power of the commissioner to conduct inquiries, including subpoena power.* Grants authority to DSNY to address issues relating to the operation of private waste transfer stations according to City laws and rules.	In consultation with City's Commissioners of Health and Environmental Protection.		

II. State Level - New York State Department of Environmental Conservation (NYSDEC)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
State Environmental Conservation Law (ECL) - Titles 9, 11 and 13 of Article 27 of the State ECL	*Provides for the treatment and disposal of solid and hazardous waste through the Solid Waste Management Plan*. NYSDEC responsible for all state programs directed toward protecting and enhancing the environment.		NYSDEC	

Table IX 4.2-1 (Continued)
Enforcement Summary Chart
II. State Level - New York State Department of Environmental Conservation (NYSDEC)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
6NYCRR Part 360 - Title 6 of the Codes, Rules and Regulations, referred to as 6NYCRR (New York State's Solid Waste Management Regulations)	*Part 360 regulations include design, construction, operation and closure requirements for different types of waste management facilities.* Facility quarterly and annual reports are required for submittal and review. Legislation provides technical and regulatory assistance to the regional offices of NYSDEC and the regulated community and establishes the registration process for certain types of waste management facilities, such as fill transfer stations.		NYSDEC	
6NYCRR 360-11	*Regulates facilities that transfer or process solid waste.*		NYSDEC	
6NYCRR 360-11.3	*Establishes design requirements for waste transfer stations*. Permit required to construct, issued by the regional office staff of NYSDEC.		NYSDEC	

Table IX 4.2-1 (Continued)
Enforcement Summary Chart
II. State Level - New York State Department of Environmental Conservation (NYSDEC)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
6NYCRR 360-11.4	*Establishes operational requirements for waste transfer stations* (must operate within the law and within the terms of their permit). Permit required to operate, issued by the regional office staff of NYSDEC.	In its inspections, the NYSDEC's Environmental Conservation Officers (ECOs) are assisted by the NYPD, particularly the City police highway and motor carrier units.	NYSDEC	- nuisance problems such as inadequate dust and odor controls and truck queuing - processing more garbage than their permit allowed - lacking proper fire suppression equipment - accepting and process types of solid waste not allowed by the facility's permit - failure to control access to the facility - inadequate drainage unlawful disposal of waste oil
6NYCRR 360-16.4	*Operational standards for transfer stations that process C&D debris.*		NYSDEC	
6 NYCRR Part 201	*Describes the two basic types of permits that are issued by NYSDEC for air contamination sources.* NYSDEC's Air Permitting program is administered by the Division of Air Resources (DAR). Facilities are either required to be registered with or permitted by NYSDEC depending on the classification of the material processed.		NYSDEC, Bureau of Stationary Sources (BOSS)	

Table IX 4.2-1 (Continued)
Enforcement Summary Chart
II. State Level - New York State Department of Environmental Conservation (NYSDEC)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
6 NYCRR Part 617	*Environmental Quality Review prior to issuance of permit or major permit modification*	DSNY		
6 NYCRR Part 621	*Permit applications are processed following a number of steps prior to issuance. Revocation and Denial of Permit*. Failure of such person to properly operate and maintain the effectiveness of such emission units and emission control devices may be sufficient reason for NYSDEC to revoke or deny a permit. *Suspension, Reopening, Reissuance, Modification or Revocation.* NYSDEC may suspend, reopen, reissue, modify or revoke a permit in accordance with the procedures and provisions of Part 621 of this Title.		NYSDEC	
6 NYCRR Part 750	*State Pollution Discharge Elimination System (SPDES) discharges to surface water; stormwater discharges associated with industrial activity.*	NYCDEP	NYSDEC	

DSNY inspection and violation statistics for FY 2006 (July 2005 - June 2006) are displayed in Tables IX 4.2-2 through IX 4.2-6.

Table IX 4.2-2 indicates the number of inspections by type of transfer station per month and Tables IX 4.2-3 and IX 4.2-4 indicate the number of violations that were issued during those months. Table IX 4.2-3 focuses on "major" violations issued by DSNY, while Table IX 4.2-4 specifies "minor" violations issuance. Tables IX 4.2-5 and IX 4.2-6 report the violations issued for parking and traffic offenses.

It can be seen that putrescible and non-putrescible transfer stations are each inspected almost three times as often as fill material stations. Drive-by inspections, by contrast, occur twice as often as full putrescible or non-putrescible inspections.

The reported parking and traffic summonses are issued in areas where transfer stations are prevalent. PIU officers are trained to check in and around transfer stations for any truck-related or unsanitary-related conditions, so while violations relate to transfer station activity, the violation summons is not issued to a specific transfer station.

Thirty-three "major" violations were issued among the three types of transfer stations each month between July of 2005 and June of 2006. Fill material inspections occur much less frequently and, as a result, fill material violations accounted for only 9% of the violations issued. Putrescible transfer stations accounted for 33% of those issued; non-putrescible transfer stations accounted for the most violations at 58%.

On average, 66 "minor" ECB violations (see Table IX 4.2-4), 335 parking violations (see Table IX 4.2-5) and 32 traffic violations (see Table IX 4.2-6) were issued per month between July of 2005 and June of 2006. With an annual count of 5,189 summonses, DSNY issues approximately 434 violation summonses of varying severity each month.

