COMMERCIAL WASTE MANAGEMENT STUDY

VOLUME I

PRIVATE TRANSFER STATION EVALUATIONS:

- **Four Study Areas with Transfer Stations in Geographical Proximity**
- **Engineering and Operations Survey of Selected Transfer Stations**
- **Effectiveness of Enforcement**

March 2004

Prepared for:

New York City Department of Sanitation
for submission to the New York City Council

Prepared by:

Henningson, Durham & Richardson
Architecture and Engineering, P.C.

and its
Subconsultants

This report was prepared by

Henningson, Durham & Richardson
Architecture and Engineering, P.C.

and its
Subconsultants

PREFACE

Local Law 74 of 2000 (LL74) mandated a comprehensive study of commercial waste management (Commercial Waste Management Study or Study) in New York City (City) by a Consultant funded by the City Department of Sanitation (DSNY). This Study undertaken to comply with LL74 will assist the City in managing the commercial waste stream in the most efficient and environmentally sound manner, and assist in the development of the City's Solid Waste Management Plan (New SWMP) for the New SWMP Planning Period.

Volume I addresses the following topics, as specified in LL74:

1. *"the effectiveness of procedures employed and the criteria applied by the department for the issuance and renewal of permits for the operation of putrescible and non-putrescible solid waste transfer stations in minimizing potential adverse environmental, economic and public health impacts on the communities in which such transfer stations are located by examining such issues as (i) the effectiveness of the criteria applied by the department to the siting of putrescible and non-putrescible solid waste transfer stations, including the aggregate effect of the geographic proximity of solid waste transfer stations to each other and (ii) the scope and effectiveness of the operational restrictions imposed upon putrescible and non-putrescible solid waste transfer stations, including the hours of operation and any performance standards established in the zoning resolution of the city of New York;*

2. *the manner in which all applicable laws, rules and regulations relating to the operation of putrescible and non-putrescible solid waste transfer stations, private carters and long haul transport vehicles are enforced, including who should be responsible for such enforcement, and the effectiveness of such enforcement in obtaining compliance with such laws, rules and regulations and in minimizing potential environmental, economic and public health impacts and an analysis of rules relating to routes for transporting material to or from such transfer stations; . . . and*

3. *potential environmental, economic and public health impacts on communities in which large numbers of privately-owned putrescible and non-putrescible solid waste transfer stations are located such as, but not limited to, potential impacts related to air quality, water quality, odors, traffic congestion and noise."*

In addition to this Volume I, the Study consists of five other volumes:

- Volume II: Commercial Waste Generation and Projections;
- Volume III: Converted Marine Transfer Stations – Commercial Waste Processing and Analysis of Potential Impacts;
- Volume IV: Evaluation of Waste Disposal Capacity Potentially Available to New York City;
- Volume V: Manhattan Transfer Station Siting Study; and
- Volume VI: Waste Vehicle Technology Assessment.

This volume, Volume I: Private Transfer Station Evaluations, reports the results of three inter-related evaluations focused on privately owned and operated Transfer Stations:

- **Four Study Areas with Transfer Stations in Geographical Proximity** – which examines potential areas of overlapping effects from Transfer Stations in geographical proximity to each other within four Study Areas.

- **Engineering and Operations Survey of Selected Transfer Stations** – which surveyed selected Transfer Stations to identify means and measures to improve their environmental performance.

- **Effectiveness of Enforcement –** which evaluates the existing enforcement activities that govern Transfer Stations under City and state rules and regulations.

The reports and appendices that provide the analyses and data in support of this Executive Summary are:

"Summary Report on Four Study Areas with Transfer Stations in Geographical Proximity," and its **Appendices and Attachments:**

Appendix A: Neighborhood Character Summary

Appendix B: On-Site Prototype Designs

Appendix C: On- and Off-Site Air Quality Protocol

Appendix D: Odor Sampling

Appendix E: Odor Modeling Methodology

Appendix F: On- and Off -Site Noise Protocol

Appendix G: Water Quality Assessment Summary

Appendix H: Traffic Protocol

Appendix I: Public Health Evaluation of Multi-Facility Effects

Appendix J: Engineering and Operations Survey of Selected Transfer Stations

Appendix K: Effectiveness of Enforcement

Attachment: Technical Backup Data (Available on Request from DSNY Bureau of Long Term Export, Assistant Commissioner, Harry Szarpanski, P.E., (917) 237-5501)

DSNY regulates[1] the privately owned putrescible, non-putrescible and fill material Transfer Stations that are authorized to receive and process these categories of waste materials. The New York State Department of Environmental Conservation (NYSDEC) also regulates[2] the design, construction and operation of Transfer Stations. These Transfer Stations process three types of waste, as defined in DSNY rules:

1. *"Putrescible waste" is solid waste containing organic matter having the tendency to decompose with the formation of malodorous by-products. Putrescible waste generated by the City's businesses is principally office and retail waste with small quantities of putrescible material, but also includes restaurant and other waste. Significant amounts*

[1] DSNY's regulatory authorities derive from Titles 16, 17 and 25 of the New York City Administrative Code (NYCAC), Title 16 of the Rules of the City of New York (RCNY) and the City Environmental Quality Review (CEQR) Procedures.

[2] NYSDEC's regulatory authority derives from Title 6 of New York Codes, Rules and Regulations (NYCRR), Part 360 and Title 6 NYCRR Part 617 under the state's Environmental Conservation Law (ECL).

of office waste are recycled directly at the source by carters that primarily collect recyclable office paper from commercial buildings and deliver it to recyclers, exporters or paper manufacturers. Consistent with DSNY rules, putrescible waste referred to in this report includes the portions of commercial putrescible waste that are both disposed and recycled (such as office paper).

2. *"Non-putrescible" waste is waste that does not contain organic matter having the tendency to decompose with the formation of malodorous by-products, including but not limited to dirt, earth, plaster, concrete, rock, rubble, slag, ashes, waste timber, lumber, Plexiglas, fiberglass, ceramic tiles, asphalt, sheetrock, tar paper, tree stumps, wood, window frames, metal, steel, glass, plastic pipes and tubes, rubber hoses and tubes, electric wires and cables, paper and cardboard.*

3. *"Fill material" is a subset of non-putrescible waste and, as defined in DSNY rules, is clean material consisting of earth, ashes, dirt, concrete, rock, gravel, asphalt millings, stone or sand.*

EXECUTIVE SUMMARY

Privately owned and operated commercial waste Transfer Stations play a vital role in the City's solid waste management system. Putrescible Transfer Stations currently transfer approximately 6,200 tons per day (tpd)[3] of commercial waste and 7,250 tpd of DSNY-managed Waste disposed by City residents, agencies and not-for-profit institutions to disposal facilities outside the City. Non-putrescible and fill material Transfer Stations play a similarly important role in the recycling and disposal of C&D debris and excavation material, with approximately 8,630 tpd and 19,070 tpd handled at these facilities in 2003, respectively. While critical to the City's waste infrastructure, these facilities must operate and be maintained in an environmentally sound manner, and in accordance with City and state rules and regulations. This volume consists of three independent but inter-related studies on Transfer Stations located throughout the City that examine the effects of geographical proximity in four Study Areas, assess whether the enforcement of existing regulations and the permitting procedures and criteria are effective, and recommend practical means to improve the operation of these facilities which may impact upon the quality of life in the surrounding communities.

It is important to note in this Study that DSNY's Marine Transfer Station (MTS) Conversion Program relies on shipping DSNY-managed Waste by barge and rail, and so is expected to reduce the numbers of trucks currently hauling DSNY-managed Waste from private Transfer Stations for disposal. Moreover, DSNY has taken the initiative to issue three Requests for Proposals (RFPs) solicitations to private vendors that may result in the award of a contract that would have the effect of reducing transfer trailer truck traffic associated with the transport of commercial waste in the Study Areas. Specifically, DSNY long-term export RFPs seek vendor proposals to containerize DSNY-managed Waste at private transfer facilities and transport it out of the City by barge or rail. These RFPs seek alternatives to the rebuilding of the Greenpoint and Bronx MTSs, and a contract entered into by the City would specify that <u>all</u> waste (not just DSNY-managed Waste) accepted at Transfer Stations on which proposals are based be containerized and transported out of the City by barge or rail. This would have the potential effect of significantly reducing the volume of outbound traffic from Transfer Stations in portions of Brooklyn, Queens and the Bronx.

The approach taken and findings for each of these studies is summarized below.

Four Study Areas with Transfer Stations in Geographical Proximity

Scope of Analysis/Approach

The objective of the Study Area analysis was to evaluate whether areas with a number of Transfer Stations in geographical proximity have the potential of producing overlapping environmental effects on air quality, odor, noise, neighborhood character and water quality. In addition, the off-site effects of these facilities on traffic, air quality and noise from mobile sources (Waste Hauling Vehicles) were analyzed. The potential public health effects of the findings of these evaluations were also considered.

The Study Areas were selected based upon a review of the location and geographical proximity of the 69 operating private Transfer Station in the five boroughs. Four Study Areas encompassing 43 of the facilities were identified for analysis: Port Morris, Bronx Community District (CD) #1; Hunts Point, Bronx CDs #2 and #9; Jamaica, Queens CD #12; and Brooklyn CD #1 (primarily East Williamsburg, but including three facilities with four permits in Queens). Table ES-1 shows the names, locations and types of Transfer Stations in each Study Area.

[3] Tons per day are calculated on the basis of a six-day week, 312-day year.

Table ES-1
Permitted Commercial Waste Transfer Stations within Study Areas

Name	Address	Type Of Transfer Station
Port Morris, Bronx CD #1		
Bronx County Recycling	475 Exterior Street	Fill
Felix Equities	290 East 132nd Street	Fill
Tilcon NY	980 East 149th Street	Fill
USA Waste Services of NY (Waste Management)	98 Lincoln Avenue	Putrescible
USA Waste Services of NY (Waste Management) (1)	132nd Street & Saint Ann's Avenue	Putrescible (Intermodal)
Waste Services of NY	920 East 132nd Street	Putrescible
Total Number in Port Morris, Bronx CD #1 Study Area		**6**
Hunts Point, Bronx CDs #2 and #9		
A.J. Recycling	325 Faile Street	Non-Putrescible
Bronx City Recycling	1390 Viele Avenue	Fill
G. M. Transfer	216-222 Manida Avenue	Non-Putrescible
Kids Waterfront Corp.	1264 Viele Avenue	Non-Putrescible
IESI NY Corp	325 Casanova Street	Putrescible
John Danna and Sons	318 Bryant Avenue	Non-Putrescible
Metropolitan Transfer Station	287 Halleck Street	Putrescible
Paper Fibers Corp.	960 Bronx River Avenue	Putrescible
Waste Management of NY (1)	Oak Point & Barry Avenue	Putrescible (Intermodal)
Waste Management of NY	620 Truxton Street	Non-Putrescible
Waste Management of NY	315 Baretto Street	Non-Putrescible
Total Number in Hunts Point, Bronx CDs #2 and #9 Study Area		**11**

Table ES-1 (Continued)
Permitted Commercial Waste Transfer Stations within Study Areas

Name	Address	Type Of Transfer Station
Brooklyn CD #1		
Point Recycling Ltd	686 Morgan Avenue	Non-Putrescible
Waste Management of NY [2]	75 Thomas Avenue	Non-Putrescible
Waste Management of NY[2]	485 Scott Avenue	Putrescible
Waste Management of NY	215 Varick Avenue	Putrescible
Waste Management of NY	123 Varick Avenue	Non-Putrescible
Waste Management of NY	232 Gardner Avenue	Non-Putrescible
Maspeth Recycling [3]	58-08 48th Street	Fill
IESI NY Corp	548 Varick Avenue	Non-Putrescible
Astoria Carting Company [3]	538-545 Stewart Avenue	Non-Putrescible
City Recycling Corp	151 Anthony Street	Non-Putrescible
Cooper Tank and Welding	222 Maspeth Avenue	Non-Putrescible
Pebble Lane Associates [3]	57-00 47th Street	Fill
Keyspan Energy	287 Maspeth Avenue	Fill
New Style Recycling Corp [2][3]	49-10 Grand Avenue	Putrescible
New Style Recycling Corp [2][3]	49-10 Grand Avenue	Non-Putrescible
BFI Waste Systems of NJ [4]	598-636 Scholes Street	Putrescible
BFI Waste Systems of NJ [4]	594 Scholes Street	Non-Putrescible
BFI Waste Systems of NJ [4]	575 Scholes Street	Non-Putrescible
BFI Waste Systems of NJ	115 Thames Street	Putrescible
Hi-Tech Resource Recovery	130 Varick Avenue	Putrescible
Total Number in Brooklyn CD #1 Study Area		**20**

Table ES-1 (Continued)
Permitted Commercial Waste Transfer Stations within Study Areas

Name	Address	Type Of Transfer Station
Jamaica, Queens CD #12		
American Recycling Management [2]	172-33 Douglas Avenue	Putrescible
American Recycling Management [2]	172-33 Douglas Avenue	Non-Putrescible
Regal Recycling [2] [5]	172-06 Douglas Avenue	Putrescible
Regal Recycling [2] [5]	172-06 Douglas Avenue	Non-Putrescible
T. Novelli [2]	94-07 Merrick Avenue	Fill
T. Novelli [2]	94-20 Merrick Avenue	Non-Putrescible
Total Number in Jamaica, Queens CD #12 Study Area		**6**
Total Number of Transfer Stations Evaluated		**43**

Notes:
[1] These two facilities are permitted as intermodal terminals that ship containerized waste by rail. No waste processing is conducted at these sites.
[2] Denotes one facility with two permits.
[3] Four Transfer Stations on the Brooklyn CD #1 list are actually in Queens near the border of Brooklyn but were evaluated as part of the Brooklyn CD #1 Study Area.
[4] These three locations constitute one facility with three DSNY permits under state regulations.
[5] Regal Recycling is enclosing the non-putrescible waste processing operations; therefore, this facility was modeled as an enclosed non-putrescible Transfer Station.

First, current conditions (including the presence of the Transfer Stations) in each of the Study Areas were evaluated. Second, the conditions without the Transfer Stations were evaluated to determine the net contribution of the Transfer Stations. Third, the conditions without the Transfer Stations, but with assumed other industrial uses occupying the same sites, were evaluated assuming the Transfer Stations were replaced by as-of-right general light industrial land uses (e.g., printing plants, laboratories) in the Study Area. This land use replacement scenario assumed that the Transfer Station land uses would be occupied by other M-zone land uses typical of current conditions in the Study Area. The off-site effects of these replacement land uses were calculated using trip generation rates published by the Institute of Transportation Engineers (ITE).

Analyses were conducted for: (1) air quality, odor, noise, neighborhood character, public health and water quality from Transfer Stations located within each Study Area; and (2) traffic, off-site air quality and off-site noise at key intersections/locations along major corridors leading to and from the Study Areas. Although this evaluation is not an environmental review, it uses City

Environmental Quality Review (CEQR) and other planning and engineering review criteria as the best available measure of the environmental effects of Transfer Stations on the surrounding community. Standard models for air quality (United States Environmental Protection Agency [USEPA]-approved Industrial Source Complex Short Term [ISCST3], CAL3QHCR, MOBILE5b and Part 5), noise (Federal Highway Administration's [FHWA's] Traffic Noise Model [TNM] 2.1) and traffic (Highway Capacity Software [HCS] version 4.1c) were used to predict combined effects of the Transfer Stations.

Criteria were identified for each environmental parameter, as described in the "Summary Report on Four Study Areas with Transfer Stations in Geographical Proximity." If the criteria were not exceeded, the Study Area analysis concludes that the overlapping effects of the Transfer Stations were not considered to be adverse. If these criteria were exceeded, means of reducing environmental effects through operational measures or design modifications were identified and then evaluated. If the current conditions for traffic and its attendant effects still exceeded the applicable criteria, further analysis was undertaken, as more fully described in the Summary Report.

Findings and Recommendations

Air quality, odor, noise, traffic, neighborhood character and water quality analyses were conducted to evaluate the potential effects from the geographic proximity of the Transfer Stations within the Study Areas. The analyses modeled areas where the potential effects of Transfer Stations in proximity to each other overlapped (combined effects) and evaluated whether these effects were potentially adverse. It considered combined effects at sensitive receptors in these areas of overlap in manufacturing zones -- for example non-conforming residences, not just contiguous residential zones -- but did not consider new siting actions. The overall results of the Study Area analyses show that the geographical proximity of the existing Transfer Stations in these Study Areas do not cause adverse combined or cumulative effects using reasonable criteria adapted from the CEQR and planning and engineering criteria. There are no findings in the Study Area analyses that indicate there are combined adverse effects to the environment from existing Transfer Stations that would warrant a reduction in the number and capacity of Transfer Stations in the Study Area.

The Study makes certain recommendations for, among other things, better odor control systems at putrescible Transfer Stations to improve the operations and to limit the effects of Transfer Stations. As described in the Volume I, Summary Report, the regulatory regime for siting of new Transfer Stations in the City consists of zoning, operating requirements, siting restrictions, environmental review, the state's detailed Part 360 regulations, the City's Noise and Air Codes, and Vehicle and Traffic Laws. Together the application of these current requirements would tend to mitigate the potential for adverse impacts from a future siting action.

1. ***On-site Air Quality***: The maximum predicted combined contribution of existing Transfer Stations in the Study Area combined with background levels from the closest air quality monitor showed results all below National Ambient Air Quality Standards (NAAQS) for criteria pollutants (carbon monoxide [CO], sulfur dioxide [SO_2], nitrogen dioxide [NO_2] and particulate matter less than 10 microns in diameter [PM_{10}]). For particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), the maximum predicted annual neighborhood average from combined on-site and off-site sources ranges from 1% to 6% of contribution to the latest monitored concentration from the nearest monitoring station within each Study Area.

2. ***On-site Odor:*** Sampling of odors was undertaken in the summer when odor generation from waste decomposition would be at its highest. A review of the controlled and uncontrolled odor emissions from the same facilities revealed that the controlled Transfer Station emissions were no more than 38% lower than the uncontrolled facilities, and in some cases the controlled emissions were deemed higher than the uncontrolled emissions, which is most likely due to the use of scented masking agents instead of more effective neutralizing agents to control odors. The highest frequency of conservatively predicted odor levels exceeding the criteria, assuming no odor controls, was for a receptor in the Brooklyn CD #1 Study Area, where the model predicted an exceedance just under 0.82% of the time (72 non-consecutive hours per year). If more effective (90% efficient) odor controls were implemented at all commercial putrescible waste facilities, the odor levels would be reduced substantially (by 90%), and there would be no overlapping contributions from multiple Transfer Stations in the Study Areas.

3. ***On-site Noise:*** Transfer Stations in the Port Morris, Bronx CD #1 Study Area do not have overlapping noise effects because they are not located in close proximity to each other. However, there were areas of potential overlapping effects from multiple Transfer Stations in Brooklyn CD #1; Jamaica, Queens CD #12; and Hunts Point, Bronx CDs #2 and #9 Study Areas, but the analyses did not predict effects at sensitive receptors located within these Study Area overlap areas. Waste Hauling Vehicles queuing on and off site make the greatest contributions to noise levels. The removal of off-site queuing of Waste Hauling Vehicles reduces noise levels attributable to overlapping effects.

4. ***Traffic:*** Fifty-eight (58) intersections were analyzed in the Study Areas for the traffic analysis. Results indicate that many of the intersections operate at an overall level of service (LOS) C or better under current conditions (six in Port Morris, Bronx CD #1 Study Area; seven in Hunts Point, Bronx CDs #2 and #9 Study Area; 16 in Jamaica, Queens CD #12 Study Area and 23 in Brooklyn CD #1 Study Area). The current conditions at six of the intersections in the Study Areas operate at an overall LOS D, E or F.[4] The percentage of Waste Hauling Vehicles analyzed ranged from 0% to 7% of the total number of vehicles traveling through the intersections during the hours analyzed. Subtracting the Waste Hauling Vehicles from the analysis did not significantly improve the LOS at any intersection analyzed. And when replacement industry trips (that is, traffic that would be generated by other light industrial uses for the Transfer Station sites if the Transfer Stations were absent) were substituted for Waste Hauling Vehicles in the analysis, the LOS remained the same or deteriorated.

5. ***Off-site Air Analysis:*** For the mobile air quality analyses, current conditions were analyzed at two "worst case" links each in the Port Morris, Bronx CD #1 and the Hunts Point, Bronx CDs #2 and #9 Study Areas and at four links each in Brooklyn CD #1 and Jamaica, Queens CD #12. In all instances, results are below NAAQS for all the criteria pollutants. For $PM_{2.5}$, the 24-hour maximum contribution from off-site emission sources

[4] Brooklyn CD #1 Study Area: (1) Meeker Avenue and Union Avenue, and (2) Flushing Avenue/Melrose Street and Varick Avenue/Irving Avenue; Port Morris, Bronx CD #1 Study Area: (1) Bruckner Boulevard and Alexander Street; Hunt's Point, Bronx CDs #2 and #9 Study Area: (1) Hunt's Point Avenue and Bruckner Boulevard, (2) Longwood Avenue and Bruckner Boulevard, and (3) Leggett Avenue and Bruckner Boulevard.

ranged from 0.03 to 1 μg/m^3 (or 0.08% to 2.4% of the latest monitored concentration). The annual neighborhood maximum contribution from off-site emission sources ranges from 0.01 to 0.17 μg/m^3 (or 0.08% to 0.9% of the latest monitored concentration).

