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

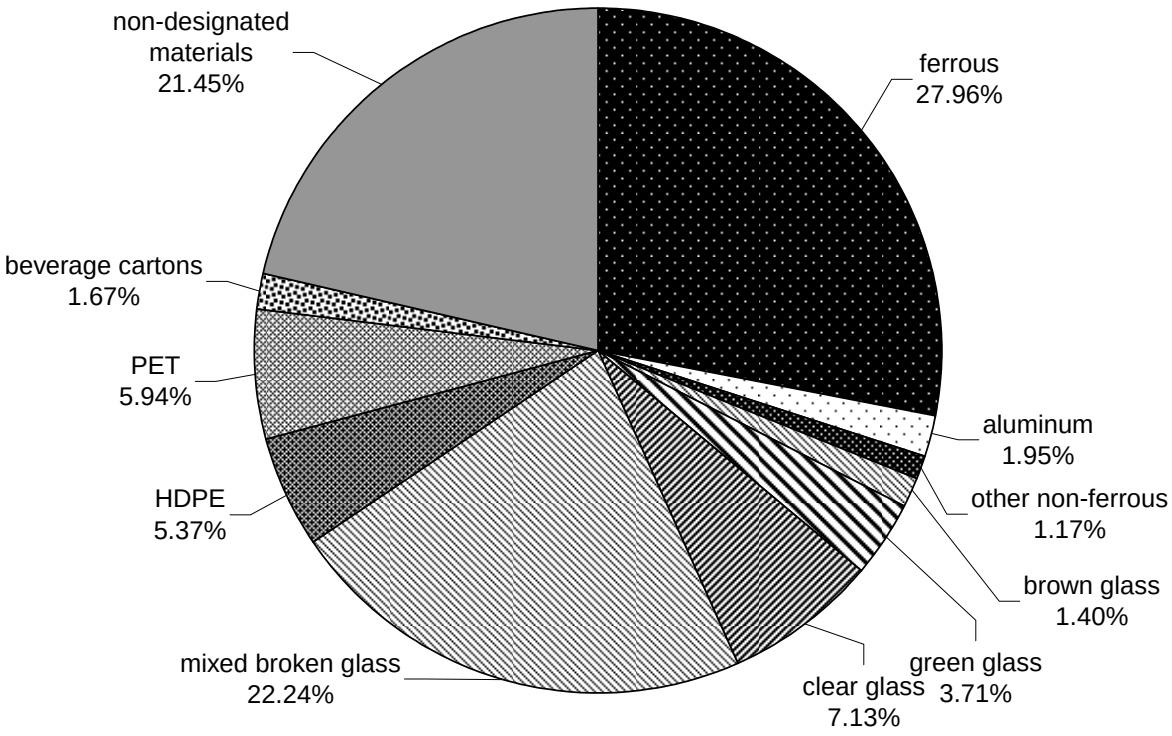


Table 2.4-1
MGP Composition: Processor Versus Preliminary Waste Characterization Sort Data

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.