Table IX 4.2-2
DSNY Inspection History, July 2005 – June 2006

	July	August	September	October	November	December	January	February	March	April	May	June	*Totals*
Putrescible	122	125	82	96	100	101	111	111	121	118	117	113	***1317***
Non-Putrescible	126	121	83	92	100	98	103	101	118	130	122	114	***1308***
Fill Material	51	74	44	60	60	54	55	51	70	74	58	60	***711***
Drive-By	167	188	110	121	181	258	256	145	213	217	144	167	***2167***
Totals	466	508	319	369	441	511	525	408	522	539	441	454	***5503***

Source: DSNY inspection records, PIU, 2006.

Table IX 4.2-3
DSNY Violation History for "Major" Offenses, July 2005 – June 2006[(1)]
(Number of Violations)

	July	August	September	October	November	December	January	February	March	April	May	June	*Totals*
Putrescible	1	0	0	2	0	0	1	0	0	0	2	5	***11***
Non-Putrescible	6	0	0	1	4	2	1	0	0	0	2	3	***19***
Fill Material	0	1	0	0	1	0	0	0	1	0	0	0	***3***
Totals	7	1	0	3	5	2	2	0	1	0	4	8	***33***

Note:
(1) ECB S-36 – S-39 violations ("major" violations relating to operational rules).
Source: DSNY inspection records, PIU, 2006.

Table IX 4.2-4
DSNY Violation History for "Minor" Offenses, July 2005 – June 2006[(1)]
(Number of Violations)

	July	August	September	October	November	December	January	February	March	April	May	June	*Total*
Violations[(2)]	32	64	56	83	69	54	73	53	63	83	91	82	***803***

Notes:
(1) ECB S-02 – S-24, A-24, A-51, A-87, E-38 and W-55 violations ("minor" violations relating to maintenance around the transfer station).
Source: DSNY inspection records, PIU, 2006.
(2) Data does not break down information by transfer station type.

Table IX 4.2-5
DSNY Violation History for Parking Offenses, July 2005 – June 2006
(Number of Violations)

	July	August	September	October	November	December	January	February	March	April	May	June	*Total*
Violations[(1)]	317	227	174	212	274	387	443	328	394	371	437	451	***4015***

Note:
(1) Data does not break down information by transfer station type.
Source: DSNY inspection records, PIU, 2006.

Table IX 4.2-6
DSNY Violation History for Traffic Offenses, July 2005 – June 2006
(Number of Violations)

	July	August	September	October	November	December	January	February	March	April	May	June	*Total*
Violations[(1)]	22	26	30	22	18	20	38	49	51	42	34	36	***388***

Notes:
(1) Data does not break down information by transfer station type.
Source: DSNY inspection records, PIU, 2006.

According to DSNY statistics for FY 2006, pile height/volume that exceeds the regulatory limit and operating without a permit were among the most common violations given at non-putrescible transfer stations, resulting in a large percentage of "major" violations issued to these types of facilities. The majority of the infractions resulted in only one summons in FY 2006.

Among the most common "major" violations reported at putrescible transfer stations was an unclean tipping floor. DSNY issued a number of violations for this offense in FY 2006, as well as for other common violations such as the presence of odors, vectors (rodents), and excessive material volume.

Several violations were issued by DSNY to fill material transfer stations for operating without a permit. This infraction comprises a large percentage of the "major" violations issued at this type of facility. This violation results in closing an illegal operation. The other frequent fill material infractions concerned pile height/volume that exceeds the regulatory limit.

4.3 Monitoring

The mechanism for monitoring the quantities of waste processed at the City's private transfer stations is DSNY's Quarterly Transfer Station Reporting System, under which all private transfer stations in the City file quarterly reports on the quantity and/or volume of materials they process and recycle. This system has been in effect since 1995, has been continually refined and provides accurate reporting on the volume of materials moving through the City's private transfer station network

4.4 Commercial Recycling Regulations

Businesses in the City are required to recycle in accordance with regulations promulgated pursuant to Local Law 87 of 1992 (LL87), and are subject to enforcement, including fines for non-compliance. A City commercial business is defined under LL87 as having their refuse removed by a private carter.

There are over 500 million square feet of commercial office buildings, retail stores, restaurants and supermarkets in the City. According to the U.S. Census 2000, there are 226,296 firms in the City employing 3,485,926 workers.

5.0 THE COMMERCIAL WASTE MANAGEMENT STUDY

Local Law 74 of 2000 (LL74) was enacted on December 19, 2000, and required that DSNY contract with a consultant to conduct a comprehensive study of commercial waste management in the City. In September 2002, the consultant began work on detailed analyses of a range of commercial waste management issues and submitted a report with recommendations, Volumes I through VI of the Commercial Waste Management Study (CWM Study), to the City Council in March 2004. The entire CWM Study is provided on compact disk included as Appendix E of the SWMP. The technical analyses undertaken as integral elements of this study were utilized to enable the City to assess and plan for management of the Commercial Waste stream in the most efficient and environmentally sound manner, in development of the SWMP.