7. ***Off-site Noise:*** Two levels of screening were conducted on 23 locations where sensitive receptors exist near convergence points along truck routes to and from the Study Areas -- eight in Port Morris, Bronx CD #1; four in Hunts Point, Bronx CDs #2 and #9; six in Brooklyn CD #1; and five in Jamaica, Queens, CD #12. The first level of screening used total traffic volumes and axle factors from the New York State Department of Transportation (NYSDOT) to conservatively estimate the existing traffic volumes, and whether the addition of Waste Hauling Vehicles would have the potential to double passenger car equivalent (PCE) noise levels, requiring a further evaluation of potential effects (first-level screening).[5] Based on this first-level screening, 17 locations (five in Port Morris, Bronx CD #1; four in Hunts Point, Bronx CDs #2 and #9; three in Brooklyn CD #1; and five in Jamaica, Queens, CD #12) were identified for further screening (second-level screening) using actual field traffic classification counts at these locations to determine the potential for doubling PCEs. Based on this second-level screening, five locations (two locations in Brooklyn CD #1 and three locations in Jamaica, Queens, CD #12) were identified for modeling using Federal Highway Administration's (FHWA's) Traffic Noise Model (TNM) version 2.1. Predicted results from TNM modeling at these five locations were compared to the Study noise threshold (an increase in 3dBA or greater attributable to the Waste Hauling Vehicles). The modeled mobile noise from the Waste Hauling Vehicles at the intersections analyzed did not exceed the threshold. Therefore, there are no predicted noise effects from these Waste Hauling Vehicles.

8. ***Water Quality:*** Twenty-nine of the 43 Transfer Stations within the Study Areas are not near or adjacent to surface water. The remaining 14 Transfer Stations that are adjacent to or near surface water do not have adverse individual or combined effects on water quality in the Study Areas.

[5]See Volume I Summary Report for intersection locations.

9. ***Neighborhood Character:*** The neighborhood character analyses in all four Study Areas determined that overlapping effects of Transfer Stations, where such effects exist, do not contribute adversely to the typically industrial neighborhood character of the four Study Areas. Moreover, where the technical analyses compared existing conditions to the replacement scenario, in which reasonably anticipated development were assumed to occur in place of the Transfer Stations, it was found that the conditions studied would not necessarily be better than existing conditions. In certain cases, larger volumes of traffic predicted under the replacement scenario could potentially result in diminished neighborhood character quality, compared to existing conditions with the Transfer Stations. The assumption used in creating the replacement industry scenario is that all components of neighborhood character conditions (zoning, socioeconomics, etc.) remain fundamentally the same as existing conditions.

10. ***Public Health:*** Using the conservative assumption that commercial waste Transfer Stations do not control odors at all, receptors in two Study Areas were found likely to experience potentially unacceptable odors at times from overlapping effects. These effects were predicted to be infrequent, occurring less than 1% of the time for all receptors (i.e., less than 72 non-consecutive hours per year), and are not likely to generate sustained annoyance or symptoms. With regard to regulated pollutants, cumulative effects on air quality were predicted to be minimal (for $PM_{2.5}$, 1% to 6% of contribution to the latest monitored background values). The Transfer Stations, in aggregate, do not appear to be important determinants of air quality for any of the pollutants regulated by the USEPA on the basis of human health effects.

Engineering and Operations Survey of Selected Transfer Stations

Scope of Analysis/Approach

This report supplemented the work undertaken as part of the Study Area evaluations through on-site surveys of 24 of the 43 Transfer Stations located in the Study Areas, including putrescible, non-putrescible and fill material facilities. These surveys involved a review of existing information made available by DSNY from its permit records and environmental review documents, and site visits to observe facility operations and collect data on facility designs and operating performance. The data collection activities included odor (at existing transfer stations) and noise sampling (at nearby receptors) and analysis. These data were evaluated to determine if various design or operational measures could improve the environmental performance of existing Transfer Stations in terms of a reduction in pollutant and odor emissions and noise attenuation. Details are provided in Appendix J of Volume I.

Findings and Recommendations

The following recommendations, pertaining to the design and operation of Transfer Stations, are the result of this evaluation.

1. **Ventilation and Odor Control** – The ventilation systems of putrescible Transfer Stations should be upgraded with the addition of state-of-the-art odor control technology to "neutralize" odors in exhaust air, and ventilation capacity should be increased to prevent the escape of odors when facilities are operating with doors open, by maintaining sufficient negative air pressure. The combination of an odor neutralizing system treating exhaust air in conjunction with increased fan capacity, operated correctly, would have synergistic effects to substantially reduce potential odors.

   A number of the putrescible Transfer Stations inspected used rudimentary odor control systems that could be more effective. An example of a state-of-the-art odor control system option is a hard-piped system, suspended above the processing floor, which would

introduce an odor-neutralizing agent into exhaust air, as it is ventilated from the building. Implementing this recommendation could include a provision for an equivalent system acceptable to the DSNY Commissioner that is sufficient to meet Zoning Code and Air Code standards.

The fan capacity recommendation would surpass current Building Code standards. It would require increasing fan capacity from 6 air changes per hour (ach) to 8 to 12 ach and treating the exhaust air. Fans would automatically operate at 8 ach with doors closed and at 12 ach with doors open. The additional fan capacity addresses the practical reality that Transfer Station doors are generally open during operating hours when inbound and outbound traffic is heavy and consequently odors can be more readily released from the building.

2. **Odor Prevention** – DSNY's Permit and Inspection Unit (PIU) staff should continue focusing their enforcement efforts on operating conditions that contribute to odor formation during waste processing operations. Inspectors should take particular care to continue to identify and take enforcement action to correct the following conditions, when observed:

    - Floor-wear conditions that contribute to pooling of leachate on the floor. These conditions may be indicated by exposed rebar.
    - Excessive dust accumulation on facility walls that can become a source of odor formation.
    - Clogged trench drains in the floor drain system or grit and grease traps that are not routinely maintained.

    In addition, inspectors should continue to monitor and focus on compliance with a daily ½-hour "clean time" during which the floor is cleared of waste to allow housekeeping functions, such as floor and wall wash-down, cleaning of drains, and maintaining ventilation and odor control systems.

3. **Dust Control** – Both DSNY and NYSDEC regulations require measures to control dust from waste processing operations. Of the three types of Transfer Stations, non-putrescible and fill material facilities generally operate outdoors, while all waste processing activity at putrescible Transfer Stations must occur in an enclosed building. Dust control should continue to be a focus of PIU's enforcement action, particularly when dust from operations is observed crossing property lines at non-putrescible and fill material Transfer Stations or exiting from the exhaust vents of putrescible Transfer Stations. Persistent enforcement will induce facility operators to use relatively simple and effective dust control measures.

   Different means of controlling dust are applicable to each type of facility:

   - Non-putrescible and fill material facilities – Installation of a sprinkler-type system that sprays water on the working pile will substantially reduce the transport of dust from processing operations more effectively than hand-held hoses currently used at many facilities.
   - Putrescible – Installation of a water-misting system for dust suppression within the enclosed processing building is an effective method of minimizing dust in the exhaust air. The system commonly used in the solid waste industry involves pumping water through ¼" to ¾" steel pipe to high-pressure mist nozzles that atomize water, creating a fine mist that reduces dust generation. The atomization process does not cause water to pool on the processing floor. These systems, when operated properly, are effective at reducing as much as 90% of the dust generated at putrescible Transfer Stations.

4. **Stormwater Control** – This issue is specific to non-putrescible and fill material facilities that do not have concrete paved surfaces with appropriate drainage where material is processed. This absence of pavement with appropriately installed stormwater drainage creates two potential problems: (i) runoff into surface water or storm sewers; and (ii) tracking of mud and debris during wet weather onto neighboring streets.

   The first issue is being addressed by NYSDEC under the authority established by Article 27 of the Environmental Conservation Law (ECL) and more specifically by Article 17, Titles 7 and 8 of the ECL. Implementing regulations for Article 17, Titles 7 and 8 are

provided under 6 New York Codes, Rules and Regulations (NYCRR) Part 750. These regulations are the basis of the State Pollution Discharge Elimination System (SPDES) program that requires permits for management of stormwater that discharges to surface water or separate storm sewers. Obtaining coverage under the statewide general permit for stormwater associated with industrial activities (GP-98-03) or an individual stormwater permit requires the preparation of a Stormwater Pollution Prevention Plan that would typically entail installation of a paved surface with controlled drainage directed through grit and grease traps or other pretreatment systems prior to discharge to surface waters or storm sewers. Discharge of stormwater containing "leachate" to the sanitary or combined sewer system requires permits from the City Department of Environmental Protection (NYCDEP). NYSDEC is in the process of requiring Transfer Stations in the City to obtain SPDES permits.

The second issue (tracking of mud and debris during wet weather onto neighboring streets) can be effectively addressed by washing the tires of vehicles as they exit the Transfer Station. This can be accomplished through the installation of an automated tire washing system or using manually operated hoses.

5. **Noise Control** – Noise emissions are regulated under the City's Noise Code §24-243, the Zoning Resolution and Transfer Station Operating Rules. Noise effects may arise at the property boundary where equipment operates outdoors, as is the case with non-putrescible and fill material Transfer Stations (waste processing operations at putrescible Transfer Stations are in an enclosed building), or from Waste Hauling Vehicles queuing in the street in front of these facilities (which was found to be the principal source of noise at Transfer Stations.) However, the Noise Code and Zoning Code do not prohibit the levels of vehicular noise associated with queuing trucks at Transfer Stations. Also, space limitations at many existing facilities limit the options for mitigating this problem. DSNY's operating rules prohibit non-putrescible Transfer Stations from operating between 7:00 p.m. and 6:00 a.m., to limit noise from such facilities. NYSDEC, during its permit renewal process, is focusing on design measures and permit conditions to limit off-site queuing. These combined approaches can mitigate noise problems in areas where they are most likely to affect residential dwellings.

6. **Air Quality** – The primary sources of air pollution from Transfer Stations are the non-road engines, such as front end loaders, used in waste processing operations, not diesel Waste Hauling Vehicles. This issue is discussed more fully in the evaluation reports of the four Study Areas. It is important to note here that: (i) these engines will be subject to increasingly stringent emission standards promulgated by the USEPA that over time will significantly reduce emissions as older equipment is replaced; and (ii) federal law appears to preempt the City from establishing more stringent standards for these non-road engines. The New York Air Code (NYAC) §24-143, contains a prohibition on *"visible air contaminants from an internal combustion engine of (a) a motor vehicle while the vehicle is stationary for longer than 10 consecutive seconds; or (b) a motor vehicle after the vehicle has moved more than 90 yards from a place where the vehicle was stationary."* This regulation provides a basis for enforcement actions by DSNY's PIU inspectors where old or poorly maintained mobile equipment, such as front end loaders or bulldozers, is emitting visible smoke. Air Code §24-109 and §24-142 provide authority to regulate stationary equipment such as crushers. DSNY should institute a training program for its inspectors in the application of USEPA's (40 CFR 60, Appendix A) Method 9 procedures for opacity testing. (The threshold for human recognition of visible emissions is generally considered to be around 5% opacity.) Certified inspectors issuing citations for opacity violations would induce Transfer Station operators to better maintain or upgrade their equipment.

Effectiveness of Enforcement

Scope of Analysis/Approach

Both the City and New York State regulate the privately owned Transfer Stations. DSNY is the primary local agency responsible for permitting, regulating and inspecting Transfer Stations and NYCDEP's Environmental Control Board (ECB) adjudicates notices of violation that DSNY officers write. DSNY derives its powers to control waste Transfer Station operation from the

City Charter, Title 16, of the New York City Administrative Code (NYCAC) and Title 16 of the Rules of the City of New York (RCNY). The NYSDEC's regulatory authority derives from the Environmental Conservation Law (ECL) and Title 6 of NYCRR, Part 360. The Business Integrity Commission (BIC) does background investigations into character and fitness to operate a Transfer Station and also licenses the vehicles operated by private carters in the City.

As the primary inspector of the City's Transfer Stations, DSNY's PIU conducts most of the on-site inspections. The unit is comprised of twenty-two (22) officers -- 17 Environmental Police Officers and five Environmental Lieutenants. The PIU force conducts a full inspection of each putrescible and non-putrescible Transfer Station at least once per week, and conducts additional, frequent, limited drive-by inspections of such facilities.

During the course of this Study, current management policies governing the City's Transfer Stations were reviewed and evaluated based on infraction statistics gathered from the inspection records at DSNY and NYSDEC to determine the effectiveness of enforcement procedures on the City's Transfer Stations. In addition, other City and state agencies involved with various aspects of enforcement were contacted and the rules and regulations defining their authority reviewed. Details of these analyses can be found in Volume I, Appendix K, Effectiveness of Enforcement.

In addition, a review of historical violation records from 1991 to 2002 was completed as well as an in-depth study of inspection reports for Fiscal Year 2003. The pattern of violation issuance and the type of infraction that led to such summonses were evaluated to gain a better understanding of current enforcement measures and to address potential improvements to the system.

Various fine structures exist depending on the type, severity and frequency of a violation. Certain Transfer Station-type violations, such as operating a Transfer Station without a valid permit or being in violation of operational rules, are termed "major ECB violations" for the purpose of this Study and 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. Violations that this Study terms "minor ECB violations" relate to sidewalk and street infractions and have lower liability amounts that warrant fines between $100 and $300, while the Study category of "minor action

violations," such as illegal dumping or the presence of noxious liquids, has a maximum fine of up to $450. (The "minor" classification used here is not meant to suggest that such violations are less important, merely that the monetary penalties are less than those for "major" Transfer Station violations.)

City enforcement of regulatory standards on Transfer Station operation is guided by the applicable performance standard for the facility under the Zoning Resolution, as supplemented by the Air and Noise Code and DSNY's regulations. The City has established three kinds of industrial districts, each with specific performance standards: Light Manufacturing (M1 - High Performance), Medium Manufacturing (M2 - Medium Performance) and Heavy Manufacturing (M3 - Low Performance). Transfer Stations are considered a Use Group 18 use. Use Group 18 uses are appropriate in M3 districts subject to low performance standards, and are allowed in M1 and M2 districts provided they meet the more stringent performance standards applicable to those zones with respect to odor, noise, vibration, dust and smoke. Additional noise and vibration restrictions apply to a manufacturing district located adjacent to a residential district. M1 districts often serve to buffer residential and commercial districts from heavier industrial M2 or M3 zones. M2 districts occupy the middle ground between light and heavy industrial areas. Performance standards in this district are less stringent than in M1 areas, as more noise, vibration and smoke are permitted. M3 districts are designated for heavy industries (such as foundries, cement plants, salvage yards, chemical manufacturing, asphalt plants) that generate more objectionable influences and hazards, including noise, dust, smoke and odors, as well as heavy traffic. New residences and community facilities may not locate in M3 districts. These districts are usually situated near the waterfront and are buffered -- for example by M1 districts -- from residential areas. With their low performance standards, M3 zones are particularly well-suited for the siting of Transfer Stations

A field observation was conducted to sample the level of compliance with truck route restrictions around Transfer Stations. Trucks must travel on designated routes, except where they deviate to reach their final destination. Truck route violations are important to monitor as they directly affect the quality of life on residential streets in the surrounding community. (The City Department of Transportation [NYCDOT] is currently conducting a citywide study of truck traffic.) The survey counted Waste Hauling Vehicles using non-truck routes at key intersections in the vicinity of Transfer Stations and compared their number to the number of other trucks and

automobile traffic. Intersections with a high potential to be used illegally by Waste Hauling Vehicles -- either key local non-truck route intersections or crossings of local arteries and truck routes -- were selected as observation sites.

Findings

1. Only approximately 0.3% to 6% of total traffic at a non-truck route intersection can be attributed to Waste Hauling Vehicles.

2. There has been a 100% increase in DSNY inspection frequency over the last four years following a doubling in inspection staff and an increase in the closure of negligent facilities. In general, the number of Transfer Stations has declined. In 1990, 153 Transfer Stations were in operation, compared to 96 in 1996 and only 69 in 2004.

3. According to DSNY historical summons data, over the past 12 years (1991 to 2002), roughly 15% of putrescible Transfer Stations, 12% of non-putrescible Transfer Stations and 8% of fill material Transfer Stations accrued more than 20 violations each in the 12-year span.

4. The majority of the City's Transfer Stations are sited in M3 zones (68%), thus reducing their potential effect on the residential community.

5. In 1998, DSNY promulgated new Transfer Station Siting Rules (implemented as a new subsection of the existing rules governing Transfer Stations found in 4 RCNY 16) that included restrictions on the locations in which new Transfer Stations could be sited and limitations on their hours of operation. They included the following general provisions:

   - No siting of new putrescible and non-putrescible Transfer Stations in M1 zones;
   - No siting within 400 feet of residential districts and sensitive receptors such as public parks and schools;
   - No siting of a new non-putrescible Transfer Station within 400 feet of an existing non-putrescible Transfer Station; and
   - No operating of non-putrescible Transfer Stations in an M1 zone between 7:00 p.m. and 6:00 a.m.

Additionally, the rules required Transfer Stations to submit engineering reports and transportation plans with all permit applications. These requirements mean that new facilities would be less likely to be in a location that impacts local residents. The rules apply to applications filed after October 1998, and so did not apply to certain pending applications. Additionally, DSNY promulgated temporary siting restrictions in 2003 that expire later this year and will promulgate new permanent Siting Rules this year.

6. On average, seven "major" DSNY violations were issued at Transfer Stations each month between July of 2002 and June of 2003, and roughly 30 major violations were issued to each type of Transfer Station. Despite the fact that fill material inspections occur much less frequently, fill material violations accounted for roughly 29% of the violations issued by DSNY to Transfer Station operators between July 2002 and June 2003. Putrescible Transfer Stations had the most violations, accounting for 45% of those issued; non-putrescible Transfer Stations accounted for only 26%.

7. According to DSNY violation statistics, on average, 50 "minor" Environmental Control Board (ECB) violations, 351 parking violations and 51 traffic violations were issued per month between July 2002 and June 2003. With an annual count of 5,505 summonses, DSNY issues approximately 460 violation summonses of varying severity each month.

8. According to DSNY statistics for Fiscal Year 2003, pile height/volume over the limit was the most common violation at non-putrescible Transfer Stations; and operating without a permit was the second most common violation. The most common violation reported at putrescible Transfer Stations was an unclean tipping floor.

9. Ten violations were issued by DSNY in Fiscal Year 2003 to persons unlawfully operating a fill material Transfer Station without a permit. This violation results in closing an illegal operation.

10. Spillage from trucks and/or receptacles is a relatively frequent violation. Illegal dumping by both the owner and operator are also relatively common violations issued by DSNY. Causing a street obstruction and the presence of noxious liquids were also reported frequently.

11. The majority of parking violations issued by DSNY are in response to trucks standing or parking without proper equipment, or having a detached trailer. Parking for over three hours in a commercial zone or parking in the wrong direction are also relatively common violations. The transportation of loose cargo without a cover is the most commonly violated traffic rule, with 300 summonses issued by DSNY within Fiscal Year 2003.

Conclusions and Recommendations

In summary, 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 to improve the level of coordination within and between the City agencies responsible for enforcement, by creating a fully computerized system of inspection forms at the agency level. The improvements in productivity over manual collection and input of inspection data, as well as the overall benefit of a multi-agency coordinated enforcement structure, greatly justifies the investment of resources to create this system. An accessible digital database that will heighten inter-agency cooperation and improve information management is the critical path to improving enforcement practices.

TABLE OF CONTENTS

ATTACHMENTS

LIST OF TABLES

LIST OF FIGURES

1.0 OBJECTIVE

As defined in Local Law 74 (LL74) and in the Final Scope of Work for the Commercial Waste Management Study (Study), dated July 31, 2003, the objective of the Study Area Evaluations is to identify:

> Potential areas of overlapping effects from multiple Transfer Stations in the Study Areas for: (1) air quality, odor, noise, neighborhood character, public health and water quality from Transfer Stations located within each Study Area; and (2) traffic, off-site air quality and off-site noise at key intersections along major corridors leading to and from Study Areas; and the potential public health effects from the analyses conducted.

