FINAL COMPREHENSIVE SOLID WASTE MANAGEMENT PLAN

EXECUTIVE SUMMARY

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

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

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

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

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

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

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

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

AN OVERVIEW OF THE SWMP

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

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

RECYCLING

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

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

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

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

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

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

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

RESIDENTIAL WASTE

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

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

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

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

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

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

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

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

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

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

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

COMMERCIAL WASTE

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

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

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

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

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

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

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

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

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

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

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

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

OTHER INITIATIVES

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

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

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

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

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

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

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

SUMMARY

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

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

RECYCLING

Initiatives

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

Goals

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

RESIDENTIAL WASTE

Initiatives

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

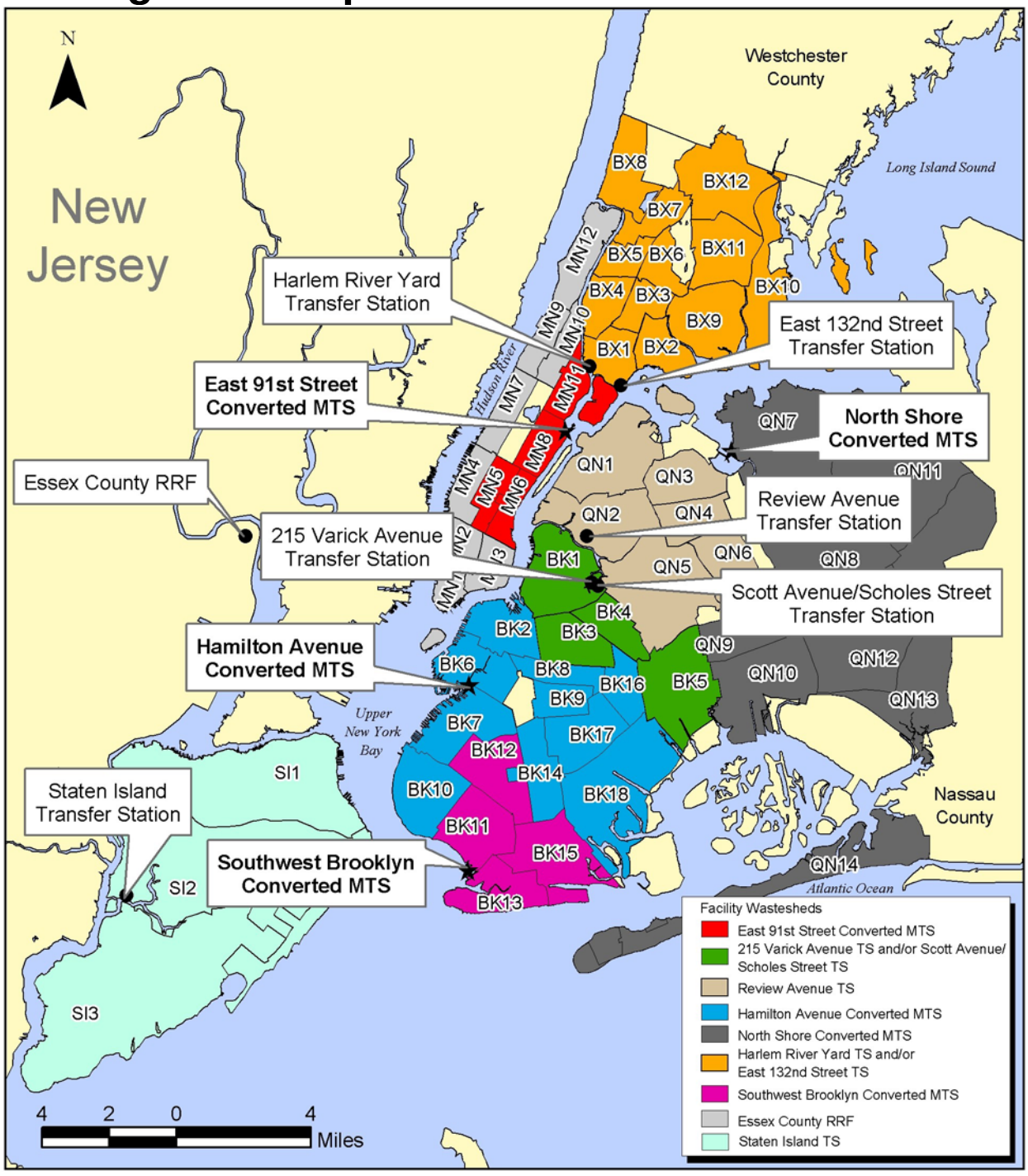
Goals

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

COMMERCIAL WASTE

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

Long-Term Export Facilities and Wastesheds



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