ATTACHMENT X

FRESH KILLS CLOSURE CONSTRUCTION AND END USE

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FRESH KILLS CLOSURE CONSTRUCTION AND END USE

1.0 FRESH KILLS LANDFILL CLOSURE ACTIVITY

1.1 Phase-Down of Waste Acceptance at Fresh Kills

In March 2001 the last barge of waste was transported to the Fresh Kills Landfill and landfilled at Section 1/9. Over the next several months, the only wastes disposed at the site were incidental to the decommissioning of the waste handling facilities, i.e., the clean-out of barges and the cleanup of the landfill area complex.

Between the year 2000 and the final delivery of waste to the Landfill, the DSNY continued to divert more waste from Fresh Kills than was targeted by the Fresh Kills Closure Task Force. The success of the diversion program, which resulted in less waste placed at Fresh Kills than anticipated, left DSNY with a void of between 6 and 7 million cubic yards of fill for final grading purposes.

Following the destruction of the World Trade Center on September 11, 2001, Section 1/9 was made available to support the investigation and recovery operations. After sorting, screening and searching the material brought from the World Trade Center site, debris was buried at the site following the generalized sequence of construction for final cover sub-base grading set forth in draft final cover designs.

On December 28, 2001, Governor Pataki issued an Executive Order with respect to the closure of the Fresh Kills Landfill. Specifically, the order temporarily suspended, until further notice, Environmental Conservation Law Section 27-0706(b) to the extent that debris removed from the site of the World Trade Center would be accepted for disposal at Section 1/9 of the Fresh Kills Landfill after January 1, 2002. Subsequently, DSNY and NYSDEC entered into Modification No. 8 to the Fresh Kills Landfill Order on Consent, which added provisions to address the Executive Order.

Remains from the World Trade Center site continued to be brought to Section 1/9 through June 28, 2002. Processing of this material continued through July 26, 2002. Demobilization of processing operations was completed on August 2, 2002. Approximately 1.3 million tons of material from the World Trade Center were placed at Section 1/9 between September 2001 and June 2002.

1.2 Landfill Gas Systems

GSF Energy, LLC (GSF) continued to operate and maintain the landfill gas collection, flaring, recovery and processing facilities at the Landfill under a landfill gas concession agreement the DSNY entered into in 1998. Under this agreement, GSF operated and maintained the existing DSNY landfill gas flare and control system in the inactive sections of the Landfill and expanded the existing landfill gas recovery and processing facility to allow for the recovery and sale of all of the gas generated at Fresh Kills. The NYSDEC permit for the expansion project, for which GSF and the DSNY were co-applicants, was issued on June 2, 2000.

A landfill gas transmission main, which conveys landfill gas from the inactive sections of the Landfill to the LFG Recovery Facility located near Section 1/9, was completed in April 2001. Following completion of final cover sub-base construction in the southern sector of Section 6/7 in 2001, the landfill gas collection system was expanded throughout this area, and the transmission main was connected to the collection system. Landfill gas extraction wellheads at Section 6/7 were raised in conjunction with re-contouring activities during 2002.

In January 2003, GSF, which owned and operated landfill gas control facilities at the Landfill, gave notice of surrender of the concession. In its notice, GSF stated that it was surrendering the concession because "gas in commercial quantities was not obtainable from the Landfill." As discussed above, the concession agreement provided for GSF as co-permittee and owner of the landfill gas control facilities at the Landfill; as such, GSF was required for operations and maintenance of all landfill gas emission control, odor control and processing systems at the Landfill. Since GSF provided notice 180 days before surrender, the notice implied that within six months DSNY would be left without an operator of these systems.

DSNY entered into negotiations with GSF for continued operation of the facilities. An amended agreement, under which DSNY is the owner and GSF is the operator of the facilities, was entered into in January 2004. The amended agreement addresses operation of the landfill gas emission control and processing facilities, as well as continued build-out of the facilities through June 2006. DSNY solicited proposals for a new vendor to manage, operate and maintain these facilities in 2005. A multi-year contract was awarded in June 2006. The contractor assumed responsibility for the operation and facility management in July 2006.

1.3 Fresh Kills Consent Order

The 1990 Fresh Kills Landfill Consent Order between the DSNY and NYSDEC was modified in April 2000 to withdraw the permit application, require cessation of waste acceptance by January 1, 2002, and address remaining closure issues (Modification #7). This modification added a new Appendix A-15, Landfill Closure and Post-Closure, which included numerous milestones for landfill closure and post-closure care. Modification #8, which amended the date for cessation of waste acceptance to reflect placement of World Trade Center material and provided for extensions of certain Appendix A-15 milestones, was entered into in December 2001.

The first of the milestones under Modification #7, the initiation of final cover construction at Section 6/7, was met before July 2000. Final cover design reports for Sections 6/7 and 1/9 were submitted on January 30, 2001 and January 4, 2002. As a result of delays associated with placement of remains from the World Trade Center, DSNY requested a 60-day time extension for the initiation of final cover construction at Section 1/9. The time extension, extending the February 1, 2002 construction initiation date by 60 days, was requested in a letter to NYSDEC dated January 11, 2002. Initial final cover construction activities at Section 1/9—specifically, pre-loading of drainage swale embankments—commenced in mid-March 2002. DSNY has now satisfied all milestones under the Consent Order except for submittal of Closure Construction Certification Reports and submittal of recurring annual reports.