The Study Areas were selected based upon a review of the location and geographical proximity of the 69 operating private Transfer Stations in each of the five boroughs. Attachment A lists these facilities by address, type, community district (CD) location, applicable zoning and permitted capacity. Study Areas were not identified in Manhattan or Staten Island -- there is only one fill material Transfer Station in Manhattan that services Con Edison, and there are six Transfer Stations in Staten Island that are not located in close geographical proximity to each other. The following four Study Areas with concentrations of Transfer Stations were identified for analysis: the Port Morris area, in CD #1, and the Hunts Point area, including portions of CDs #2 and #9 in the Bronx; Brooklyn CD #1; and the Jamaica area, in Queens, CD #12. Forty-three (43) of the 69 operating Transfer Stations are located in these Study Areas. Table 1-1 shows the name, location and type of Transfer Station in each Study Area.

As noted in Table 1-1, there are:

- Six (6) Transfer Stations in the Port Morris, Bronx CD # 1 Study Area: three putrescible waste and three fill material;
- Eleven (11) Transfer Stations in the Hunts Point, Bronx CDs #2 and #9 Study Area: four putrescible waste, six non-putrescible waste and one fill material;
- Twenty (20) Transfer Stations in the Brooklyn CD #1 Study Area: six putrescible waste, 11 non-putrescible waste and three fill material; and
- Six (6) Transfer Stations in the Jamaica, Queens CD #12 Study Area: two putrescible waste, three non-putrescible waste and one fill material.

Figures 1-1 through 1-4 show the location of the Transfer Stations, the major transportation routes to and from the facilities, and the CDs in which the four Study Areas are located.

Table 1-1
Permitted Commercial Waste Transfer Stations within Study Areas

Name	Address	Type of Transfer Station
Port Morris, Bronx CD #1		
Bronx County Recycling	475 Exterior Street	Fill
Felix Equities	290 East 132nd Street	Fill
Tilcon NY	980 East 149th Street	Fill
USA Waste Services of NY (Waste Management)	98 Lincoln Avenue	Putrescible
USA Waste Services of NY (Waste Management) (1)	132nd St & Saint Ann's Avenue	Putrescible (Intermodal)
Waste Services of NY	920 East 132nd Street	Putrescible
Total Number in Port Morris, Bronx CD #1 Study Area		**6**
Hunts Point, Bronx CDs #2 and #9		
A.J. Recycling	325 Faile Street	Non-Putrescible
Bronx City Recycling	1390 Viele Avenue	Fill
G. M. Transfer	216-222 Manida Avenue	Non-Putrescible
Kids Waterfront Corp.	1264 Viele Avenue	Non-Putrescible
IESI NY Corp	325 Casanova Street	Putrescible
John Danna and Sons	318 Bryant Avenue	Non-Putrescible
Metropolitan Transfer Station	287 Halleck Street	Putrescible
Paper Fibers Corp.	960 Bronx River Avenue	Putrescible
Waste Management of NY (1)	Oak Point & Barry Avenue	Putrescible (Intermodal)
Waste Management of NY	620 Truxton Street	Non-Putrescible
Waste Management of NY	315 Baretto Street	Non-Putrescible
Total Number in Hunts Point, Bronx CDs #2 and #9 Study Area		**11**

Table 1-1 (Continued)
Permitted Commercial Waste Transfer Stations within Study Areas

Name	Address	Type of Transfer Station
Brooklyn CD#1		
Point Recycling Ltd	686 Morgan Avenue	Non-Putrescible
Waste Management of NY [2]	75 Thomas Avenue	Non-Putrescible
Waste Management of NY	232 Gardner Avenue	Non-Putrescible
Waste Management of NY	215 Varick Avenue	Putrescible
Waste Management of NY	123 Varick Avenue	Non-Putrescible
Waste Management of NY [2]	485 Scott Avenue	Putrescible
Maspeth Recycling [3]	58-08 48th Street	Fill
IESI NY Corp	548 Varick Avenue	Non-Putrescible
Astoria Carting Company [3]	538-545 Stewart Avenue	Non-Putrescible
City Recycling Corp	151 Anthony Street	Non-Putrescible
Cooper Tank and Welding	222 Maspeth Avenue	Non-Putrescible
Pebble Lane Associates [3]	57-00 47th Street	Fill
Keyspan Energy	287 Maspeth Avenue	Fill
New Style Recycling Corp [2] [3]	49-10 Grand Avenue	Putrescible
New Style Recycling Corp [2] [3]	49-10 Grand Avenue	Non-Putrescible
BFI Waste Systems of NJ [4]	598-636 Scholes Street	Putrescible
BFI Waste Systems of NJ [4]	594 Scholes Street	Non-Putrescible
BFI Waste Systems of NJ [4]	575 Scholes Street	Non-Putrescible
BFI Waste Systems of NJ	115 Thames Street	Putrescible
Hi-Tech Resource Recovery	130 Varick Avenue	Putrescible
Total Number in Brooklyn CD#1 Study Area		**20**

Table 1-1 (Continued)
Permitted Commercial Waste Transfer Stations within Study Areas

Name	Address	Type of Transfer Station
Jamaica, Queens CD #12		
American Recycling Management [2]	172-33 Douglas Avenue	Putrescible
American Recycling Management [2]	172-33 Douglas Avenue	Non-Putrescible
Regal Recycling [2] [5]	172-06 Douglas Avenue	Putrescible
Regal Recycling [2] [5]	172-06 Douglas Avenue	Non-Putrescible
T. Novelli [2]	94-07 Merrick Avenue	Fill
T. Novelli [2]	94-20 Merrick Avenue	Non-Putrescible
Total Number in Jamaica, Queens CD #12 Study Area		**6**
Total Number of Transfer Stations Evaluated		**43**

Notes:

[1] These two facilities are permitted as intermodal terminals that ship containerized waste by rail. No waste processing is conducted at these sites.

[2] Denotes one facility with two permits.

[3] Four Transfer Stations on the Brooklyn CD #1 list are actually in Queens near the border of Brooklyn but were evaluated as part of the Brooklyn CD #1 Study Area.

[4] These three locations constitute one facility with three New York City (City) Department of Sanitation (DSNY) permits under state regulations.

[5] Regal Recycling is enclosing the non-putrescible waste processing operations; therefore, this facility was modeled as an enclosed non-putrescible waste Transfer Station.

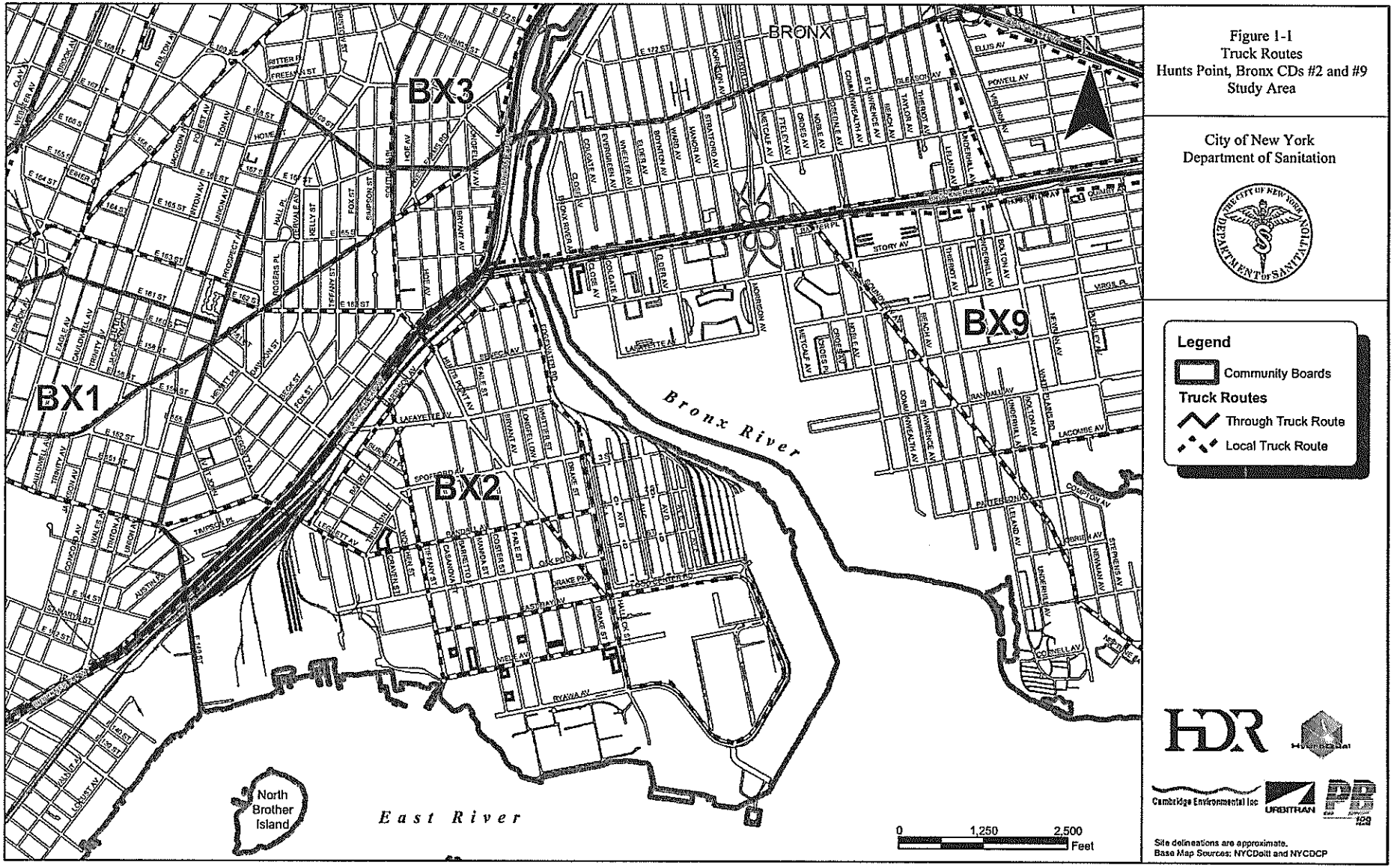


Figure 1-1
Truck Routes
Hunts Point, Bronx CDs #2 and #9
Study Area

City of New York
Department of Sanitation

Legend

Community Boards

Truck Routes

Through Truck Route

Local Truck Route

HDR

Cambridge Environmental Inc

URBITRAN

PB

Site delineations are approximate.
Base Map Sources: NYCDoitt and NYCDCP

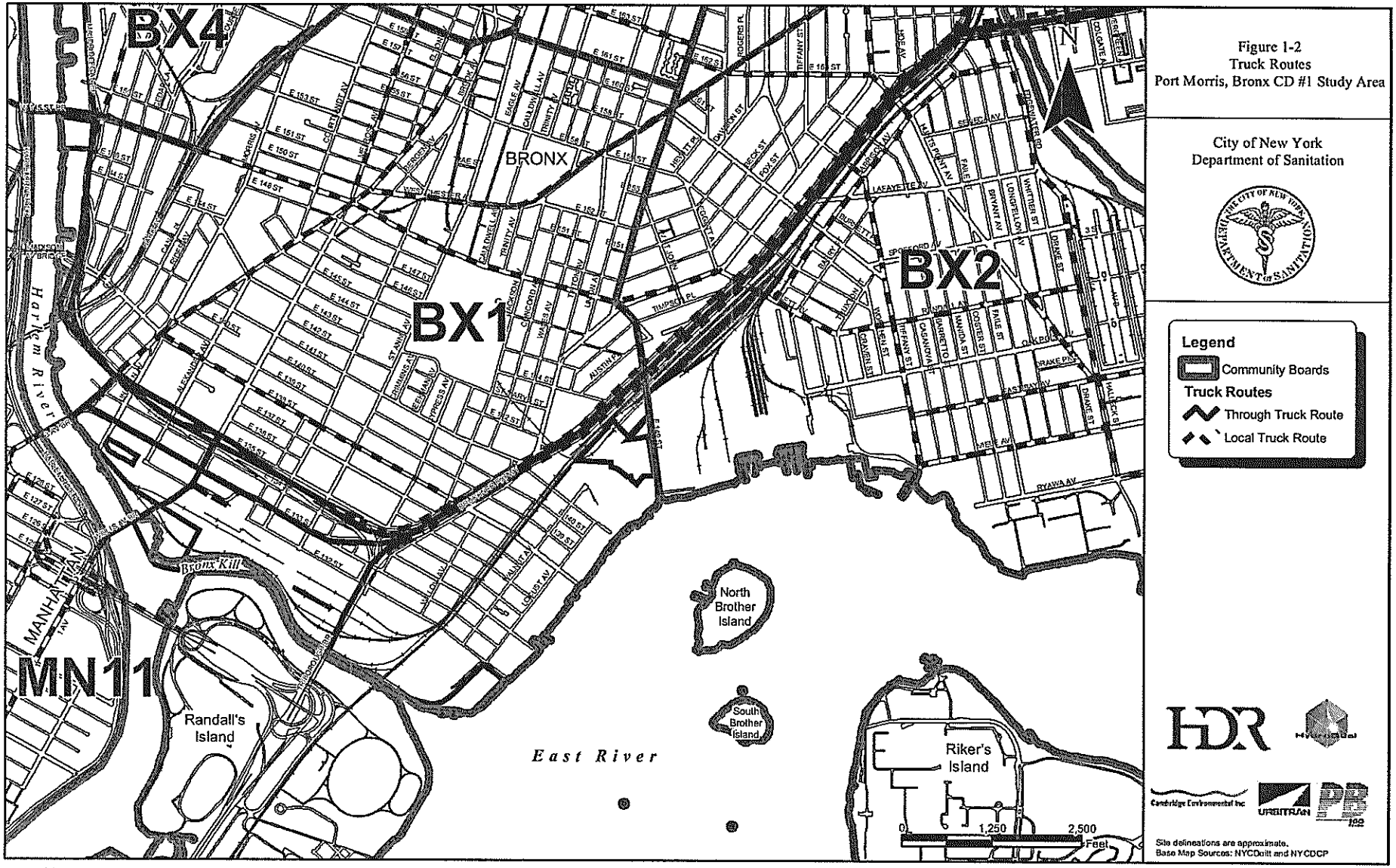


Figure 1-2
Truck Routes
Port Morris, Bronx CD #1 Study Area

City of New York
Department of Sanitation

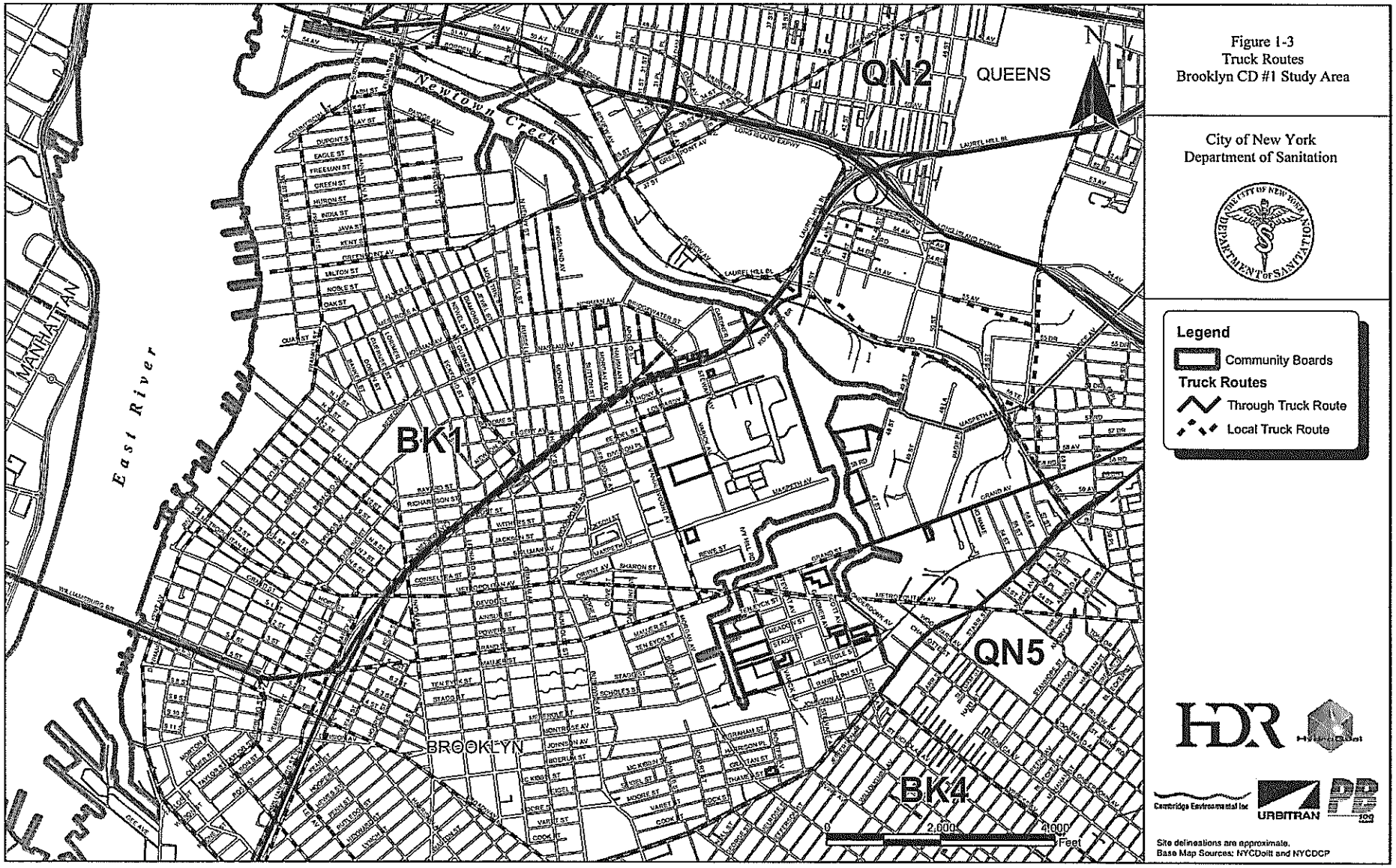


Figure 1-3
Truck Routes
Brooklyn CD #1 Study Area

City of New York
Department of Sanitation

Legend

Community Boards

Truck Routes

Through Truck Route

Local Truck Route

HDR HydroQual

Cambridge Environmental Inc URBITRAN PB

Site delineations are approximate.
Base Map Sources: NYCDoitt and NYCDCP

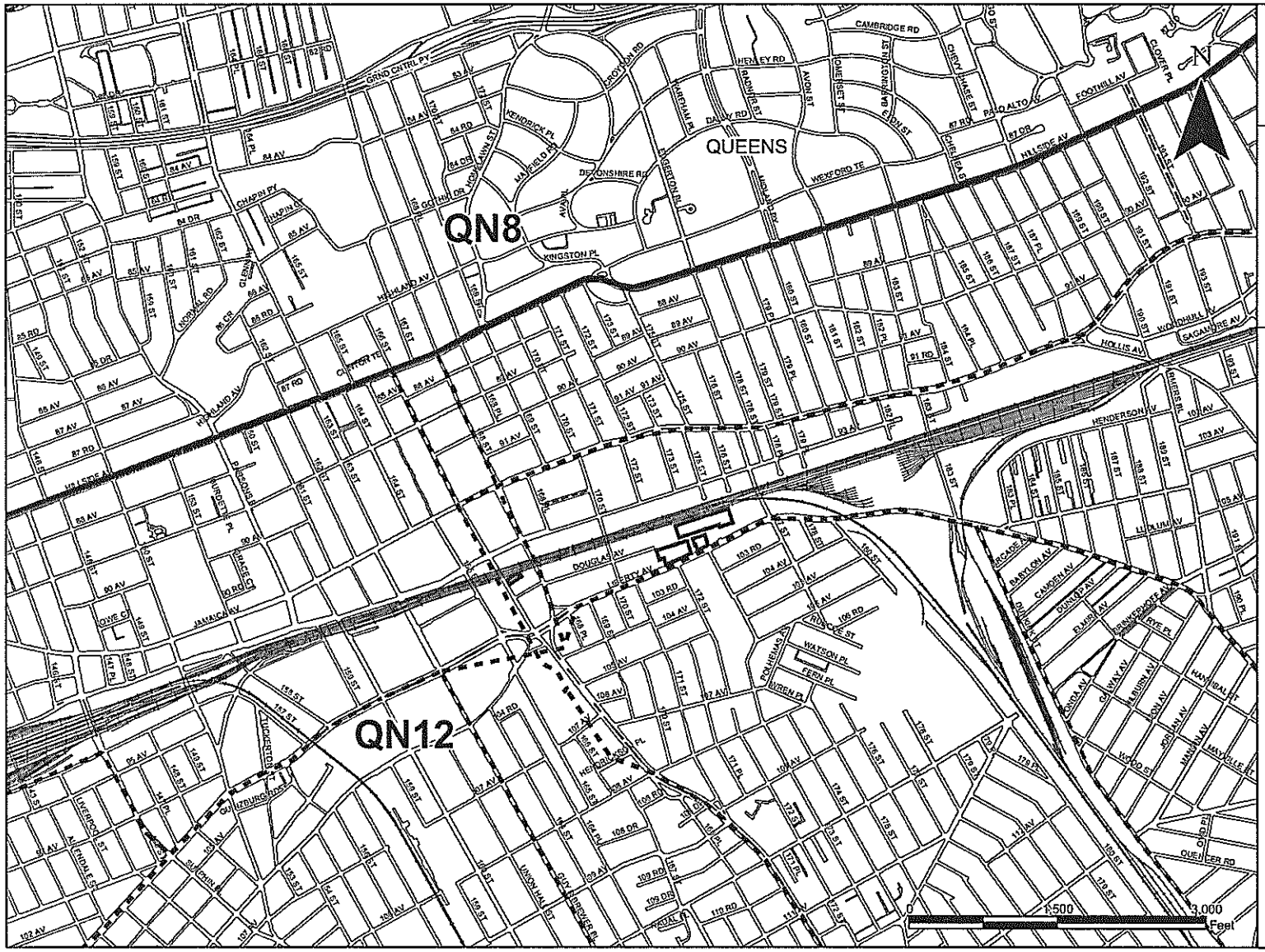


Figure 1-4
Truck Routes
Jamaica, Queens CD #12 Study Area

City of New York
Department of Sanitation

Legend

Community Boards

Truck Routes

Through Truck Route

Local Truck Route

HDR

Cambridge Environmental Inc

URBITRAN

PB

Site delineations are approximate.
Base Map Sources: NYCDoitt and NYCDCP

2.0 HISTORICAL/LEGISLATIVE OVERVIEW OF TRANSFER STATION REGULATION

One of the objectives of LL74 is to assess the effectiveness of the permitting procedures and current criteria applied by the New York City (City) Department of Sanitation (DSNY) to the siting of Transfer Stations in minimizing potential adverse impacts on the communities in which such Transfer Stations are located, including any aggregate impact of the geographic proximity of Transfer Stations to each other. This section provides background on Transfer Station regulations, explains how applications undergo environmental review and discusses DSNY's current siting rules and permitting procedures.