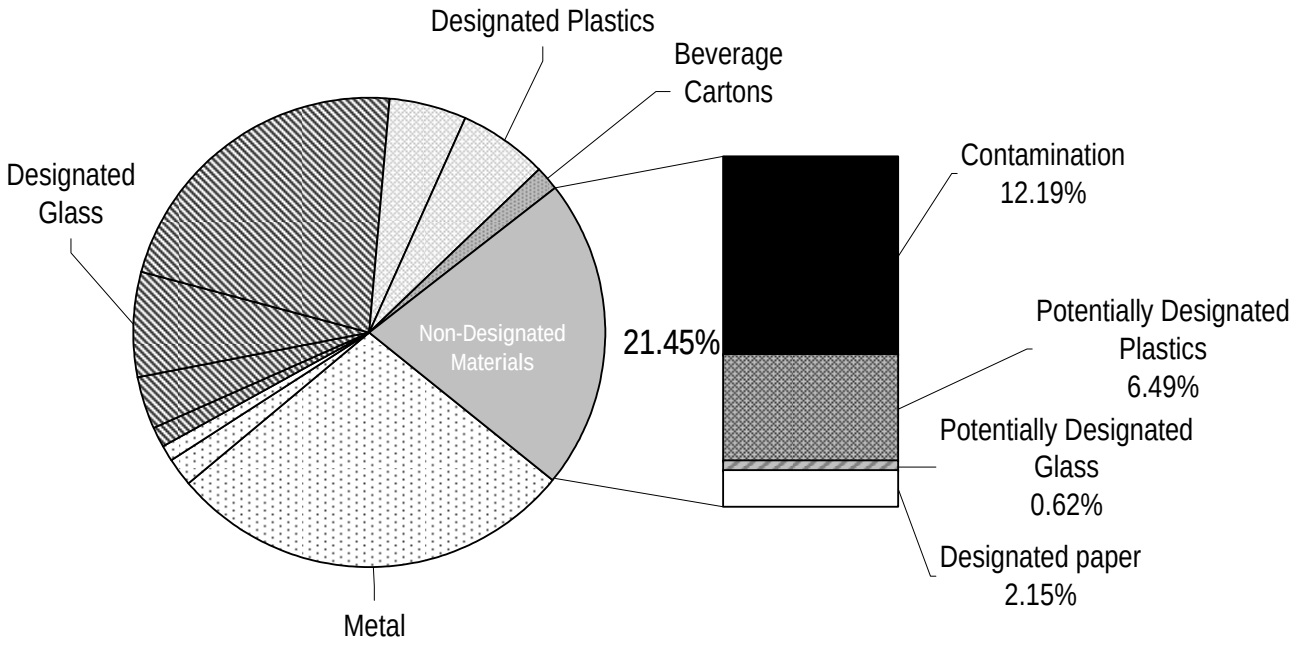
2.4.2.1.2 Non-Designated Materials

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

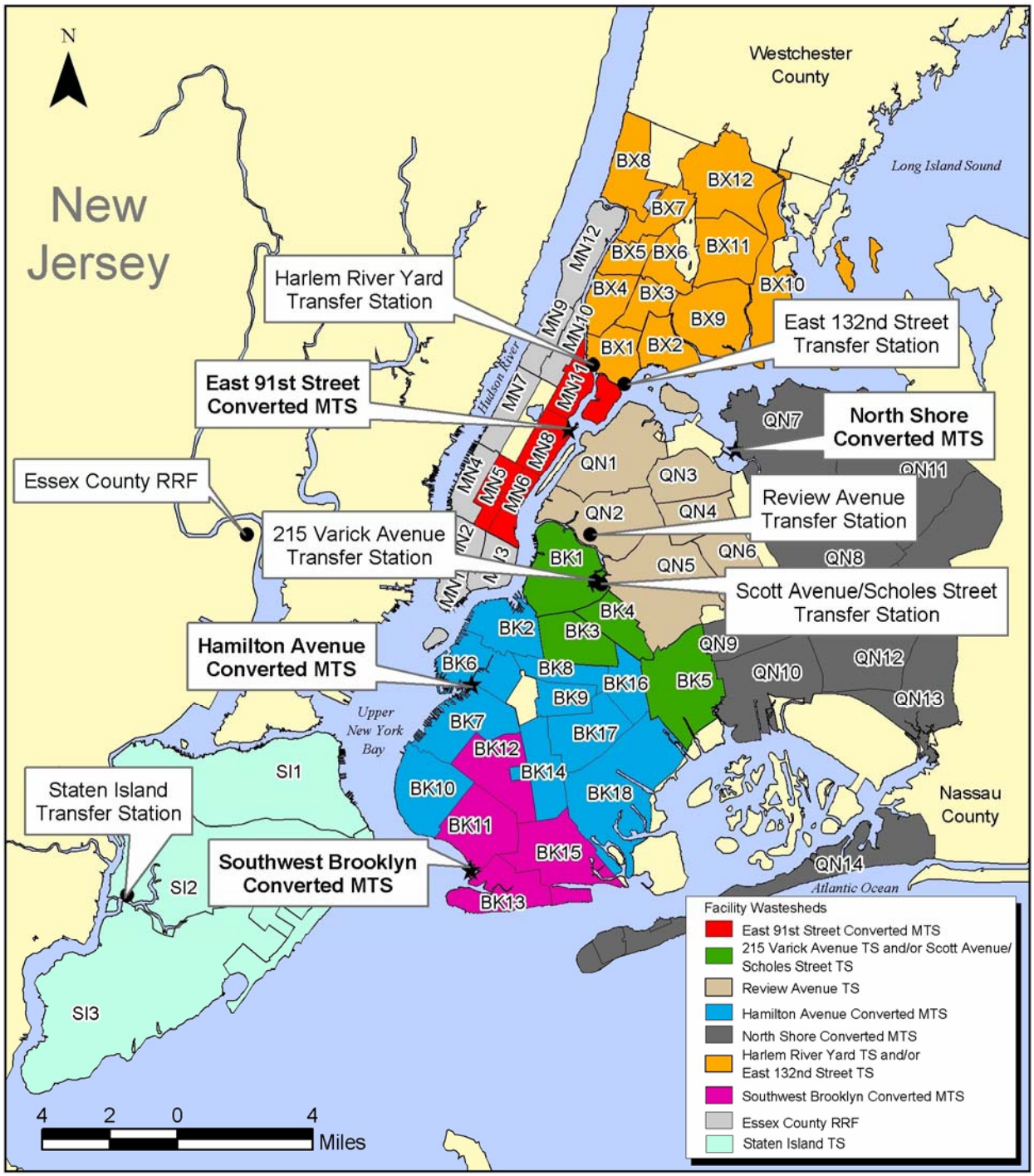


Table 3.3-1
Proposed SWMP Long Term Export Facilities and Potential Contractors

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

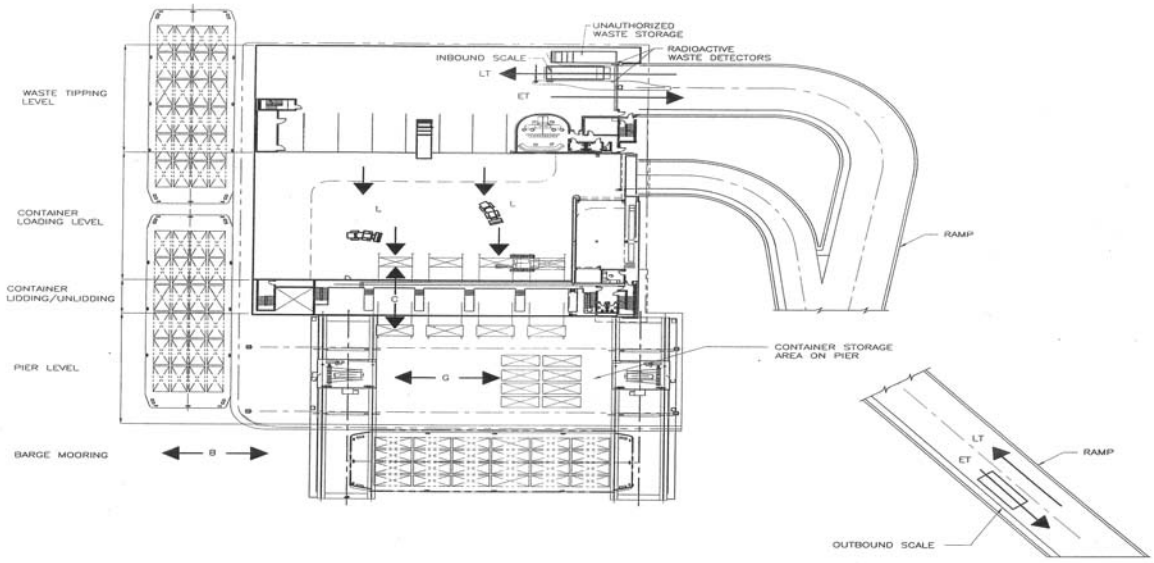
The four Converted MTS facilities have a common three-level processing building design. Figure 3.4-1 provides a schematic of plan and section views of a typical Converted MTS that depicts the following operational features:

- 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.

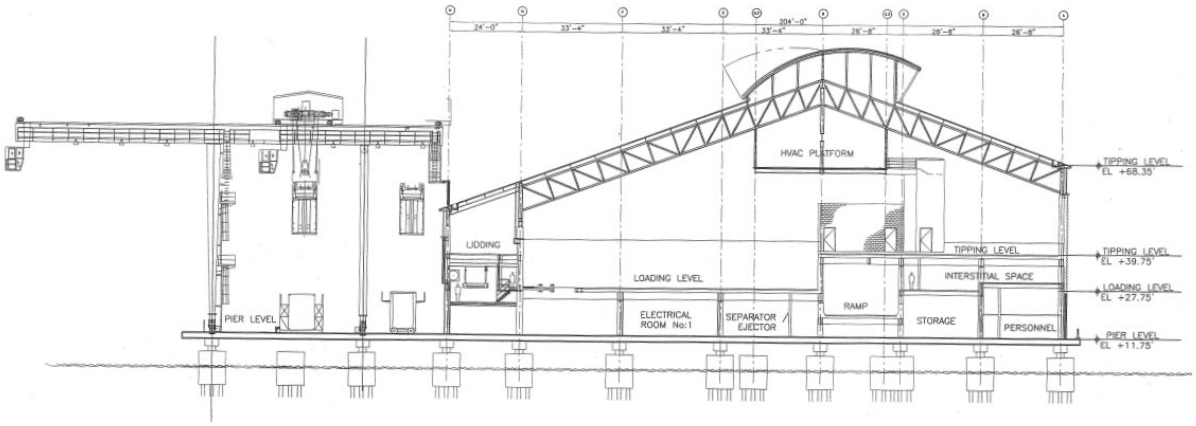
The intermodal containers are approximately 20 feet long, 12 feet high and 8½ feet wide. They are capable of holding approximately 62 cubic yards of refuse. The density of the waste entering the container is increased from approximately 450 pounds per cubic yard to approximately 700 pounds per cubic 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.