1.4 1996 Clean Water/Clean Air Bond Act Funds for Fresh Kills Landfill Closure

$75 million in funds were specifically earmarked in the 1996 Clean Water/Clean Air Bond Act (Bond Act) for the Fresh Kills Landfill closure construction and related projects. The state indicated that it would support appropriation of Bond Act funds for Fresh Kills only after modification of the Fresh Kills Consent Order was completed and an application was submitted. The Consent Order was modified in April 2000, and following a series of pre-application meetings with NYSDEC, the completed grant application was submitted in February 2001, identifying an initial $137,000,000 in work, which would be reimbursed at 50% of eligible costs. In May 2001 the contract for reimbursement was executed, and in August 2001 the City submitted vouchers for the $137,000,000. Based on the available appropriations, the City was reimbursed for $45,000,000. Following appropriation of the balance of the Bond Act funds, the City submitted a second application in October 2002 for the balance of the Bond Act funds, identifying another $37,000,000 of eligible work. A new contract was executed in March 2003, and in April 2003 the carryover costs from the initial application were vouchered for payment. In December 2003 the balance of the projects were vouchered for payment.

1.5 Fresh Kills Closure Plans

Final cover designs for Sections 6/7 and 1/9, developed in accordance with the adjusted Sequence of Fill Plans for the 2001 cessation of waste acceptance, were prepared in accordance with Consent Order Appendix A-15, as detailed below. The Sequence of Fill Plans were designed to maintain the stability of the soils underlying the landfill and prevent erosion of the side slopes by carefully managing the placement of waste in different phases.

Each landfilling phase defines the location and quantity of waste placement to meet what is technically known as “final grade” in a specified area of the Landfill. Final grades are established by state regulations that specify the maximum allowable slopes of a landfill area. If portions of the landfill are not filled to final grade, erosion, uncontrolled stormwater runoff and instability could occur. Deviations from these grades will be corrected during closure construction. When the final grade is achieved, including an allowance for the settlement of refuse over time, the placement of final cover can begin.

In addition to the final cover designs for Sections 6/7 and 1/9, a Final Closure Plan, which addressed regulatory requirements for closure of all four Landfill sections, was prepared and submitted as a draft on October 30, 2002. The Final Closure Plan included descriptions and plans for various systems for Landfill closure, including the final cover system; the landfill gas control system; the leachate containment, collection and treatment systems; and a final end use plan. Following receipt and incorporation of NYSDEC comments provided on March 5, 2003, the Final Closure Plan was submitted to NYSDEC on June 5, 2003.

1.5.1 Section 6/7 Closure Plans

On January 30, 2001, DSNY submitted the Section 6/7 Final Cover Design Report to NYSDEC. The scope of the report encompassed the engineering and design information to complete the closure construction for this landfill section. Following NYSDEC's review of the report, DSNY was advised on April 18, 2001, that the report was approved.

Following the end of waste disposal operations at Section 6/7 in June 1999, clean fill was placed at Section 6/7 to correct areas that had settled and to establish regulatory grades needed for final cover. This fill material was delivered to Fresh Kills under the Inter-Agency Cover Program, which diverts clean soils and fill from excavation projects around the City to the Landfill at no cost to DSNY. Placement of this sub-base grading fill at Section 6/7, which started in fall 1999, continued through April 2003. Sub-base grading in the southern areas of Section 6/7 was completed in June 2001. Sub-base grading in the northern sectors of the site began in February 2001 and was substantially completed by April 2003, with the exception of drainage swale embankments. More than 2,000,000 cubic yards of material were placed to complete these re-contouring activities.

In conjunction with re-contouring activities during 2002, landfill gas extraction wellheads were raised. Several drainage swale embankments were pre-loaded in 2002. However, DSNY discontinued pre-loading of drainage swale embankments in 2003 as a result of GSF's notice of surrender of the concession for landfill gas control facilities. Additional pre-loading of drainage swale embankments would have required the raising of wellheads in areas where embankments

would be constructed. In consideration of GSF's extending the notice of surrender period beyond 180 days, DSNY relieved GSF of its requirement to perform additional non-routine maintenance, including raising of wellheads.

During review of the concession agreement, DSNY realized that one aspect of GSF's design for the landfill gas collection system could lead future maintenance problems. Specifically, GSF's design, which had already been approved by NYSDEC and partially implemented, called for all collection pipelines to be constructed below the final cover geomembrane. Repairs to the collection pipelines would therefore entail cutting through the geomembrane and subsequent repair to the geomembrane following repair of the collection pipelines.

DSNY proposed an equivalent design under which the landfill gas collection piping would be placed above the final cover geomembrane. This equivalent design, which will allow DSNY to better maintain the integrity of the geomembrane, was included in the Request for Approval of Design Equivalents and Design Variance to the Final Cover Design Reports, which was submitted to NYSDEC on October 8, 2003. The design equivalents and variance, which also included an alternative design for drainage swales to reflect proposed changes in the landfill gas collection system, delayed DSNY's plans to issue a contract for the remainder of final cover construction at Section 6/7, which had been planned for 2003.

Following receipt of NYSDEC comments on the requests for design equivalents and variance, responses to NYSDEC comments were submitted on December 22, 2003. The equivalent design was approved by NYSDEC in April 2004 and incorporated into the closure designs.

DSNY resumed construction of the interim and final drainage systems, based on the approved variance, in August 2004, and substantially completed this construction in June 2005. Construction documents for the completion of closure construction at Section 6/7 were completed in December 2005. In June 2006, a contract for this work was awarded. Construction is scheduled to be completed in 2010.