2.1 Background on DSNY and New York State Department of Environmental Conservation (NYSDEC) Transfer Station Permitting

There have always been Transfer Stations in the City. Transfer Stations locate where suitable zoning, transportation access, proximity to wastesheds and economics are favorable. The regulation of private Transfer Stations has evolved over time and become increasingly stringent. In addition to ensuring that Transfer Stations are sited in industrial districts established by law, the City's criteria for siting Transfer Stations include certain restrictions promulgated in 1998 (discussed below), and the completion of an environmental review.

Prior to 1990, putrescible waste Transfer Stations were regulated locally by the City Department of Health, while non-putrescible waste Transfer Stations required permits from DSNY. Such facilities were (and are) required to meet certain performance standards required by the Zoning Resolution with respect to odor, noise, dust, smoke and enclosure, and comply with the City's Noise Code and Air Code. Both types of facilities also required permits from the NYSDEC, which promulgated additional detailed regulations (Title 6 of the New York Codes, Rules and Regulations [NYCRR], Part 360) under the State's Solid Waste Management Act in 1988.

2.1.1 City Regulation of Transfer Stations

DSNY was given additional authority to promulgate regulations to control and supervise non-putrescible waste Transfer Stations pursuant to Local Law 49 of 1989. In 1990, the City had 153 Transfer Stations (159 permits): six dual putrescible and non-putrescible waste, 39 putrescible waste, 70 non-putrescible waste and 38 fill material. Local Law 40 of 1990 transferred to DSNY the responsibility for regulating putrescible waste Transfer Stations and required DSNY to promulgate more detailed rules for the transfer station industry. DSNY adopted rules for putrescible waste Transfer Stations in 1990 and additional rules in 1991, requiring facilities previously permitted by the City Department of Health to apply for new DSNY permits. A substantial number of operating Transfer Stations were initially unable to obtain a new DSNY permit, due to one or more problems: inability to obtain a Certificate of Occupancy indicating a Use Group 18 use; inability to operate with the doors closed (many facilities lacked doors); or failure to operate within a fully enclosed structure. To force such facilities to come into compliance, DSNY issued notices of violation of $10,000 or more for such facilities, and entered into a series of compliance agreements giving the operators a limited amount of time to come into compliance or cease operating.

The NYSDEC revised its 6 NYCRR Part 360 Transfer Station regulations in 1993. DSNY adopted additional rules for non-putrescible waste Transfer Stations and fill material Transfer Stations in 1994. Among other things, these rules provided new limits on pile heights and new fence requirements for unenclosed non-putrescible waste and fill material Transfer Station operations in proximity to residential districts. Within 300 feet of a residential zone, an unenclosed construction and demolition (C&D) debris pile cannot exceed eight feet in height. If an unenclosed non-putrescible waste Transfer Station is more than 300 feet from a residential zone, the maximum pile height is 40 feet for separated concrete, rock, gravel, asphalt, brick, dirt or metal; 30 feet for separated, chipped wood; and eight feet for all other non-putrescible waste. Similarly, the maximum pile height at unenclosed fill material Transfer Stations is eight feet within 300 feet of a residential zone, and 40 feet if more than 300 feet from a residential zone. In addition, for both no-putrescible waste and fill material Transfer Stations, unenclosed operations

conducted within 300 feet of a residential zone require an opaque perimeter fence at least 15 feet high, while such facilities operating more than 300 feet from a residential zone require a minimum fence height of 10 feet high.

In 1996, the City Council enacted Local Law 42, which created a Trade Waste Commission (TWC) (now named the Business Integrity Commission [BIC]) to regulate the commercial carting industry in the City. This law also required Transfer Station applicants to undergo review by the TWC. During the period from 1990 to 1996, the combination of increased regulatory requirements, enforcement and consolidation in the industry led to a decline in the number of Transfer Stations in the City from 153 (including six dual facilities) to 96.

2.1.2 NYSDEC Permitting Criteria

A Transfer Station permit issued by NYSDEC must assure, to the maximum extent practicable, that the permitted activity will pose no significant adverse impact on public health, safety or welfare or environmental or natural resources, and that the activity will comply with the provisions of Part 360 and with other applicable laws and regulations. State regulations require an environmental review for NYSDEC putrescible and non-putrescible waste Transfer Station permits, but not for fill material Transfer Stations. NYSDEC is empowered to impose conditions on Transfer Station permits, including but not limited to inspection, financial assurance, technical data gathering and reporting, data analysis, quality control, quality assurance, sampling, monitoring (including the imposition of on-site environmental monitors), reporting and verification.

2.2 Environmental Review of Transfer Station Applications

DSNY requires an environmental review for all new Transfer Stations (including fill material Transfer Stations), and for Transfer Stations seeking an increase in permitted capacity. DSNY's environmental review is guided by the City Environmental Quality Review (CEQR) Technical Manual, which was revised in 2001, in addition to supplemental technical guidance employed by City agencies such as the City Department of Environmental Protection (NYCDEP) (e.g., for

fine particulate air emissions). DSNY's environmental review for new Transfer Stations and for Transfer Station increases in capacity includes, as appropriate, a consideration of the standard CEQR categories, namely: land use, zoning and public policy; socioeconomic conditions; community facilities and services; open space; shadows; historic resources; urban design/visual resources; neighborhood character; natural resources; hazardous materials; waterfront revitalization program; infrastructure; solid waste and sanitation services; energy; traffic and parking; transit and pedestrians; air quality; noise; construction impacts; and public health. Since 2001, the analysis of air impacts must include a consideration of fine particulate matter 2.5 microns and smaller in diameter ($PM_{2.5}$), using methodology approved by the NYCDEP.

In particular, the study area for neighborhood character is typically 400 feet from the facility boundary, pursuant to the 2001 CEQR Technical Manual. Preliminary thresholds used to determine if a detailed assessment is appropriate include any of the following conditions: a conflict with surrounding land uses or land use policy; a substantial change in urban design, building bulk or streetscape; impact upon visual features or views, historic resources or socioeconomic conditions (direct or indirect displacement of population or businesses or substantial change in character in businesses); a substantial worsening of traffic together with a change in the local type of vehicles (where the amount of traffic and type of vehicle contributes to neighborhood character); and significant adverse noise impacts together with a change in the noise acceptability category.

DSNY files and circulates its environmental review documents and determination of significance with community boards, appropriate elected officials and interested parties. In addition, beginning in March 2003, the NYSDEC adopted an Environmental Justice policy, which potentially affects applicants for NYSDEC Transfer Station permits and permit modifications. NYSDEC now reviews such applications to determine whether they are subject to this policy, and, if they are, the applicant may be required to take additional procedural steps to ensure compliance with the Environmental Justice policy in the application.

DSNY's review of Transfer Station applications includes a consideration of detailed documents, including an engineering report, site plan, odor control plan, drainage details, traffic quantity and routes, and other matters. An Environmental Assessment Statement (EAS) must be submitted that discusses each of the environmental impact categories, and whether the proposed action would reasonably be expected to result in a significant adverse environmental impact based on established thresholds and criteria in the 2001 CEQR Technical Manual. DSNY staff review the majority of the required impact categories, while the NYCDEP reviews air quality, noise and odor studies, and the City Department of Transportation (NYCDOT) reviews any required traffic studies. In addition to a complete environmental assessment form and any related studies, DSNY requires certain other information from applicants, as detailed in a DSNY memorandum to applicants (see Attachment B). In particular, applicants must provide to DSNY copies of their Part 360 NYSDEC application. DSNY issues permits to operate, while NYSDEC typically requires both a permit to construct and a permit to operate a facility. Therefore, DSNY generally issues its permit only after NYSDEC issues its permit.

2.2.1 Coordination With NYSDEC on Environmental Reviews

The joint environmental review responsibilities for Transfer Station permits involving both DSNY and the NYSDEC were set forth in a consent order in City of New York v. New York State Department of Environmental Conservation, Supreme Court, Albany County, Index No. 7218/91 (Consent Order). Pursuant to this Consent Order, since 1992 DSNY and NYSDEC have served as co-lead agencies in conducting the necessary environmental review for new putrescible and non-putrescible waste Transfer Stations, and for certain operating Transfer Stations that had never received a NYSDEC permit. For permit modifications, DSNY and NYSDEC determine on a case-by-case basis which agency is appropriate to serve as lead agency, or whether a co-lead agency designation is appropriate. For fill material Transfer Station permits, DSNY requires an environmental review, but NYSDEC does not. DSNY permit renewals are not subject to an environmental review, unless significant modifications are proposed.

In addition to compliance with environmental review and other NYSDEC and DSNY permitting procedures, Transfer Station operators are required to comply with the City's Zoning Resolution performance standards for the relevant zoning classification (M3, M2 or M1), as well as the more detailed Air Code (including odor) and Noise Code provisions. Commercial waste vehicle operators must abide by relevant Vehicle and Traffic laws, including restrictions on vehicle idling and parking and requirements to use designated truck routes; Waste Hauling Vehicles must meet certain operational requirements.

2.3 Closure of Fresh Kills Landfill and Interim Export

In 1996, the state enacted a law that required the City's Fresh Kills Landfill to close by December 31, 2001. The City then began an intergovernmental process to plan for alternative transfer, transport and disposal of the approximately 11,000 tons per day (tpd) of DSNY-managed Waste then disposed of at Fresh Kills. The City moved forward quickly to begin to phase out disposal at Fresh Kills through the implementation of Interim Export contracts with private Transfer Stations and out-of-City disposal facilities for the transfer and/or disposal of DSNY-managed Waste. Interim Export contracts began with Bronx waste in 1997, resulted in the closure of Fresh Kills in March 2001 and are proposed to be replaced with long-term service contracts pursuant to the new Solid Waste Management Plan (New SWMP) now being prepared for submission to the City Council.

2.4 Evolution of DSNY Siting Rules

The following reports on events leading to changes in DSNY Siting Rules over time.

2.4.1 Neighbors Against Garbage Case

In an lawsuit filed in May, 1996, Neighbors Against Garbage v. Doherty, Index No. 10923/96 (Supreme Ct. NY County, March 16, 1997), a coalition of community groups brought suit to require DSNY to promulgate additional rules governing the siting of Transfer Stations. The case involved an interpretation of the language of Local Law 40 of 1990 requiring DSNY to

promulgate rules concerning the siting of Transfer Stations in relation to other such facilities, residential premises and/or other premises as may be appropriate. The suit did not seek to establish what the appropriate siting rules should be. The trial court found, and the Appellate Division affirmed, 245 AD2d 81 (1st Dept. 1997), that the City's 1991 and 1994 rules addressed the permitting, design, operation and maintenance of Transfer Stations, but did not sufficiently address their proximity to residences, schools and parks and other Transfer Stations, as required by Local Law 40.

2.4.2 Zoning and DSNY 1998 Siting Rules

Until 1998, Transfer Stations could be located in M1, M2 and M3 zones (designated for light, medium and heavy industry, respectively), provided they met the respective performance standards for such zones, notably with respect to odor, noise, dust and enclosure. As anticipated by the Zoning Resolution, the areas of the City with the largest number of Transfer Stations are the districts with large areas of industrial zoning, notably including the South Bronx and Brooklyn East Williamsburg/Newtown Creek areas. Brooklyn's CD #1, which abuts Newtown Creek and includes the Brooklyn Study Area, has 38% of its area zoned for industry (M1, M2 and M3). In the South Bronx, CD #1, which includes the Port Morris Study Area, and CD#2, which includes the Hunts Point Study Area, have approximately 20% of their areas zoned for industry. Queens CD #2, also abutting Newtown Creek and containing several Transfer Stations, has 31% of its area zoned for industry. These are the largest percentages of industrial-zoned land in the City's 59 CDs. The City has designated certain industrial districts, long reserved for heavy industrial use, as Significant Maritime/Industrial Areas and Waterfront Manufacturing Zoning Districts. For example, both designations apply to the South Bronx industrial waterfront, and to the Newtown Creek and English Kills industrial area near the Brooklyn-Queens border, at the edges of Brooklyn CD #1 and Queens CD #2 and CD #5.

In October 1998, DSNY promulgated additional regulations governing the siting of new Transfer Stations and the expansion of existing Transfer Stations. The 1998 siting rules prohibit new non-putrescible waste and fill material Transfer Stations from locating in an M1 district or less than 400 feet from a residential district, public park, school or other non-putrescible waste

Transfer Station. The rules also prohibit existing non-putrescible waste Transfer Stations from expanding into an M1 district or within 400 feet of a residential district, public park, school or other non-putrescible waste Transfer Station. Further, the rules prohibit existing non-putrescible waste Transfer Stations that are lawfully operating within 400 feet of a residential district, public park, school or other non-putrescible waste Transfer Station from expanding closer to such residential district, park, school or other non-putrescible waste Transfer Station. A non-putrescible waste Transfer Station that receives and removes all solid waste by rail or barge would be prohibited from locating in an M1 district but would be exempt from the 400-foot-buffer requirement, provided all solid waste processing is enclosed. The rules measure the distance to the residential district, public park, school or other non-putrescible waste Transfer Station from the site boundary of the non-putrescible waste Transfer Station.

For putrescible waste Transfer Stations, the 1998 rules contain restrictions that are identical to those for non-putrescible waste Transfer Stations, except that they do not require a buffer distance between a putrescible waste and any other Transfer Station, and the distance between the Transfer Station and residential district, public park or school is measured from the structure enclosing waste handling operations, rather than from the Transfer Station site boundary. (These differences in rules are due to the fact that putrescible waste Transfer Stations are fully enclosed, unlike the non-putrescible waste Transfer Stations.) Under the 1998 rules, non-putrescible waste Transfer Stations located in an M1 zone may not operate between 7:00 p.m. and 6:00 a.m. Putrescible waste Transfer Stations may not receive solid waste on Sunday mornings between 4:00 a.m. and noon.

The 1998 rules also require all Transfer Station operators to submit an annual engineering report certifying that the facility complies with all applicable performance standards of the Zoning Resolution and the applicable provisions of the City Health Code. In addition, all applicants for Transfer Station permits must submit a truck transportation plan that specifies the route that trucks will take when transporting solid waste or other material out of the facility for final disposal, reuse or recycling. DSNY may require as a condition for issuing a permit that the Transfer Station operator establish a system to require such trucks exiting the facility to use specific transport routes. The rules require a Transfer Station operating under an interim

authority in an M1 district to obtain a full permit within five years. The rules provide for the possibility of a variance from the buffer distance and other requirements, upon a showing that the granting of a variance would not produce a significant adverse environmental impact. Notably, the 1998 rules exempted from the new siting requirements existing operations and applications for new facilities for which environmental assessments had been submitted to DSNY prior to October 1998. As a result of public comments received on the draft rules, the final 1998 rules were modified in several respects, including increasing the proposed buffer from 300 feet to 400 feet.

The 1998 rules were the subject of an environmental assessment. DSNY found that the rules would not cause a significant adverse impact on the environment and would not lead to Transfer Stations located within geographical proximity that would result in transportation, air quality or noise impacts. DSNY found that the 1998 rules would offer greater environmental protection to the surrounding community than did then-existing requirements. By prohibiting new Transfer Stations in M1 zones, the 1998 rules were estimated to reduce by half the geographic area in which Transfer Stations could potentially be sited, while continuing to allow any new Transfer Stations in M2 and M3 zones with substantial buffers to residences, schools and parks.

2.4.3 Challenge to 1998 Siting Rules

A coalition of community organizations and others filed suit challenging the 1998 siting rules as insufficiently restrictive, in Organization of Waterfront Neighborhoods (OWN) v. Carpinello, Supreme Court, New York County, Index 103661/99). In a ruling, the Court noted that it had certain concerns about the 1998 rules. Following a lengthy attempt to resolve the dispute through mediation, DSNY committed to promulgate revised siting rules, while the Court retained jurisdiction of the lawsuit. The 1998 siting rules remain in effect pending the promulgation of revised siting rules. Meanwhile, DSNY was directed to provide the plaintiffs with 40 days notice prior to any substantive DSNY Transfer Station permit approval.

2.4.4 The 2003 Interim Siting Rules

In 2003, DSNY adopted interim siting rules designed to remain in place pending completion of the Study. These interim siting rules prohibit new non-putrescible waste and fill material Transfer Stations or expansions, prohibit new putrescible waste Transfer Stations to be permitted, and allow expansions of putrescible waste Transfer Stations in Brooklyn CD #1 and Bronx CD #2 only upon a showing that the requested capacity would be offset by closing permitted capacity at another Transfer Station within the same CD. DSNY identified these two CDs as appropriate for an offset requirement under the interim siting restrictions as they currently have the highest number of Transfer Stations in the City. In addition, pursuant to the interim rules, DSNY could authorize the operation of an intermodal facility at which waste arrives and remains in sealed containers and is transloaded onto a rail car or vessel for further transport. DSNY expects to replace the Interim Siting Rules with permanent rules in 2004. DSNY's Interim Siting Rules have been challenged by a Transfer Station applicant in a pending lawsuit.

In early 2004, DSNY published additional proposed rules, currently pending before the City Council for comment, concerning sites used for the transloading of sealed intermodal containers of solid waste from one type of transportation mode to another, such as from truck to rail, or from truck to barge.

3.0 EVOLUTION OF STUDY AREA LAND USE

A review of land uses over the past 100 years in the Study Areas indicates that:

- The Port Morris, Bronx CD #1 Study Area has primarily developed as an industrial area;
- The Hunts Point, Bronx CDs #2 and #9 and Brooklyn CD #1 Study Areas have developed with industry and residential uses simultaneously; and
- The Jamaica, Queens CD #12 Study Area appears to have developed as a residential area that was eventually replaced with industrial uses, though some residential use continues today.

Port Morris, Bronx CD #1 Study Area

The southern and eastern sections of Port Morris that host commercial waste Transfer Stations are today largely non-residential. Four apartment buildings are marked on 1996 maps for these areas. The map record indicates that the southwestern area where these buildings are located experienced industrial and residential growth together. However, residential uses declined in the 1960s, as occurred through much of the South Bronx, particularly with the construction of the Cross Bronx Expressway. The other commercial waste portions of the Study Area either never experienced residential uses after 1896 or experienced a brief period at the turn of the century, which was rapidly replaced with power and light manufacturing uses.

Hunts Point, Bronx CDs #2 and #9 Study Area

A review of the Hunts Point, Bronx CDs #2 and #9 Study Area sections that currently host commercial waste Transfer Stations indicates that the majority of the area is non-residential; industrial and waste-related uses seem to have developed simultaneously with some pre-existing residential uses. The northeastern section does host two large apartment complexes that were constructed subsequent to Transfer Stations and other industrial uses in the area.

Brooklyn CD#1 Study Area

A review of the Transfer Stations in the Brooklyn CD #1 Study Area indicates that since the early 1900s this area has been primarily industrial with significant noxious uses. Where domiciles are historically evident, they appear to have co-existed alongside industrial uses, and it is likely that they were built to service those manufacturing industries.

Jamaica, Queens CD #12 Study Area

A 1951 map indicates that the neighborhood was largely residential, with some industrial elements present. By 1981 the area had developed substantial industrial uses. Maps from 1901 demonstrate that the neighborhood around Douglas Avenue and Benton Avenue was largely residential in character. The residences were typically four-story, fully-detached buildings occupying a small portion of each lot. However, abutting the rail tracks to the north of Douglas Avenue, a row of multi-story tenements existed to the rear of a Baptist church that is no longer standing. These apartments and the church sat on what is now a DSNY garage and Long Island Rail Road (LIRR) substation. The lot, block and street structure of the neighborhood to the north of the LIRR lines (the Jamaica, Queens CD #12 Study Area) has changed significantly over the past 100 years.

4.0 STUDY AREA ENVIRONMENTAL ANALYSES

4.1 Introduction

An evaluation methodology first determined current conditions inclusive of the existing Transfer Stations in each of the Study Areas. Second, the conditions without the Transfer Stations were evaluated to determine the net contribution of the Transfer Stations. Third, the conditions without the Transfer Stations, but with assumed other industrial uses occupying the same sites, were evaluated assuming the Transfer Stations were replaced by as-of-right general light industrial land uses in the Study Area. This land use replacement scenario assumed that the Transfer Station land uses would be occupied by other M-zone land uses typical of current conditions in the Study Area.

Analyses were conducted for: (1) air quality, odor, noise, neighborhood character, public health and water quality from Transfer Stations located within each Study Area; and (2) traffic, off-site air quality and off-site noise at key intersections along major corridors/locations leading to and from the Study Areas. Although this evaluation is not an environmental review, CEQR and other planning and engineering review criteria were used as the best available measure of the environmental effects of Transfer Stations on the surrounding community.

Available information was compiled for the Transfer Stations in the Study Areas and field data (Transfer Station operational data, aerial photographs, traffic counts, intersection geometries, etc.) were collected and analyzed through March 2004 to conduct the traffic, air quality, odor, noise, neighborhood character, public health and water quality analyses presented in this Study. These data were used to prepare analyses of current conditions and estimate the potential effects on current conditions if no Transfer Stations were located in these areas, as summarized below. A more detailed discussion of the methodologies followed for the Study Area Environmental Analyses is included in Volume I, Appendices A through I to this Study.

If the evaluation of current conditions, inclusive of the combined effects of multiple Transfer Stations in the Study Areas (areas of potential overlapping effects) met the following criteria, the potential effects of Transfer Stations on the surrounding community were not further evaluated:

On-Site Air quality, Odor and Noise

- The maximum predicted combined effects for criteria air pollutants (carbon monoxide [CO], sulfur dioxide [SO_2], nitrogen dioxide [NO_2] and particulate matter less than 10 microns in diameter [PM_{10}]) from the Transfer Stations plus background levels from the closest monitor in the City are below National Ambient Air Quality Standards (NAAQS);
- There were no maximum predicted combined odor effects at sensitive receptors within overlapping 5 odor unit (OU) contours around the Transfer Stations within the Study Area; and
- The maximum predicted combined noise effects (attributable to the Transfer Stations) at sensitive receptors within overlapping noise contours or resulted in an increase of less than 3dBA.

Traffic, Off-Site Air Quality and Off-Site Noise

- The predicted approach traffic level of service (LOS) at selected intersections was mid-level LOS D (which equates to 45 seconds of delay -- the marginally acceptable LOS required for mitigation purposes under CEQR) or better under current conditions;
- The maximum predicted combined effects for off-site criteria air pollutants (CO and PM_{10}) from the Transfer Stations plus background levels from the closest monitor in the City are below NAAQS; and
- The predicted noise level from Waste Hauling Vehicles at sensitive receptors near selected intersections (identified with the potential for commercial Waste Hauling Vehicles to double passenger car equivalents [PCEs]) results in an increase less than 3 dBA during the hour with the maximum potential noise effects.

If the evaluated current conditions exceeded these criteria, measures to reduce air quality, odor and noise effects were evaluated to determine whether these existing levels could be reduced through design or operational measures at the Transfer Stations. If current conditions for traffic,

off-site air quality and off-site noise levels still exceeded the applicable criteria after evaluating the effects of these reduction measures, a replacement trip generation (RTG) analysis was performed, assuming the Transfer Stations were replaced by as-of-right general light industrial land uses (e.g., printing plants, laboratories) in the Study Area. The effects of these replacement land uses were calculated using trip generation rates published by the Institute of Transportation Engineers (ITE). This land use replacement scenario assumed that the Transfer Station land uses would be occupied by other M-zone land uses typical of current conditions in the Study Area. Evaluating the effects of reduction measures and the RTG scenario involved the following:

On-Site Air Quality, Odor and Noise

- The reduction measures that were applied to predicted air quality effects from the Transfer Stations included different types and sizes of equipment and enclosing waste processing operations;
- Maximum predicted combined odor effects were evaluated assuming a 90% odor removal efficiency from installation of a hard-piped odor control system at the putrescible waste Transfer Stations within the Study Area; and
- To determine if overlapping noise effects were reduced or removed, noise contours were prepared for Transfer Stations with predicted overlapping effects at sensitive receptors within each Study Area assuming application of noise reduction measures such as: (1) a building enclosure around processing operations at non-putrescible waste Transfer Stations; (2) removal of off-site queuing; and (3) 15' high concrete perimeter walls around all types of Transfer Stations.

Traffic, Off-Site Air Quality and Off-Site Noise

The analyses evaluated the effects of an RTG scenario on reducing the predicted effects of off-site Transfer Station operations. DSNY uses several Transfer Stations in the Study Areas for interim export. The effects of DSNY collection vehicles, traveling through analyzed intersections, were recorded. For traffic, off-site air quality and off-site noise analyses, collection vehicles (both DSNY and private carter Waste Hauling Vehicles) were removed from the analysis since it was assumed that commercial Waste Hauling Vehicles would be delivering waste to the Transfer Stations in the Study Areas if the DSNY were not using that capacity at the Transfer Stations.

- For traffic analyses, the predicted approach LOS and delay (1) without Waste Hauling Vehicles; and (2) with the replacement trips (based on the RTG analysis), were compared to the initially evaluated LOS with Waste Hauling Vehicles to determine whether there were significant differences;

- For off-site air quality analyses, (1) the maximum predicted combined CO and PM_{10} effects; and (2) the maximum predicted incremental $PM_{2.5}$ contributions from the replacement trips, were compared to those with Waste Hauling Vehicles; and

- For off-site noise analyses, the RTG analysis was not conducted since noise effects were not predicted at noise sensitive receptors.

Water Quality Evaluation

A screening process was performed to determine if Transfer Stations were located near or adjacent to surface waters and would, therefore, have the potential to impact water quality. As a result, 29 of the 43 Transfer Stations were identified as not being near or adjacent to surface water and were dropped from further evaluation. The remaining 14 Transfer Stations listed in Table 4.1-1 were evaluated for their potential impact to surface water. (None of these 14 are located within the Jamaica, Queens CD #12 Study Area.)

Cumulative effects on water quality from the Transfer Stations in the Study Areas were predicted using a mathematical model of New York Harbor, the New York Harbor Seasonal Steady State Water Quality Model (208 Model) and the conservative assumption that the entire site for each Transfer Station was impervious (i.e., paved). For each Transfer Station evaluated within the Study Areas, the volume of stormwater runoff and the associated pollutant loading was calculated using precipitation data and available databases on stormwater pollution concentration, and by calculating the runoff flow and assigning an average stormwater concentration for the following water quality parameters of concern: fecal coliform, biochemical oxygen demand (BOD), copper, lead and zinc.

Table 4.1-1
Transfer Stations Evaluated for Water Quality Effects

Name	Address	Type of Transfer Station
Port Morris, Bronx CD #1 Study Area		
Bronx County Recycling	475 Exterior Street	Fill
Felix Equities	290 East 132nd Street	Fill
Tilcon NY	980 East 149th Street	Fill
USA Waste Services of NY/Waste Management	98 Lincoln Avenue	Putrescible
Waste Management of NY	132nd Street & Saint Ann's Avenue	Putrescible (Intermodal)
Waste Services of NY	920 East 132nd Street	Putrescible
Hunts Point, Bronx CDs #2 and #9		
Waste Management of NY	Oak Point & Barry Avenue	Putrescible
Brooklyn CD#1 Study Area		
Waste Management of NY	75 Thomas Avenue	Non-Putrescible
Waste Management of NY	232 Gardner Avenue	Non-Putrescible
Waste Management of NY	215 Varick Avenue	Putrescible
Waste Management of NY	123 Varick Avenue	Non-Putrescible
Waste Management of NY	485 Scott Avenue	Putrescible
Maspeth Recycling	58-08 48th Street	Fill
Pebble Lane Associates	57-00 47th Street	Fill
Total Number of Transfer Stations Evaluated		**14**

Potential overlapping effects due to the operation of multiple Transfer Stations within a given Study Area were estimated by combining the incremental difference in water quality calculated by the model with existing water quality data and comparing these with NYSDEC water quality standards to determine whether the pollutant loading exceeds standards.

Public Health Evaluation

The effects on public health in the areas where overlapping effects of air quality, noise and odors from Transfer Stations were predicted at the nearest sensitive receptor considered the following criteria:

- Criteria air pollutants and $PM_{2.5}$ at the areas of maximum effect.
- The predicted contributions of Waste Hauling Vehicle emissions to ambient CO, PM_{10} and $PM_{2.5}$ concentrations in air, and the incremental noise levels at the nearest sensitive receptors along routes were evaluated in light of: (1) local, state or federal standards (where available); and (2) scientific literature pertaining to the health effects associated with ambient CO and particulate matter (PM), obnoxious odors, noise and municipal solid waste (MSW).

Neighborhood Character Evaluations

Data on existing land use, population characteristics, urban design and visual quality, parks and other community facilities, and cultural resources, as well as predicted traffic, air quality, odor, noise, water quality and public health were compiled for each of the Study Areas. Potential changes to neighborhood character were qualitatively evaluated with: (1) reduction measures, as applicable, identified in the air quality, odor and noise analyses; and (2) replacement trips from light manufacturing uses, to determine whether the neighborhood character would likely change or improve, or remain the same as under current conditions. The assumption used in creating the replacement industry scenario is that all components of neighborhood character conditions (zoning, socioeconomics, etc.) remain fundamentally the same as existing conditions.

5.0 STUDY AREA ENVIRONMENTAL ANALYSES FINDINGS

The following summarizes the overall approach to and results of the Study Area Environmental Analyses. A more detailed summary of the approach and results, and copies of supporting documentation (e.g., methodologies, model input parameters, intersection diagrams, summary results tables, etc.) are included in Volume I, Appendices A through I to this Study.

5.1 Neighborhood Character

Land use, population characteristics, urban design and visual quality, parks and other community facilities, and cultural resources data were compiled for the CDs within the Study Areas. This information, in conjunction with a summary of potential traffic, air quality, odor, water quality and public health findings of the Environmental Analyses, was used to determine the existing neighborhood character of each Study Area. Potential changes to neighborhood character (whether it would likely change or improve, or remain the same as under current conditions and how these conditions compare to CEQR standards) were qualitatively evaluated in light of the RTG analysis used for the traffic and off-site air quality analyses and under the potential reduction measures identified for the air quality, odor and noise analyses. The overall neighborhood character of each of the Study Areas is described below.

Port Morris, Bronx CD #1 Study Area

The portions of Port Morris in the eastern extent of the area studied and Mott Haven in the western extent and north of Bruckner Boulevard include the waterfront and are predominantly industrial areas, with scattered residential, community facility and commercial uses located further inland. Bruckner Expressway forms a physical east-west barrier that divides the area south of East 134th Street from areas further to the north. Neighborhood character south of Bruckner Boulevard is diminished by industrial uses and the presence of vacant, rubble-strewn lots and deteriorated sidewalk and building conditions. High volumes of truck traffic serving industrial uses and through-traffic accessing Manhattan via the Major Deegan Expressway also detract from the area's character.

Hunts Point, Bronx CDs #2 and #9 Study Area

The character of the Hunts Point, Bronx CDs #2 and #9 Study Area and peninsula is defined by low-scale, low-density heavy commercial and industrial uses. The Hunts Point Food Market, a wholesale food distribution facility, is the largest property within the vicinity of the Transfer Stations and largely defines the character of the Study Area. It generates considerable amounts of truck traffic, especially to and from its large warehouse buildings oriented around Food Center Drive.

Brooklyn CD #1 Study Area

The character of the Brooklyn CD #1 Study Area is defined by predominantly industrial land use and visual quality. Newtown Creek, which runs through the area studied, has been historically home to heavy industry and remains a working waterfront characterized by large-scale municipal facilities and water-dependent industrial uses on large lots. It is among these manufacturing uses that the Transfer Stations are located. Consistent with the heavily industrial area, there are no sensitive visual resources or unique features, and many of the streets are ill-suited for pedestrian activity. Within the southwestern portion of the area studied, however, lies the residential community of Greenpoint. Though adjacent to manufacturing uses at its eastern edge, the character of this residential area is generally not intruded upon by its industrial surroundings.

Jamaica, Queens CD #12 Study Area

The character of the Jamaica, Queens CD #12 Study Area is mixed. The LIRR corridor bisects the area, creating northern and southern halves. Heavily industrial uses are present along the eastern portion of the corridor and along its southern side, where the Transfer Stations are located. Residential areas are also located in the southern portion, adjacent to and south of the industrial uses. The northern portion features the vibrant commercial area along Jamaica Avenue, just north of the rail corridor. North of the commercial uses are more residential areas.

The technical studies support the conclusion that the groups of Transfer Stations do not attribute negatively to the character of the neighborhoods overall or are contributors to adverse conditions that may exist. The public health assessment has concluded that air quality and odor conditions are not of a public health concern.

5.2 Air Quality, Odor, Noise and Water Quality Analyses

Air quality, odor, noise and water quality analyses were conducted to evaluate the potential effects from the close proximity of the Transfer Stations within the Study Areas to each other.

5.2.1 Prototypical Designs

Air quality, odor, noise and water quality analyses were prepared based on review of available information in engineering reports, drawings, permit applications and environmental review documents for the Transfer Stations in the Study Areas. The available data on the 43 Transfer Stations in the Study Areas was sufficient to evaluate the effects of facility design and operations in the analyses. Data was compiled to determine average building size, lot size and space available for queuing and processing equipment for the "prototypical" categories of Transfer Stations (refer to Volume I, Appendix B for facility design specifics).

Field surveys were conducted at each of the 43 Transfer Stations to identify the average and peak number of Waste Hauling Vehicles queuing on site and on roads at the entrance/exit to each facility for inclusion in the analysis. Field surveys were also conducted to identify Transfer Station parameters (e.g., building heights, numbers and types of equipment in operation, etc.) to refine the prototypical designs.

A general discussion of the environmental analytical approach using the prototypical designs follows. Tests of actual Transfer Station designs and operational parameters, where available, were conducted to determine the relative accuracy of the results. Study Area results with prototypical facilities were compared to the test scenarios using design and operational information from one of the Transfer Stations in each of the eight categories listed in Table 5.2.1-1. In general, air quality, noise and odor analyses presented in this Study are similar on an order-of-magnitude level to those that would result from using site-specific Transfer Station information, if that were available.

Table 5.2.1-1
Categories of Prototypical Transfer Stations

Category	Type of Transfer Station
Putrescible Waste	Small
	Medium with Baler
	Large with Baler
	Large with Locomotive
Non-Putrescible Waste	C&D Processing
	C&D Processing with Crushing Equipment
Fill Material	Small/Medium
	Large

5.2.2 Air Quality

Air quality analyses were conducted for all operating Transfer Stations located in each of the four Study Areas. Prototypical Transfer Station emission-related data for various sources (e.g., processing building, equipment, storage pile, Waste Hauling Vehicles, etc.) were developed from a combination of available information (e.g., owner or vendor information, field tests, published sources) and assumptions based on each Transfer Station's size and operations (including the simultaneous operation of all applicable emission sources). A field survey conducted in each Study Area determined that no other major commercial or industrial sources were located within 400 feet of these Study Areas. Air quality levels at receptor sites (i.e., site boundary locations and sensitive-receptor locations identified from land use maps and field observations) potentially affected by the combined emissions of the Transfer Stations were predicted using the United

States Environmental Protection Agency's (USEPA) Industrial Source Complex Short-Term (ISCST3) (version 97363) dispersion model, and the 1997 through 2001 LaGuardia Airport meteorological data set.

The maximum predicted combined contribution of existing Transfer Stations in the Study Area was added to background levels from the closest air quality monitor in the area to estimate current conditions for criteria air pollutants (CO, SO_2, NO_2 and PM_{10}). For $PM_{2.5}$, for which the area is currently being evaluated by USEPA with respect to existing concentrations and attainment/non-attainment status, the analysis provides only the contribution by Study Area facilities, in comparison to existing concentrations of $PM_{2.5}$.

As shown in Tables 5.2.2-1 through 5.2.2-4, all results are below NAAQS for all criteria pollutants.

As shown in Table 5.2.2-5, for $PM_{2.5}$, the maximum predicted annual neighborhood average contribution ranges from 1% to 6% of the latest monitored concentration from the nearest monitoring station within each Study Area.

The modeled 24-hour $PM_{2.5}$ contributions (on a 98^{th} percentile basis) from the commercial waste facilities are shown in Table 5.2.2-6 for each Study Area. These contributions are a significant portion of the existing $PM_{2.5}$ concentrations measured by monitors located nearest each Study Area. However, the model results are quite conservative in that they represent all facilities operating simultaneously at their maximum allowed capacities. In addition, the modeling is based on emission rates that were calculated using the weighted average of the actual engines at non-putrescible and fill facilities. It is likely that the emission rates used are higher than the actual emissions, especially as newer equipment enters the fleet of non-road diesel engines. To the extent that facilities use newer equipment and operate less than 24 hours per day, actual contributions will be substantially lower.

In general, the air quality modeling results show that the locations of the receptors with the maximum concentration of pollutants are located between several Transfer Stations and are close to larger Transfer Stations in the Study Area with greater than 90% of the effects attributable to those Transfer Stations.

Figures 5.2.2-1 through 5.2.2-4 show the locations of the highest short-term and annual averaging concentrations for the criteria pollutants from multiple Transfer Stations in the Study Areas.

Table 5.2.2-1
Summary of Air Quality Analysis
Criteria Pollutants
Brooklyn CD #1 Study Area

Pollutant	Averaging Time Period	Background Pollutant Concentration [1] ($\mu g/m^3$)	Maximum Contributions from On-Site Emission Sources ($\mu g/m^3$)	Highest Estimated Pollutant Concentration [4] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
Carbon Monoxide (CO)[1]	1-hr	3,321	1,857	5,178	40,000
	8-hr	2,634	877	3,511	10,000
Nitrogen Dioxide (NO_2)[2]	Annual	56	16	72	100
Particulate Matter (PM_{10})	24-hr[3]	57	68	125	150
	Annual	23	5	28	50
Sulfur Dioxide (SO_2)	3-hr	189	57	246	1,300
	24-hr	87	10	97	365
	Annual	21	1	22	80

Notes:
NAAQS = National Ambient Air Quality Standards.
(1) Background concentrations for NO_2, SO_2 and PM_{10} are from the Greenpoint monitoring station. The 8-hr CO background concentration was provided by NYCDEP.
(2) A conversion factor of 0.59 was used to convert estimated nitrogen oxide (NOx) contributions to NO_2 contributions. Source: Newtown Creek FEIS.
(3) The 1st highest high values are used to report 24-hr PM_{10} results for comparison with NAAQS.
(4) Highest on-site pollutant concentration is the total of the result plus background.

Table 5.2.2-2
Summary of Air Quality Analysis
Criteria Pollutants
Jamaica, Queens CD #12 Study Area

Pollutant	Averaging Time Period	Background Pollutant Concentration [1] ($\mu g/m^3$)	Maximum Contributions from On-Site Emission Sources ($\mu g/m^3$)	Highest Estimated Pollutant Concentration [4] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
Carbon Monoxide (CO)[1]	1-hr	3,321	1,140	4,461	40,000
	8-hr	2,634	454	3,088	10,000
Nitrogen Dioxide (NO_2)[2]	Annual	51	12	63	100
Particulate Matter (PM_{10})	24-hr[3]	57	35	92	150
	Annual	23	3	26	50
Sulfur Dioxide (SO_2)	3-hr	186	41	227	1,300
	24-hr	107	5	112	365
	Annual	18	0.4	18	80

Notes:
NAAQS = National Ambient Air Quality Standards.
(1) Background concentrations for NO_2, SO_2 and PM_{10} are from the Queensboro Community College monitoring station. Background concentrations for PM_{10} are from the Greenpoint monitoring station. The 8-hr CO background concentration was provided by the NYCDEP.
(2) A conversion factor of 0.59 was used to convert estimated NOx contributions to NO_2 contributions. Source: Newtown Creek FEIS.
(3) The 1st highest high values are used to report 24-hr PM_{10} results for comparison with NAAQS.
(4) Highest on-site pollutant concentration is the total of the result plus background.