1.5.2 Section 1/9 Closure Plans

On April 27, 2001, DSNY submitted the Draft Section 1/9 Final Cover Design Report to NYSDEC. The scope of this report encompassed the engineering and design information to complete the closure construction for this landfill section. In August 2001, NYSDEC provided final comments on the draft report. Following the destruction of the World Trade Center on September 11, 2001, DSNY requested and was granted a 60-day time extension to address NYSDEC's comments and modify the Section 1/9 Final Cover Design Report to accommodate the handling, processing and disposal of material from the World Trade Center. The final report was submitted to NYSDEC on January 4, 2002.

Materials from the World Trade Center were buried at Section 1/9 following sorting and screening activities. Approximately 1.3 million tons of these materials were buried at the site. Placement of World Trade Center materials, generally followed the sequence of construction for final cover sub-base grading set forth in the Draft Section 1/9 Final Cover Design Report.

After NYSDEC approval of Section 1/9 Final Cover Design Report, contract documents were prepared and issued to re-contour the site with excavated waste. However, the award of a contract for the relocation of the waste was delayed pending a decision regarding a memorial for the attack on the World Trade Center. The City subsequently re-assessed its policy regarding placement of waste material adjacent to remains from the World Trade Center. Following this policy re-assessment, DSNY decided that final cover sub-base grading in Section 1/9 would be done with clean fill material. Therefore, the contract for relocation of waste was canceled.

As a result of delays associated with placement of remains from the World Trade Center, DSNY requested a 60-day time extension for the initiation of final cover construction at Section 1/9. The time extension, extending the February 1, 2002, construction initiation date by 60 days, was requested in a letter to NYSDEC dated January 11, 2002. Initial final cover construction activities—specifically, pre-loading of drainage swale embankments at Section 1/9—commenced in mid-March 2002. In addition to preparing the sub-grade for final cover in this area, the embankments were intended to provide interim drainage control.

Re-contouring activities at Section 1/9, which were projected to begin in late 2002, were delayed after demobilization of World Trade Center-related activities was completed later than planned. In addition, re-contouring activities at Section 6/7 took longer than planned, as discussed further in the discussion of Section 6/7 in this report. When re-contouring activities at Section 1/9 were initiated in 2003, work was shifted from the areas where materials from the World Trade Center were placed to other areas. This shift resulted from wellhead maintenance issues raised by GSF's notice of surrender of the concession for landfill gas control facilities. More that 2,000,000 cubic yards of sub-base grading material have been placed.

DSNY requested approval of several design equivalents and a design variance to the Section 1/9 and Section 6/7 Final Cover Design Reports in a submittal to NYSDEC of October 8, 2003. These equivalents and variances followed DSNY consideration of ways to facilitate post-closure maintenance and to expedite the implementation of closure construction without substantially revising the design. DSNY requested that NYSDEC review and approve each of these design variances and equivalences as an independent item. Following receipt of NYSDEC comments on these requests, responses to NYSDEC comments were submitted on December 22, 2003.

In addition to the design equivalents and design variance, alterations to the final cover design at Section 1/9 were made in 2003 as a result of the policy re-assessment regarding placement of waste material adjacent to remains from the World Trade Center. An alternate design for certain work specified in the Section 1/9 Final Cover Design Report was submitted to NYSDEC on October 23, 2003. Whereas the original design called for waste from a separate, smaller mound in the northeast portion of Section 1/9 to be relocated to the main mound, the alternate design called for use of clean fill at the main mound and final cover to be placed on the separate mound. The preliminary estimate of material needed for sub-base grading at Section 1/9 is approximately four million cubic yards. In January 2006, NYSDEC approved this alternate design.

Because of the need for clean fill material under the alternate final cover design, DSNY explored other sources of material for sub-base grading. Under the process described in an application for a Beneficial Use Determination (BUD) submitted to NYSDEC on November 24, 2003, processed dredge material (PDM) from the New York-New Jersey Harbor Estuary would be used as grading fill beneath the final cover. The PDM could be brought to the landfill by barge rather than by truck, thereby allowing the material to be delivered at a faster rate. Delivery of this material by barge also would reduce truck traffic to and from the landfill and respond to concerns of neighboring residents. The BUD was approved by NYSDEC on February 25, 2004 and modified in August 2005. In November 2005, PDM was being used to supplement other soils for the final cover sub-base grading. See Attachment V, sub-section 3.3.2.2 for additional information about the BUD.

In order to ensure marine access for the closure construction projects, a permit application for the maintenance dredging of Fresh Kills was completed and submitted to NYSDEC and the U.S. Army Corps of Engineers (USACE) on April 15, 2004. The NYSDEC permit was received in June 2004, and a draft USACE permit was issued in September 2004. These permits provide for dredging of Fresh Kills through 2014. Sub-base grading is planned to be completed in 2008, when final cover construction is planned to begin. Current plans anticipate the completion of closure construction in 2014.

1.6 Post-Closure Monitoring and Maintenance

The final Post-Closure Monitoring and Maintenance Operations Manual was submitted to NYSDEC on December 13, 2002, in accordance with Consent Order Appendix A-15. NYSDEC approved the manual on June 19, 2003. The procedures delineated in this manual were implemented during 2003; these procedures included monitoring and maintenance of the final cover and drainage systems; environmental monitoring; operation and maintenance of the leachate treatment plant and containment and collection system; and operation and maintenance of the landfill gas collection and control system.