Table 5.2.2-3
Summary of Air Quality Analysis
Criteria Pollutants
Hunts Point, Bronx CDs #2 and #9 Study Area

Pollutant	Averaging Time Period	Background Pollutant Concentration [1] ($\mu g/m^3$)	Maximum Contributions from On-Site Emission Sources ($\mu g/m^3$)	Highest Estimated Pollutant Concentration [4] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
Carbon Monoxide (CO)[1]	1-hr	3,779	1,279	5,058	40,000
	8-hr	2,634	675	3,309	10,000
Nitrogen Dioxide (NO_2)[2]	Annual	68	18	86	100
Particulate Matter (PM_{10})	24-hr[3]	75	66	141	150
	Annual	24	7	31	50
Sulfur Dioxide (SO_2)	3-hr	215	52	267	1,300
	24-hr	113	9	122	365
	Annual	26	1	27	80

Notes:
NAAQS = National Ambient Air Quality Standards.
(1) Background concentrations for NO_2, SO_2 and PM_{10} are from the IS 155 and Morrisania monitoring stations. The 8-hr CO background concentration was provided by the NYCDEP.
(2) A conversion factor of 0.59 was used to convert estimated NOx contributions to NO_2 contributions. Source: Newtown Creek FEIS.
(3) The 1st highest high values are used to report 24-hr PM_{10} results for comparison with NAAQS.
(4) Highest on-site pollutant concentration is the total of the result plus background.

Table 5.2.2-4
Summary of Air Quality Analysis
Criteria Pollutants
Port Morris, Bronx CD #1 Study Area

Pollutant	Averaging Time Period	Background Pollutant Concentration [1] ($\mu g/m^3$)	Maximum Contributions from On-Site Emission Sources ($\mu g/m^3$)	Highest Estimated Pollutant Concentration [4] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
Carbon Monoxide (CO)[1]	1-hr	3,779	581	4,360	40,000
	8-hr	2,634	191	2,825	10,000
Nitrogen Dioxide (NO_2)[2]	Annual	68	9	77	100
Particulate Matter (PM_{10})	24-hr[3]	75	20	95	150
	Annual	24	2	26	50
Sulfur Dioxide (SO_2)	3-hr	215	17	232	1,300
	24-hr	113	3	116	365
	Annual	26	0.3	26	80

Notes:
NAAQS = National Ambient Air Quality Standards.
(1) Background concentrations for NO_2, SO_2 and PM_{10} are from the IS 155 and Morrisania monitoring stations. The 8-hr CO background concentration was provided by the NYCDEP.
(2) A conversion factor of 0.59 was used to convert estimated NOx contributions to NO_2 contributions. Source: Newtown Creek FEIS.
(3) The 1st highest high values are used to report 24-hr PM_{10} results for comparison with NAAQS.
(4) Highest on-site pollutant concentration is the total of the result plus background.

Table 5.2.2-5
Summary of Air Quality Analysis
$PM_{2.5}$ Annual Neighborhood Average

Study Area	Annual Neighborhood Concentration ($\mu g/m^3$)	Annual Average Monitored Concentration[(1)] ($\mu g/m^3$)	Percent of Transfer Station Contribution to Monitored Concentration ($\mu g/m^3$)
Brooklyn Study Area	0.88	16.3	5%
Jamaica Study Area	0.29	13.1	2%
Hunts Point Study Area	1.05	18.0	6%
Port Morris Study Area	0.22	18.0	1%

Note:
(1) Monitored concentrations are based on one-year annual average of Greenpoint Monitoring Station in Brooklyn (2000) for Brooklyn CD #1 Study Area; PS 219 Monitoring Station in Queens (2002) for Jamaica, Queens CD #12 Study Area; IS 52 Monitoring Station in the Bronx (2002) for Hunts Point, Bronx CDs #2 and #9 Study Area; and JHS 45 in Manhattan (2002) for Port Morris, Bronx CD #1 Study Area.

Table 5.2.2-6
Summary of Air Quality Analysis
$PM_{2.5}$ 24-Hour Average

Study Area	24-hour Concentration ($\mu g/m^3$)	98th Percentile 24-hour Monitored Concentration[(1)] ($\mu g/m^3$)	Percent of Transfer Station Contribution to Monitored Concentration ($\mu g/m^3$)
Greenpoint Study Area	11.2	41.7	27%
Jamaica Study Area	5.7	38.6	15%
Hunts Point Study Area	12.0	41.1	29%
Port Morris Study Area	4.8	41.1	12%

Note:
(1) Monitored concentrations are based on a 98th percentile of one year of data from the Greenpoint Monitoring Station in Brooklyn (2000) for Brooklyn CD #1 Study Area; PS 219 Monitoring Station in Queens (2002) for Jamaica, Queens CD #12 Study Area; IS 52 Monitoring Station in the Bronx (2002) for Hunts Point, Bronx CDs #2 and #9 Study Area; and JHS 45 in Manhattan (2002) for Port Morris, Bronx CD #1 Study Area.

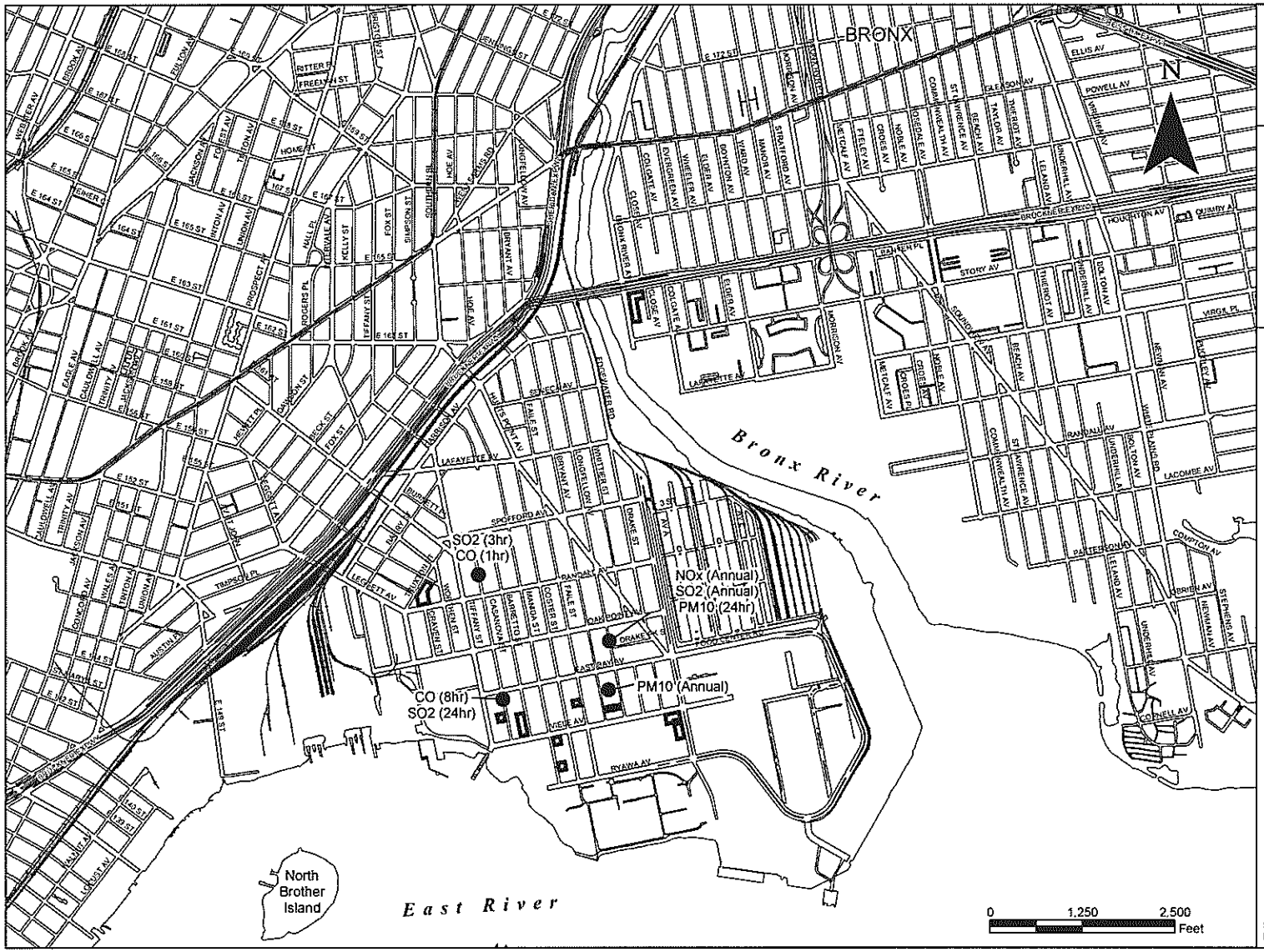


Figure 5.2.2-1
Air Quality Maximum
Hunts Point, Bronx CDs #2 and #9
Study Area

City of New York
Department of Sanitation

Legend

- Maximum Concentration Receptors

Site delineations and receptor locations are approximate.
Base Map Sources: NYCDoitt and NYCDCP

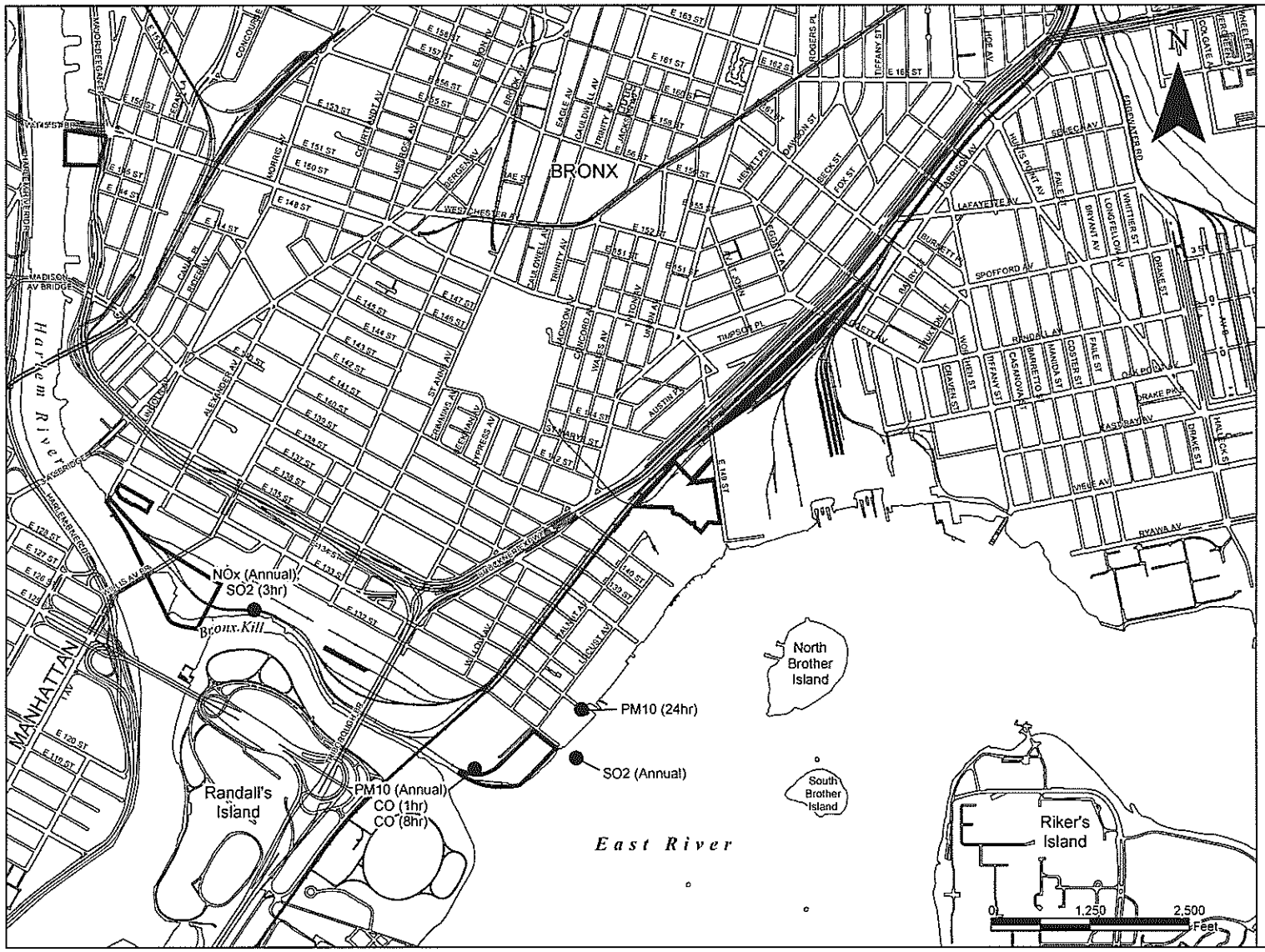


Figure 5.2.2-2
Air Quality Maximum
Port Morris, Bronx CD #1 Study Area

City of New York
Department of Sanitation

Legend

- Maximum Concentration Receptors

Site delineations and receptor locations are approximate
Base Map Sources: NYCDoitt and NYCDCP

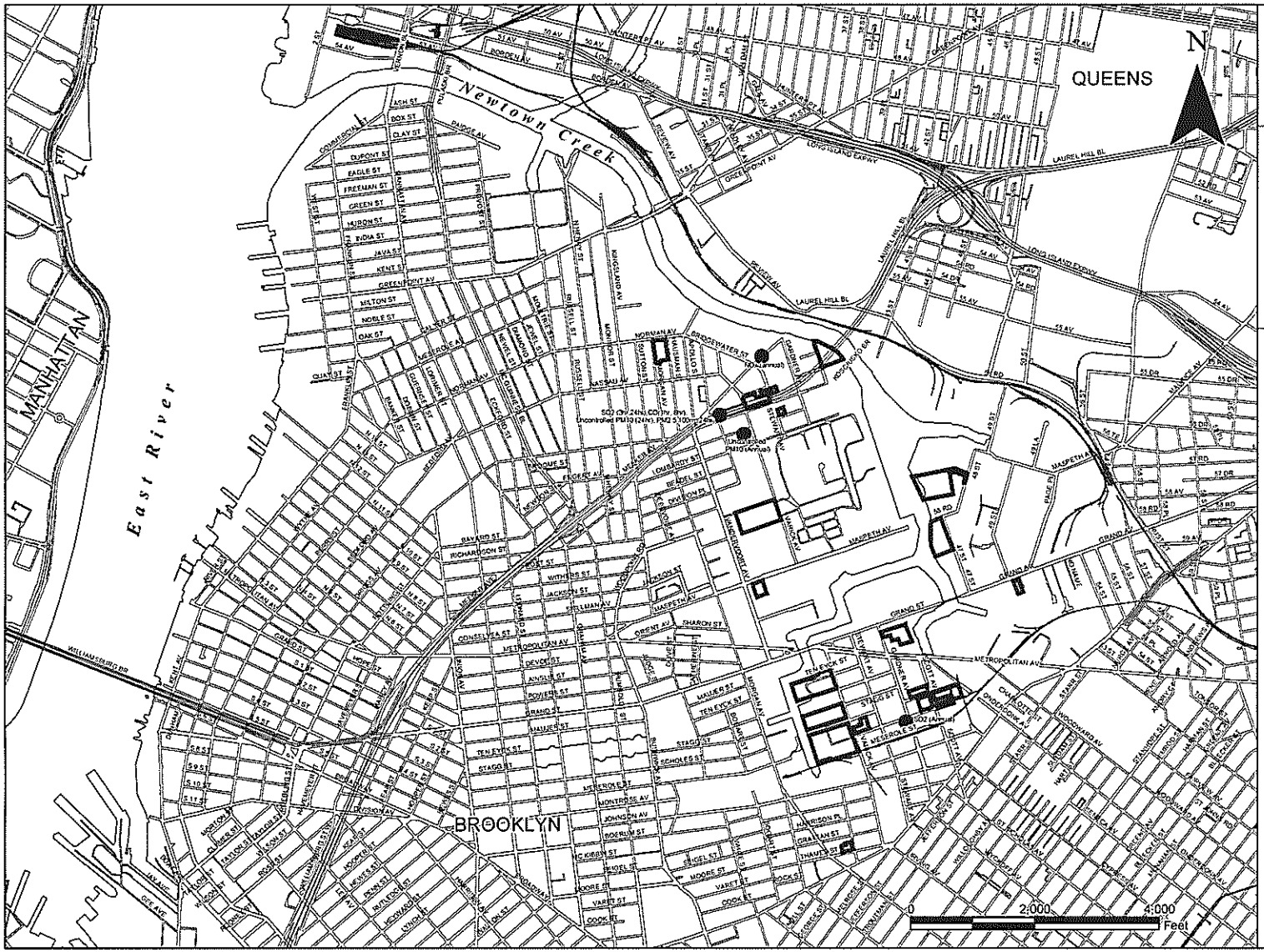


Figure 5.2.2-3
Air Quality Maximum
Brooklyn CD #1 Study Area

City of New York
Department of Sanitation

Legend

- Maximum Concentration Receptors

Cambridge Environmental Inc
URBITRAN

Site delineations are approximate.
Base Map Sources. NYCDoitt and NYCDCP

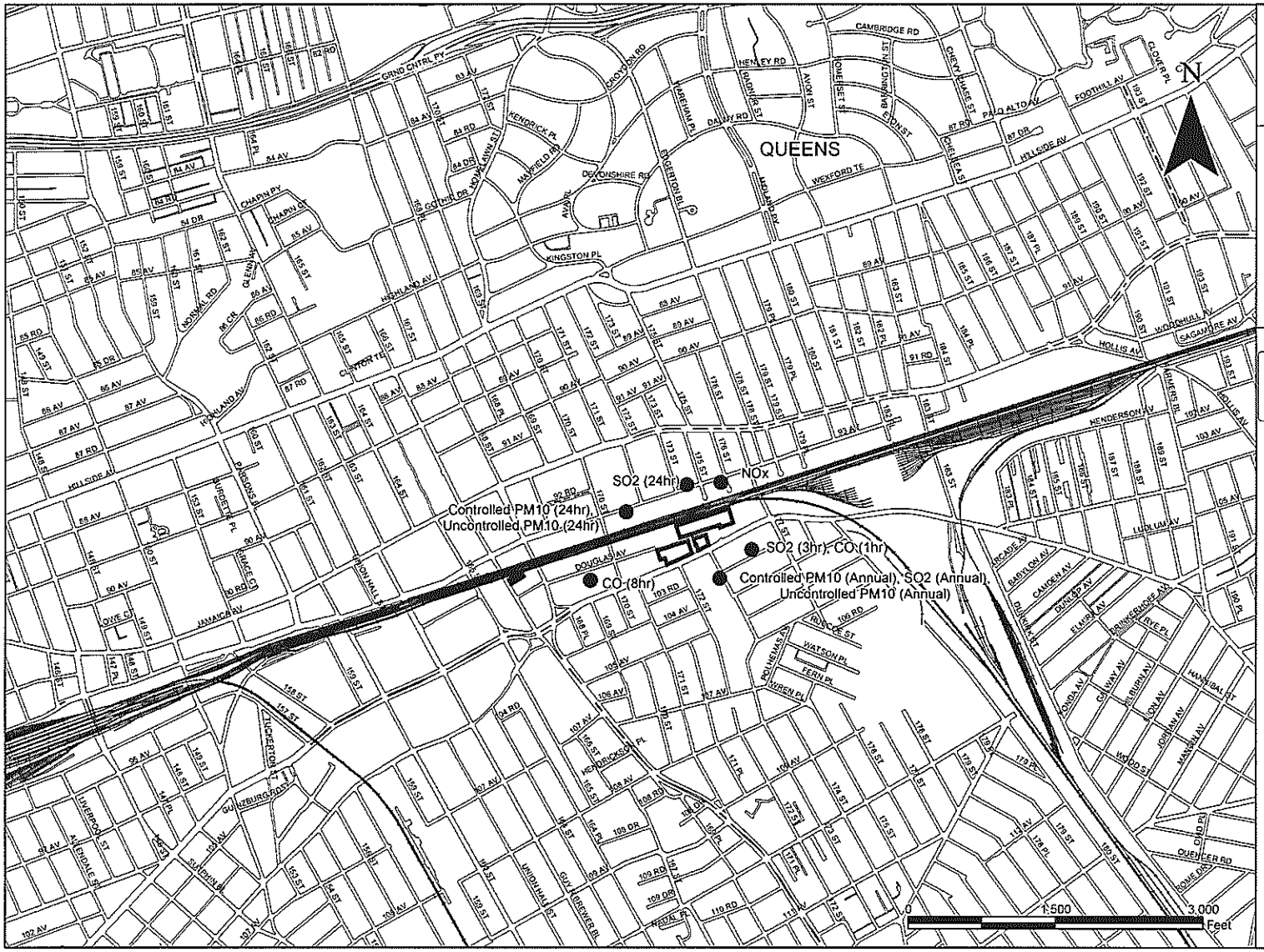


Figure 5.2.2-4
Air Quality Maximum
Jamaica, Queens CD #12 Study Area

City of New York
Department of Sanitation

Legend

- Maximum Concentration Receptors

HDR HydroQual

Cambridge Environmental Inc URBITRAN PB

Site delineations are approximate.
Base Map Sources: NYCDoitt and NYCDCP

5.2.3 Odor Sampling

Sampling of odors from four Transfer Stations within the Study Areas was performed in July and August of 2003, when odor generation from waste decomposition would be expected to be at its peak. A total of 45 vent samples and 15 Quality Assurance/Quality Control (QA/QC) samples were collected. Of the 60 samples collected, 21 uncontrolled samples were used to calculate the eight facility-specific Transfer Station odor emission factors that were used to establish odor emission rates for the three prototypical Transfer Stations.