1.7 Leachate Collection and Processing

Minimizing leachate requires an active leachate prevention program that includes implementing a variety of stormwater controls and applying the impermeable final cover described above. To manage the leachate that remains in the landfill mounds, DSNY constructed a collection and containment system from which leachate is conveyed to the Fresh Kills leachate treatment plant. The collection and containment system is composed of an underground cutoff wall around Sections 1/9 and 6/7, and a system of wells, pipes and pumps that collect and transmit the leachate to the treatment plant. In Sections 2/8 and 3/4, where final cover has already been placed, collection wells and drains collect leachate that is pumped to the treatment plant.

Construction of additional perimeter leachate drains at Sections 2/8 and 3/4 was completed in the summer of 2001. These additional drains, which are designed to collect up to 80% of the total leachate potentially emitted from Sections 2/8 and 3/4, were installed in settlement of a lawsuit that alleged that leachate from the closed sections of the landfill was not being adequately controlled.

The current capacity of the leachate treatment plant is more than one million gallons of leachate per day. The plant treats the ammonia, organic matter and several metals that are the primary constituents of leachate. Because treated leachate is discharged into local waterways, the leachate control program is designed to meet state water quality and other regulatory standards and is continually monitored by DSNY and the state.

The leachate treatment plant and leachate collection and containment system is operated and maintained by a contractor under DSNY's direction. DSNY issued a Request for Proposals for continuation of these services in August 2003. A minimum five-year contract to provide operation, maintenance and facility management for the Fresh Kills Landfill leachate system was executed in June 2004.

A modification to the leachate treatment plant's State Pollutant Discharge Elimination System (SPDES) permit was approved in June 2003, allowing the co-treatment of landfill gas condensate at the leachate treatment plant. DSNY began co-disposal/treatment of condensate in

August 2004 at one portion of the leachate treatment plant. Once the bacteria population was acclimated to this change, procedures were established to introduce all the condensate directly to the plant.

1.8 Long-Term Environmental Monitoring

An important component of the Landfill's closure plans is the 30-year post-closure environmental monitoring program, which defines long-term closure activities, environmental monitoring, post-closure requirements and end-use alternatives. Under the closure plans, DSNY will continue to operate and maintain the facilities and environmental monitoring infrastructure at the Landfill that control and monitor stormwater, leachate and landfill gas for at least 30 years after the Landfill is closed.

A revised long-term environmental monitoring plan was included in the Post-Closure Monitoring and Maintenance Operations Manual that was submitted to NYSDEC on December 13, 2002. NYSDEC approved the manual, including the long-term environmental monitoring plan, on June 19, 2003. The manual includes provisions for quarterly groundwater monitoring, annual surface water monitoring, biennial sediment and benthic ecology monitoring, and quarterly landfill gas migration monitoring.

The landfill gas migration monitoring well array was modified for the long-term environmental monitoring program included in the final Post-Closure Monitoring and Maintenance Operations Manual. The modified array was based on the perimeter of the entire Fresh Kills Landfill complex, rather than the perimeters of the four landfill sections, as was used previously. DSNY began using the modified array in July 2003.

2.0 FRESH KILLS END USE PLANS

DSNY, along with the Staten Island Borough President's Office; the City Departments of City Planning, Parks and Cultural Affairs; state and federal regulatory agencies; and others have been working together on the long-term planning process for the reuse of Fresh Kills. A necessary

component of this process is the development of a conceptual master plan for the landfill that, within the context of regulatory and infrastructure constraints, could provide for the gradual introduction of increasingly intensive and comprehensive land uses. Future Fresh Kills land uses could include restored habitats, open spaces, and active and passive recreation.

During 2001, the City initiated a design competition for an End Use Master Plan. By August 2001, 15 pre-qualified design teams submitted proposals for evaluation by a committee with representatives from DSNY and the City Departments of City Planning (NYDCP), Cultural Affairs, and Parks and Recreation (NYDPR), along with the New York State Departments of State and Environmental Conservation and the Municipal Arts Society. Six design teams were selected to prepare conceptual designs. The conceptual designs were submitted in December 2001, and evaluated by a jury comprised of design professionals and officials from the City and New York State.

An expanded scope of work was released in June 2002 to the three highest-ranked teams to negotiate a contract for the development of an End Use Master Plan. The expanded scope included public scoping of the end use design for the Fresh Kills site; public outreach; the environmental review and regulatory filing processes; and the design of early interventions planned for the site. The City received proposals in September 2002 and ranked the proposals.

The City with NYDCP taking the lead, entered into contract with a team led by Field Operations in July 2003 for development of the End Use Master Plan. The contract is overseen by a City multi-agency Contract Steering Committee, the goals of which are to provide guidance and recommendations to the planning process and to reflect input and data in each member's area of expertise.

The End Use Master Plan will shape future uses, open spaces, and general building design and layout; describe the infrastructure, such as roads and drainage systems, required to support the plan components; and provide recommendations for financing site improvements and stewardship, including natural resources management.

The proposed End Use Master Plan was presented for public comment during the spring of 2006. NYCDPR, the lead agency for the environmental review, conducted a public scoping process for the Generic Environmental Impact Statement (GEIS) that will support the final End Use Master Plan. A Draft GEIS for this project is anticipated to be issued in 2007.