In accordance with guidance documents published by the USEPA and the Air and Waste Management Association (AWMA), whole air odor samples were collected from the exhaust vents on the roof of the processing buildings at the Transfer Stations using a vacuum chamber sampling system that consists of a rigid, airtight container with an inlet port connected to an internal Tedlar® bag and an outlet port connected to a portable pump (see Volume I, Appendix D for a more detailed description of the sampling methodology).

The analytical technique used on the odor samples is referred to as an odor panel evaluation in which a group of people, the "odor panel," quantifies the following:

- Detection and recognition thresholds ("odor concentration");
- Odor intensity; and
- Odor persistence (dose response).

The odor panel members were selected, and odor analysis conducted, by the laboratory in accordance with the following established protocols and standards set by the American Society of Testing Materials (ASTM):

- Selection and Training of Sensory Panel Members (Standard Practice 758);
- Determination of Odor and Taste Thresholds by a Forced-Choice Ascending Concentration Series Method of Limits (Standard Practice E679-91); and
- Referencing Suprathreshold Odor Intensity (Standard Practice E544-99).

A review of the controlled and uncontrolled odor emissions from the same facilities revealed that the controlled Transfer Station emissions were no more than 38% lower than the uncontrolled facilities, and in some cases the controlled emissions were deemed higher than the uncontrolled emissions. This is likely due to the use of scented masking agents as odor control measures in the Transfer Stations, rather than more effective neutralizing agents. Masking agents tend to have their own odors (e.g., cherry, pine, etc.) that can be considered a nuisance, while neutralizing agents consist of compounds that react with the odors from the waste and "neutralize" the effect.

Based on the results of the sampling study, emission factors were conservatively estimated for the Transfer Stations by: (1) using the detection threshold (DT) value provided by the laboratory (the DT value is that recorded when the odor is first detected); (2) using only the maximum emission rate for the three prototypical facility sizes; and (3) applying a 2.5 peak-to-mean factor to the maximum emission rate and associated effects. A summary of the emission factors and odor emission rates calculated for use in odor modeling are presented in Tables 5.2.3-1 and 5.2.3-2, respectively.

A more detailed summary of the approach and results, and copies of supporting documentation (i.e., sampling protocol, results, etc.) are included in Volume I, Appendices D and E to this Study.

Table 5.2.3-1
ISCST3 Model Input Emission Rates(1)

Emission Basis	Prototype Facility Size		
	Small	Medium	Large
Maximum Emission Rate (OU/sec)	0.0128	0.0253	0.1721
Average Emission Rate (OU/sec)	0.0057	0.0114	0.0774

Notes:
(1) Emission rates input as grams/second, in order to obtain output odor concentrations in multiples of detection threshold (DT).

Table 5.2.3-2
Estimated Maximum and Average Odor Emission Rates for Each Facility Prototype

Parameter	Prototype Facility Size and Type		
	Small	Medium	Large
Stockpiled Waste Capacity (tons)	119	236	1605
Maximum Emission Rate (OU/sec)[(1)]	5,105	10,124	68,855
Average Emission Rate (OU/sec)[(2)]	2,297	4,555	30,977

Notes:
[(1)] Maximum Emission Factor = 42.9 ([OU/sec]/ton stored).
[(2)] Average Emission Factor = 19.3 ([OU/sec]/ton stored).

5.2.4 Odor Modeling

Odor emission rates described in Section 5.2.3 were used to conduct the odor dispersion modeling. Because of the variation in odor control efficiency measured during sampling, the uncontrolled emission factors were used to model odors from the processing building from putrescible waste Transfer Stations within the Study Areas. Odor levels at sensitive-receptor locations identified from land use maps and field observations that may be affected by the combined emissions of adjacent Transfer Stations were estimated using USEPA's ISCST3 model and the most recent five years of historic meteorological data.

Odor contours were developed to identify areas where odors from several putrescible waste Transfer Stations in a Study Area overlapped, which were also near sensitive-receptor locations. This type of analysis is conservative in that it assumes prevailing winds occur in opposite directions simultaneously to result in overlapping effects. The odor contour maps express results of odors in OU, where one OU is defined as the amount or mass of odor needed to generate a concentration at the DT in a volume of one cubic meter of air. In other words, an average person in a laboratory setting could just barely detect that there was something different about a sample that contained a concentration of 1 OU, in comparison to clean, filtered background air. An odor concentration effect at 1 OU would not likely be detected in outdoor air within the City, which, based on background measurements taken during this Study, had on the order of 5 OU. Adding

a concentration of 1 OU to such air would probably not make a detectable difference to an observer. It is assumed that an added effect of 5 OU from a waste Transfer Station would be a more likely level of odor effect that would begin to be detected by an observer.

Table 5.2.4-1 provides a summary of modeled odor levels for identified sensitive receptors in each of the Study Areas. These results are presented in terms of the frequency of modeled values with respect to specified thresholds of 5 OU (five odor units, meaning five times the laboratory determined detection threshold) and 1 OU. A level of 5 OU is considered to be a level at which the public may start to notice odors, since the background odor levels, based on laboratory analysis of samples taken upwind of commercial putrescible waste facilities, were typically in the 5 to 6 OU range. Also, these results focus only on receptors where there may be overlapping effects from multiple facilities, which may tend to increase the frequency of hours with predicted odor levels above the 5 OU threshold.

These odor modeling results are based on a conservative assumption that there is no odor control at the facilities, unless otherwise noted. In reality, the existing odor controls at commercial waste facilities handling putrescible waste vary widely, with some facilities having little or no effective control, and others having relatively good odor control. These conservative results indicate that the frequency of predicted odor levels above 5 OU is relatively small at all sensitive receptors for all Study Areas. The highest frequency of conservatively predicted odor levels exceeding the criteria, assuming no odor controls, was for a receptor in the Brooklyn CD #1 Study Area, where the model predicted an exceedance just under 0.82% of the time (72 non-consecutive hours per year). If more effective (90% efficient) odor controls were implemented at all commercial putrescible waste facilities, the odor levels would be reduced substantially (by 90%), and there would be no overlapping contributions greater than 5 OU from multiple Transfer Stations in the Study Areas.

Figures 5.2.4-1 through 5.2.4-4 show the predicted odor contours and location of sensitive receptors within the overlapping areas for each of the Study Areas.

Table 5.2.4-1
Predicted Odor Effects

Receptor	Percent of Time Greater Than or Equal to 5 OU [(1)]	Percent of Time Less Than or equal to 1 OU [(2)]	Percent of Time Between 1 and 5 OU
Brooklyn CD #1 Study Area			
Receptor #2 (R2)	0.23%	85.4%	14.4%
Receptor #3 (R3)	0.82%	86.0%	13.2%
Port Morris, Bronx CD #1 Study Area			
Receptor #15 (R15)	0.07%	98.6%	1.3%
Receptor #16 (R16)	0.06%	98.6%	1.3%
Receptor #17 (R17)	0.10%	98.6%	1.3%

Notes:
(1) Summary of 1-hour episodes of 5 OU and greater at the receptor within overlapped contours.
(2) Summary of 1-hour episodes of less than 1 OU at the receptor within overlapped contours.
OU = Odor Unit.
No modeled odor levels above 5 OU were found within the Hunts Point, Bronx CDs #2 and #9 Study Area or Jamaica, Queens CD #12 Study Area.

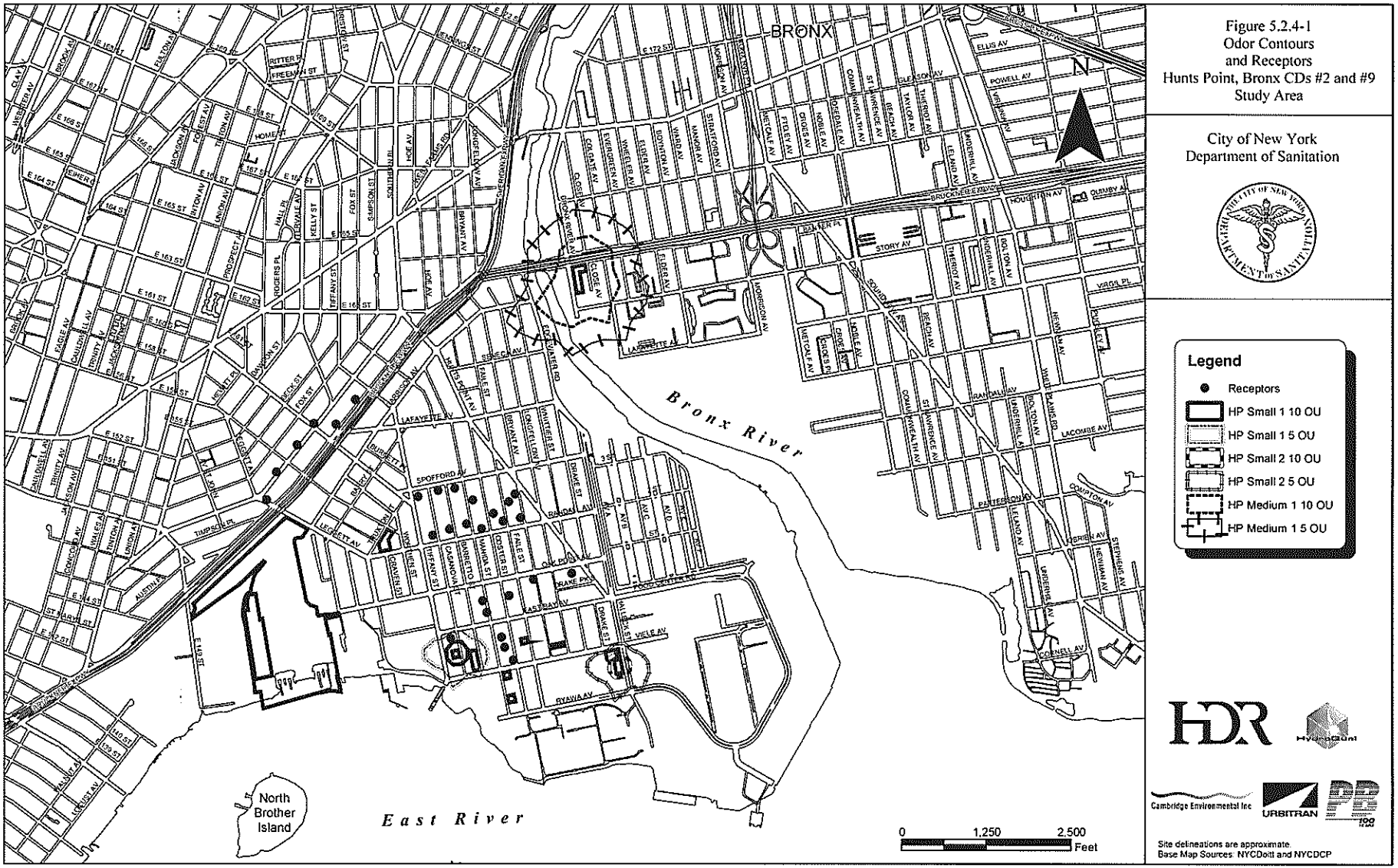
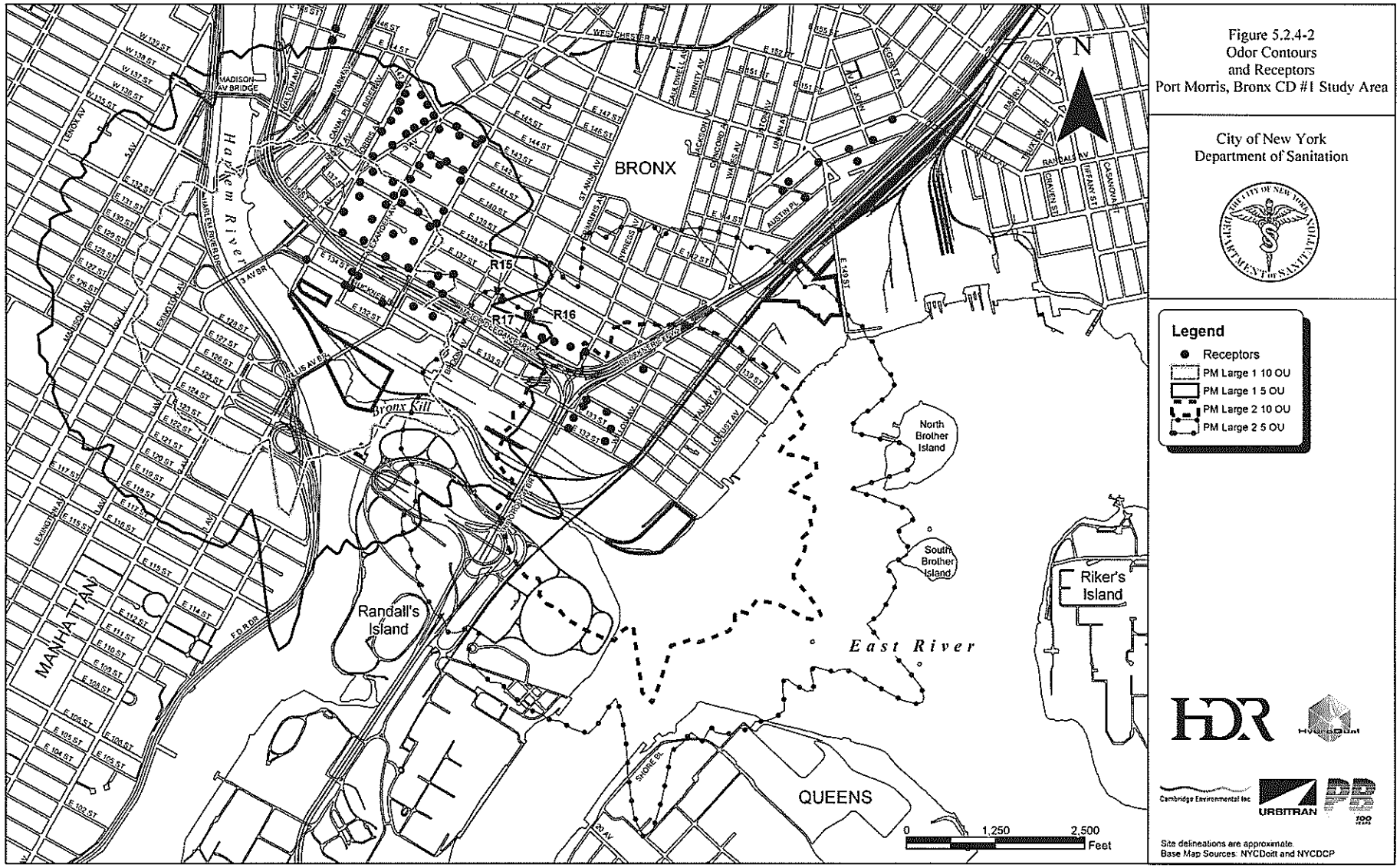


Figure 5.2.4-1
Odor Contours
and Receptors
Hunts Point, Bronx CDs #2 and #9
Study Area

City of New York
Department of Sanitation

HDR
Hydroqual
Cambridge Environmental Inc
URBITRAN
PB

Site delineations are approximate.
Base Map Sources: NYCDoitt and NYCDCP


BRONX
Harlem River
MANHATTAN
Randall's Island
Bronx Kill
East River
North Brother Island
South Brother Island
Riker's Island
QUEENS
R15
R16
R17
N
0
1,250
2,500
Feet
Legend
Receptors
PM Large 1 10 OU
PM Large 1 5 OU
PM Large 2 10 OU
PM Large 2 5 OU
Figure 5.2.4-2
Odor Contours
and Receptors
Port Morris, Bronx CD #1 Study Area
City of New York
Department of Sanitation
Site delineations are approximate.
Base Map Sources: NYCDoitt and NYCDCP

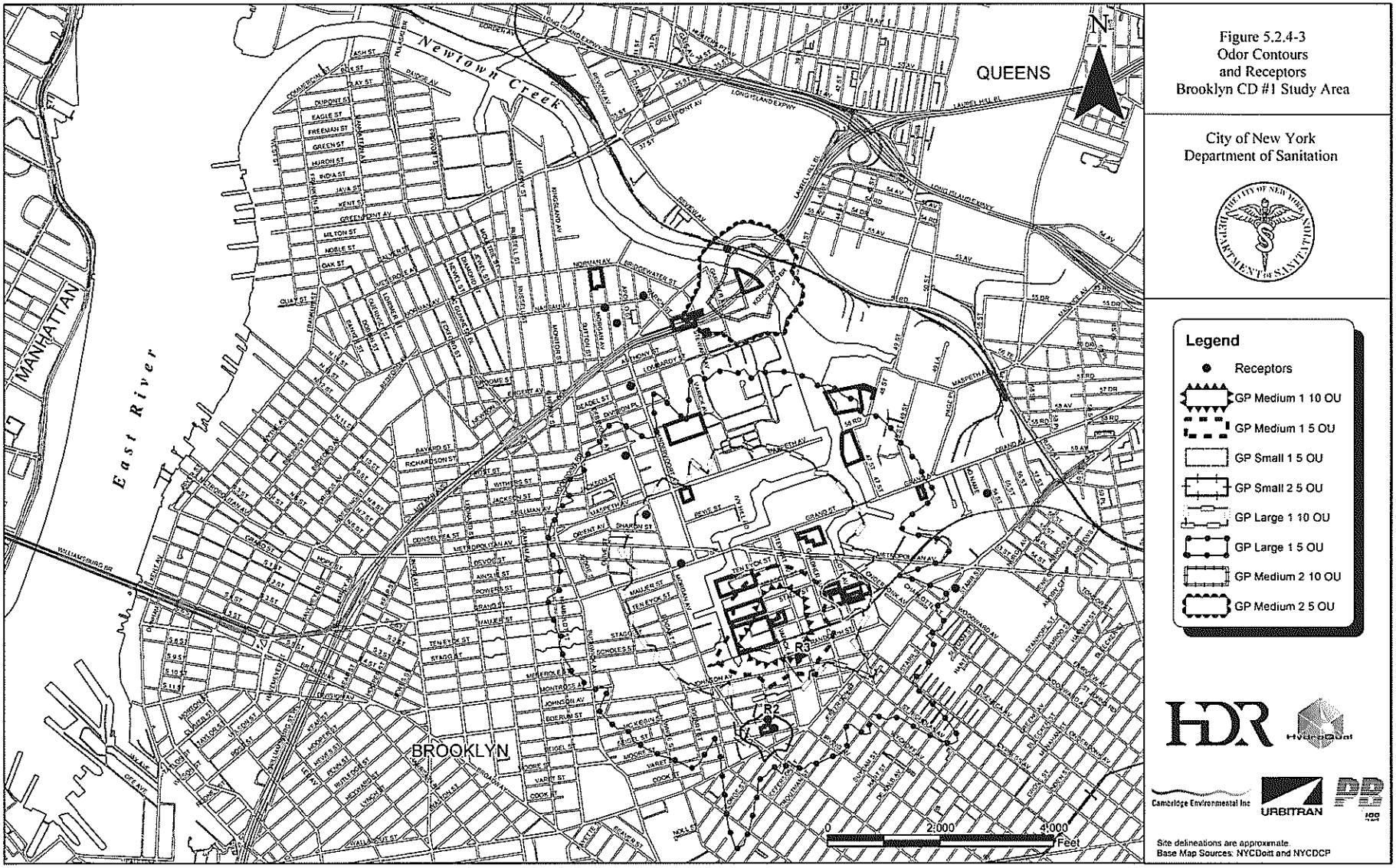


Figure 5.2.4-3
Odor Contours
and Receptors
Brooklyn CD #1 Study Area

City of New York
Department of Sanitation

Legend

- Receptors
- GP Medium 1 10 OU
- GP Medium 1 5 OU
- GP Small 1 5 OU
- GP Small 2 5 OU
- GP Large 1 10 OU
- GP Large 1 5 OU
- GP Medium 2 10 OU
- GP Medium 2 5 OU

HDR HydroQual

Cambridge Environmental Inc URBITRAN PB

Site delineations are approximate.
Base Map Sources: NYCDoitt and NYCDCP

Figure 5.2.4-4
Odor Contours
and Receptors
Jamaica, Queens CD #12 Study Area

City of New York
Department of Sanitation

Legend

- Receptors
- JM Medium 1 10 OU
- JM Medium 1 5 OU

Site delineations are approximate.
Base Map Sources: NYCDoitt and NYCDCP

5.2.5 Noise

The potential noise effects of Transfer Stations within a Study Area depend on the types and number of noise sources in use. The noise spreadsheet model previously developed by the DSNY for the 2000 Solid Waste Management Plan Final Environmental Impact Statement (EIS) was used to predict the potential for combined effects from Transfer Stations within the Study Areas. Noise emission levels from equipment in the prototypical facilities were obtained from field measurements, or manufacturer's data, when field measurements were unavailable. A noise model was used to predict 55 dBA noise contours around each Transfer Station, taking into account existing shielding and conservatively assuming that all equipment at putrescible waste and non-putrescible waste Transfer Stations operated 24 hours per day, since they were permitted to do so.