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ATTACHMENT XI
ECONOMIC ANALYSIS OF IMPLEMENTING THE SWMP

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ECONOMIC ANALYSIS OF LONG TERM EXPORT SCENARIOS

1.0 BASIS OF ANALYSIS

This Attachment compares existing cost for the DSNY's total system with cost estimates for the SWMP. All estimates are presented in FY 2005 dollars. The comparison of the total system costs that DSNY incurred in FY 2005 and the estimated costs of the SWMP consider two SWMP scenarios: (i) estimated system cost for FY 2010, when the new facilities and service agreements that are part of the SWMP are assumed to be fully operational[1]; and (ii) estimated system cost for FY 2026, when the total diversion rate for Curbside and Containerized DSNY-managed Waste is assumed to be 35%.

The new facilities and programs reflected in these SWMP scenarios include the following.

- Construction, operation and maintenance of four MTSs (North Shore, Hamilton Avenue, Southwest Brooklyn and East 91st Street) by the City and one or more service agreements with private companies to transport and dispose of containerized waste from these MTSs;
- Delivery of DSNY-managed Waste to up to five private truck-to-rail transfer stations (up to two located in the Bronx, one in Queens and up to two in Brooklyn, each located in the wastesheds served) under 20-year service agreements with the owner/operators of these transfer stations for transfer, transport and disposal of containerized waste;
- Direct haul in DSNY vehicles of waste generated in Manhattan (excluding the wastesheds served by the East 91st Street Converted MTS) for disposal at the Essex County RRF under a 20-year service agreement;
- Delivery of Staten Island's DSNY-managed Waste to the Staten Island Transfer Station that is constructed and permitted, which DSNY will operate and for which DSNY has executed a Service Agreement with Allied Waste for transport and disposal of containerized waste;
- Delivery of MGP Recyclables from the Curbside Program to the new materials processing facility at the SBMT; and

[1] For purposes of this analysis, the total DSNY-managed Waste for export is assumed to be approximately 3,287,673 tpy or 10,886 tpd disposed and 1,114,900 tpy or 3,692 tpd recycled in FY 2010. This is equivalent to a diversion rate of 26.5% for Curbside and Containerized DSNY managed Waste.

- Delivery of Manhattan Recyclables from Curbside Program to the Manhattan Acceptance Facility for barge delivery of MGP to SBMT and Paper to Visy.

Reflecting the above scenarios, the FY 2010 and FY 2026 tons allocated to specific facilities are shown in Table XI 1-1. These allocations are the basis on which cost for the two SWMP scenarios are estimated in Table XI 1-2.

Table XI 1-1
Tonnage Allocation

Facility	TPD SWMP Allocation	TPD FY 2010	TPD FY 2026
New Export Facilities and Service Agreements			
Southwest Brooklyn Converted MTS	950	842	843
Hamilton Avenue Converted MTS	1,900	1,683	1,687
East 91st Street Converted MTS	720	631	582
North Shore Converted MTS	2,200	1,926	2,014
Bronx Truck to Rail TSs	2,100	1,802	1,862
Brooklyn Truck to Rail/Barge TSs	950	797	799
Queens Truck to Rail/Barge TS	1,200	1.094	1,203
Manhattan Direct Haul to Essex County RRF	1,680	1,472	1,428
Staten Island	920	639	716
Subtotal Export (1)	**12,620**	**10,886**	**11,266**
New Recycling Facilities and Service Agreements			
Recyclables processing at SBMT (2)	1,460	2,230	2,260
Manhattan Acceptance Facility (3)	NA	NA	NA

Notes:

(1) FY 2010 and 2026 Exported assume 26.9% and 35% Curbside and Containerized diversion to recycling, respectively. See Attachment II.

(2) Includes all MGP. Does not include portion of Curbside Paper delivered to Visy.

(3) Paper and MGP from this facility are delivered to Visy and SBMT, respectively. The MGP is accounted for in the estimated tons of Recyclables reported for the SBMT facility

2.0 SYSTEM COSTS

The estimated cost of the SWMP and the existing FY 2005 systems costs include the following categories: collection, recycling, waste transfer (inclusive of debt service, if applicable, and operating and maintenance costs for transfer stations), waste transport and disposal and administrative expenses. The FY 2005 costs are DSNY's actual audited costs. They included all collection, recycling, and transfer and disposal costs for interim export.

Estimates of costs for the two SWMP scenarios considered the following.

1. The estimated capital costs of constructing four MTSs and the Manhattan Acceptance Facility, which will be City financed facilities.
2. The operating and maintenance expenses of City operation of the Converted MTSs and the Staten Island Transfer Station, which will be funded in the City's expense budget.
3. The estimated cost of service agreements with private companies to transport and dispose of containerized waste from the four converted MTS and the Staten Island Transfer Station, which will be funded in the City's annual expense budget. These service agreements are inclusive of the amortization of any capital investments associated with transport and disposal and all operating, maintenance, insurance, overhead costs and profit.
4. The estimated cost of service agreements with private companies to receive, containerize, transport and dispose of DSNY-managed Waste, which will be funded in the City's annual expense budget. These service agreements are inclusive of the amortization of any required facility capital modifications at the transfer stations and capital investments associated with transport and disposal and all operating, maintenance, insurance, overhead costs and profit.
5. The estimated cost of a service agreement with SHN to finance, construct and operate the material recovery facility at SBMT and the cost of a service agreement with a private company to operate the Manhattan Acceptance facility.
6. The SWMP costs do not include potential savings achieved as a result of changes in the collection practices and relay routing.

DSNY has received a number of proposals in response to five RFPs issued for Long Term Export of DSNY-managed Waste. These are active procurements that are still subject to negotiations and awards. The SWMP cost estimate is based on engineering estimates and the current state of these procurements. The actual future costs, however, will depend on market conditions, including construction costs, energy prices, steel prices, and interest rates at the time

each project is initiated. Because market conditions may vary significantly from the assumptions used in this analysis, the actual costs are likely to be different that those presented below. In addition, there are significant technical and/or permitting requirements associated with development of each potential Converted MTS site. Therefore, the cost estimates in this analysis should be viewed on a comparative basis and not as absolutes or an indicator of the actual future cost of these actions.

3.0 RESULTS

Table XI 1-2 presents the estimates of the total cost of collection, recycling, transfer (facility debt service and operating and maintenance costs), transportation and disposal costs allocated into Collection (including transfer, transport and disposal), Cleaning, Recycling, Paid/Free Disposal cost categories. Costs are presented in this way to be consistent with the cost allocations routinely reported by DSNY (e.g., FY 2005 actual costs) and to avoid inadvertently providing information related to the active procurements. Additionally, reporting results in constant dollars eliminates the effects of general inflation in the economy from the results and shows changes in costs among the three scenarios that reflect the following:

- The costs of fully implementing the export and recycling systems compared to the existing system; and
- The relative economic effects of increasing diversion to recycling for DSNY's curbside and containerized waste to 35% while population growth increases the overall size of the waste stream being managed.

Table XI 1-2
Proposed Action Long Term Export
Estimated Annual Costs[1] for Waste Transfer, Transportation and Disposal by Scenario

System Cost Category	Existing System Actual FY 2005	Fully Implemented System	Fully Implemented Diversion
Collection[2]	$890,700,000	$1,021,700,000	$1,025,900,000
Cleaning	$157,500,000	$157,500,000	$157,500,000
Recycling[3]	$241,500,000	$256,700,000	$260,000,000
Paid/Free Disposal	$12,300,000	$12,300,000	$12,300,000
Total	$1,302,000,000	$1,448,200,000	$1,455,700,000

Notes

(1) Costs are estimated in constant FY 2005 dollars.

(2) Cost of Collection includes the cost of collection, transfer, transport and disposal but does not include potential savings achieved as a result of changes in the collection practices and relay routing.

(3) Cost of Recycling does not include the costs of any new programs except for the material processing facility at SBMT and the Manhattan acceptance facility.

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ATTACHMENT XII

LIST OF SWMP REPOSITORIES

List of Repositories for SWMP

Repository Location	Repository Address	Days and Hours of Operation	Phone Number
Manhattan			
Manhattan CB 8 Office	505 Park Avenue	call for days and hours	(212) 758-4340
96th Street Public Library	112 East 96th Street	call for days and hours	(212) 289-0908
Manhattan CB 9 Office	565 West 125th Street	call for days and hours	(212) 864-6200
George Bruce Public Library	518 West 125th Street	call for days and hours	(212) 662-9727
Manhattan CB 4 Office	330 West 42nd Street, 26th Floor	call for days and hours	(212) 736-4536
Riverside Public Library	127 Amsterdam Avenue	call for days and hours	(212) 870-1810
Brooklyn			
Brooklyn CB 7 Office	4201 4th Avenue	call for days and hours	(718) 854-0003
Sunset Park Public Library	5108 Fourth Avenue at 51st	call for days and hours	(718) 567-2806
Brooklyn CB 11 Office	2214 Bath Avenue	call for days and hours	(718) 266-8800
New Utrecht Public Library	1743 86th Street	call for days and hours	(718) 236-4086
Brooklyn CB 1 Office	435 Graham Avenue	call for days and hours	(718) 389-0009
Leonard Public Library	8 Devoe Street	call for days and hours	(718) 486-3365
Queens			
Queens CB 2 Office	43-22 50th Street, Woodside	call for days and hours	(718) 533-8773
Court Square Public Library	25-01 Jackson Avenue, Long Island City	call for days and hours	(718) 937-2790
Queens CB 7 Office	45-35 Kissena Boulevard, Flushing	call for days and hours	(718) 359-2800
Mitchell-Linden Public Library	29-42 Union Street, College Point	call for days and hours	(718) 539-2330
Bronx			
Bronx CB 2 Office	1029 East 163rd Street	call for days and hours	(718) 328-9125/6
Hunts Point Public Library	877 Southern Boulevard	call for days and hours	(718) 617-0338
Bronx CB 1 Office	384 East 149th Street	call for days and hours	(718) 585-7117
Woodstock Public Library	761 East 160th Street	call for days and hours	(718) 665-6255
Staten Island			
St. George Library Center	5 Central Avenue	call for days and hours	(718) 442-8560
Office of the Borough President Attn: Nicholas Dmytryszn	Borough Hall, Room 120	M-F, 9 AM – 5 PM	(718) 816-2200

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