The predicted 55 dBA noise contours from all of the Transfer Stations in each Study Area were combined to determine areas of overlapping noise levels where sensitive receptors exist, and field measurements were conducted to measure the existing noise levels at the sensitive receptors within the overlapping contour areas. The predicted noise levels from the Transfer Stations were removed from the existing measured noise levels to determine if the incremental effect of the combined Transfer Stations resulted in an increase of less than 3dBA (attributable to the Transfer Stations).

Transfer Stations in the Port Morris, Bronx CD #1 Study Area do not have overlapping noise effects because they are not located in proximity to each other. However, there were areas of potential overlapping effects from multiple Transfer Stations in the Brooklyn CD #1; Jamaica, Queens CD #12; and Hunts Point, Bronx CDs #2 and #9 Study Areas identified, but further analyses did not predict effects at sensitive receptors located within these Study Area overlap areas.

Waste Hauling Vehicles queuing on and off site are the highest contributor to noise levels. The removal of off-site queuing of Waste Hauling Vehicles reduces noise levels.

Figures 5.2.5-1 through 5.2.5-4 show the predicted noise contours and location of sensitive receptors within the overlapping areas for each of the Study Areas.

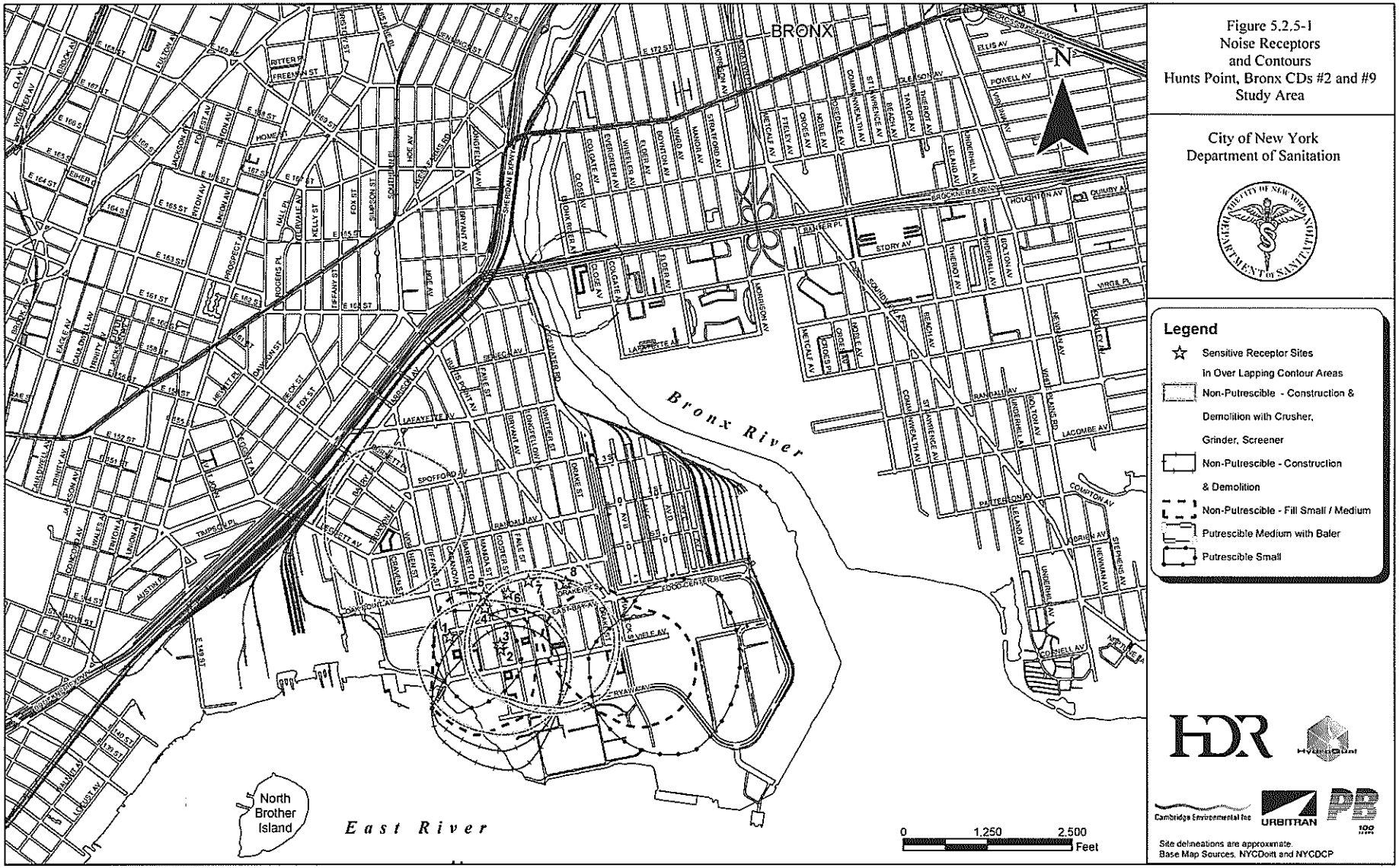


Figure 5.2.5-1
Noise Receptors
and Contours
Hunts Point, Bronx CDs #2 and #9
Study Area

City of New York
Department of Sanitation

Legend

- ☆ Sensitive Receptor Sites
- In Over Lapping Contour Areas
- Non-Putrescible - Construction & Demolition with Crusher, Grinder, Screener
- Non-Putrescible - Construction & Demolition
- Non-Putrescible - Fill Small / Medium
- Putrescible Medium with Baler
- Putrescible Small

HDR
Cambridge Environmental Inc
URBITRAN
PB

Site delineations are approximate.
Base Map Sources. NYCDoIt and NYCDCP

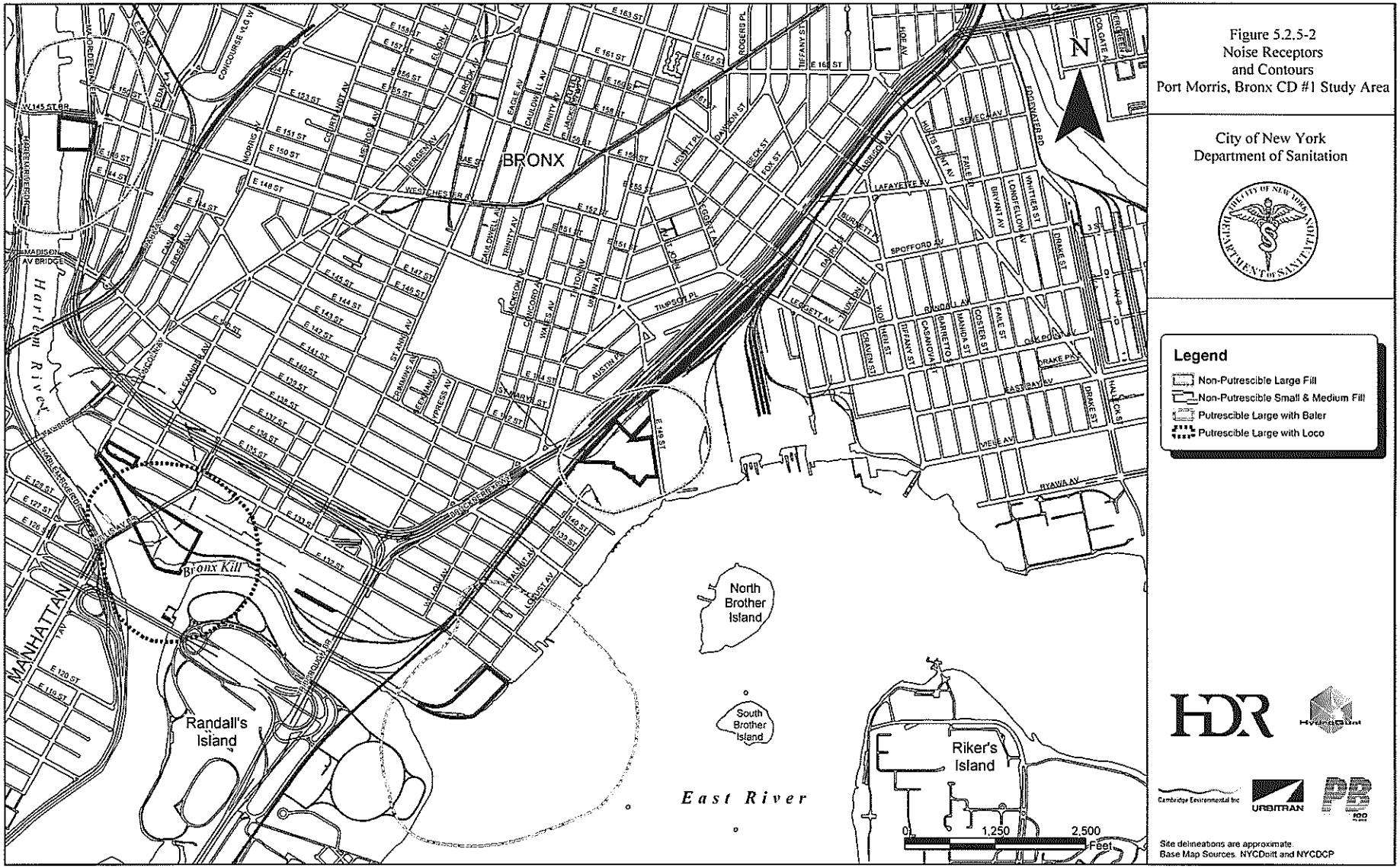


Figure 5.2.5-2
Noise Receptors
and Contours
Port Morris, Bronx CD #1 Study Area

City of New York
Department of Sanitation

Legend

- Non-Putrescible Large Fill
- Non-Putrescible Small & Medium Fill
- Putrescible Large with Baler
- Putrescible Large with Loco

Site delineations are approximate.
Base Map Sources. NYCDoitt and NYCDCP

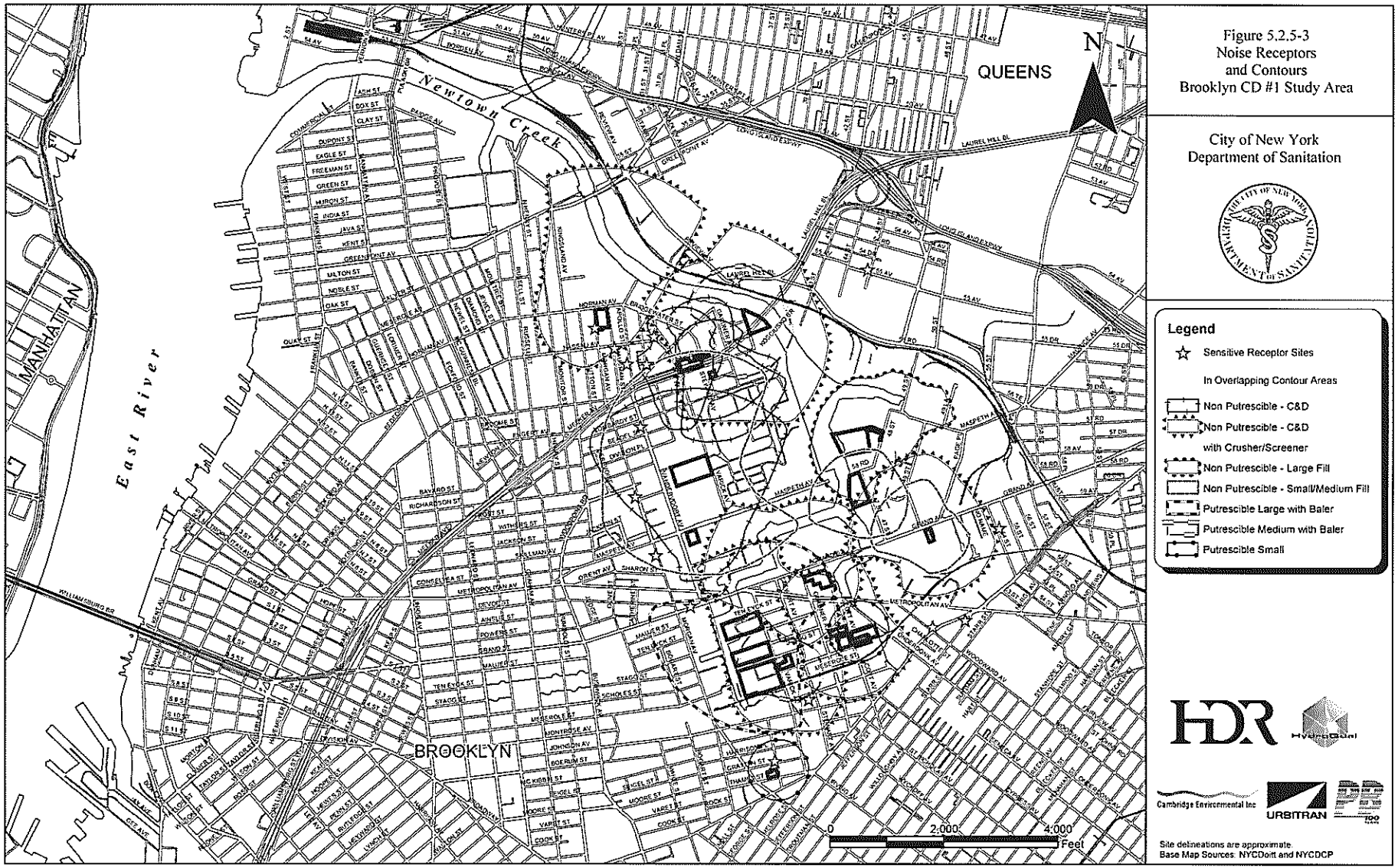


Figure 5.2.5-3
Noise Receptors
and Contours
Brooklyn CD #1 Study Area

City of New York
Department of Sanitation

Legend

- Sensitive Receptor Sites

In Overlapping Contour Areas

- Non Putrescible - C&D
- Non Putrescible - C&D with Crusher/Screener
- Non Putrescible - Large Fill
- Non Putrescible - Small/Medium Fill
- Putrescible Large with Baler
- Putrescible Medium with Baler
- Putrescible Small

HDR HydroQual

Cambridge Environmental Inc URBITRAN

Site delineations are approximate.
Base Map Sources: NYCDoitt and NYCDCP

Figure 5.2.5-4
Noise Receptors
and Contours
Jamaica, Queens CD #12 Study Area

City of New York
Department of Sanitation

Legend

- Sensitive Receptor Sites
- In Overlapping Contour Areas
- Non Putrescible - C&D
- Putrescible Medium with Baler
- Putrescible Small
- Putrescible Small/Medium with Fill

Site delineations are approximate
Base Map Sources: NYCDoitt and NYCDCP

5.2.6 Water Quality Assessment

The cumulative effects on water quality from the Transfer Stations in the Study Areas were predicted using a mathematical model of New York Harbor, the 208 Model and the conservative assumption that the entire site for each Transfer Station was impervious (i.e., paved). As shown in Table 5.2.6-1, no individual or combined effects on water quality from Transfer Stations in the Study Areas were predicted.

Table 5.2.6-1
Predicted Water Quality Loadings

Facility	Study Area[3]	Impervious Area (acres)	Runoff Flow (cfs)[4]	Fecal Coliform (MF)[4]	BOD (lbs/day[4]	Copper (lbs/day) [4]	Lead (lbs/day)[4]	Zinc (lbs/day)[4]
Bronx County Recycling	Port Morris	3.79	0.23	41,713	12.3	0.042	0.033	0.19
Felix Equities	Port Morris	1.09	0.066	12,023	3.9	0.012	0.01	0.06
Tilcon NY	Port Morris	10.36	0.62	113,956	36.9	0.117	0.094	0.52
Waste Management of NY[1] (98 Lincoln Avenue, and 132nd Street and Saint Ann's Avenue)	Port Morris	15.61	0.94	171,629	55.5	0.177	0.141	0.78
Waste Services of NY	Port Morris	11.15	0.67	122,582	39.7	0.126	0.01	0.56
Waste Management of NY	Hunts Point	65.45	3.93	179,653	233	0.74	0.59	3.26
Waste Management of NY[2] (75 Thomas Avenue and 485 Scott Avenue)	Brooklyn	0.85	0.051	9,304	3.0	0.010	0.008	0.042
Waste Management of NY 232 Gardner Avenue	Brooklyn	1.78	0.11	19,513	6.3	0.020	0.016	0.088
Waste Management of NY 215 Varick Avenue	Brooklyn	4.88	0.29	53,638	17.4	0.055	0.044	0.243
Waste Management of NY 123 Varick Avenue	Brooklyn	12.24	0.73	134,580	43.5	0.14	0.111	0.61
Maspeth Recycling	Brooklyn	5.13	0.31	56,693	18.4	0.058	0.047	0.257
Pebble Lane Associates	Brooklyn	1.12	0.067	12,305	3.98	0.013	0.010	0.056

Note:

(1) For the purposes of this analysis, the Waste Management of NY facilities at 98 Lincoln Avenue, and 132nd Street and Saint Ann's Avenue, were analyzed together.

(2) For the purposes of this analysis, the Waste Management of NY facilities at 75 Thomas Avenue and 485 Scott Avenue were analyzed together

(3) Port Morris = Port Morris, Bronx CD #1 Study Area.
Hunts Point = Hunts Point, Bronx CDs #2 and #9 Study Area.
Brooklyn = Brooklyn CD #1 Study Area.

(4) cfs = cubic feet per second.
MF = membrane filter.
lbs/day = pounds per day.

5.3 Traffic, Off-Site Air Quality and Off-Site Noise Analyses

5.3.1 Traffic

The following number of intersections were analyzed using Highway Capacity Software (HCS) version 4.1c for AM, midday and PM peak hours in each of the four Study Areas:

- Six in the Port Morris, Bronx CD #1 Study Area;
- Ten (10) in the Hunts Point, Bronx CDs #2 and #9 Study Area (additional intersections were identified, but due to the overlap of routes with the Port Morris, Bronx CD #1 Study Area only 10 were required further analysis);
- Twenty-six (26) in the Brooklyn CD #1 Study Area; and
- Sixteen (16) in the Jamaica, Queens CD #12 Study Area.

A smaller number of intersections were analyzed in the Bronx Study Areas because access is limited from the north and west along major truck routes, while there is access from multiple directions to the Brooklyn CD #1 and Jamaica, Queens CD #12 Study Areas. Traffic analyses were conducted at each of these intersections for current conditions (identified through a data collection and analysis effort in 2003) that include the Waste Hauling Vehicles traveling through these intersections. Current conditions, current conditions without Waste Hauling Vehicles, and the RTG scenario were evaluated for those intersections with a mid LOS D or worse by approach. The locations of the intersections analyzed are presented in Figures 5.3.1-1 through 5.3.1-4.

The number of Waste Hauling Vehicles identified at the intersections analyzed ranged from 0 (at various intersections in the Jamaica, Queens CD #12 and Brooklyn CD #1 Study Areas) to 114 (at the intersection of Bruckner Boulevard and Leggett Avenue in the Hunts Point, Bronx CDs #2 and #9 Study Area). This is a relatively small number of vehicles compared to the background number of vehicles traveling through the intersections during the hours analyzed. Table 5.3.1-1 presents the percentage of Waste Hauling Vehicles and the percentage of RTG scenario vehicles as a percentage of total vehicles under each of these conditions.

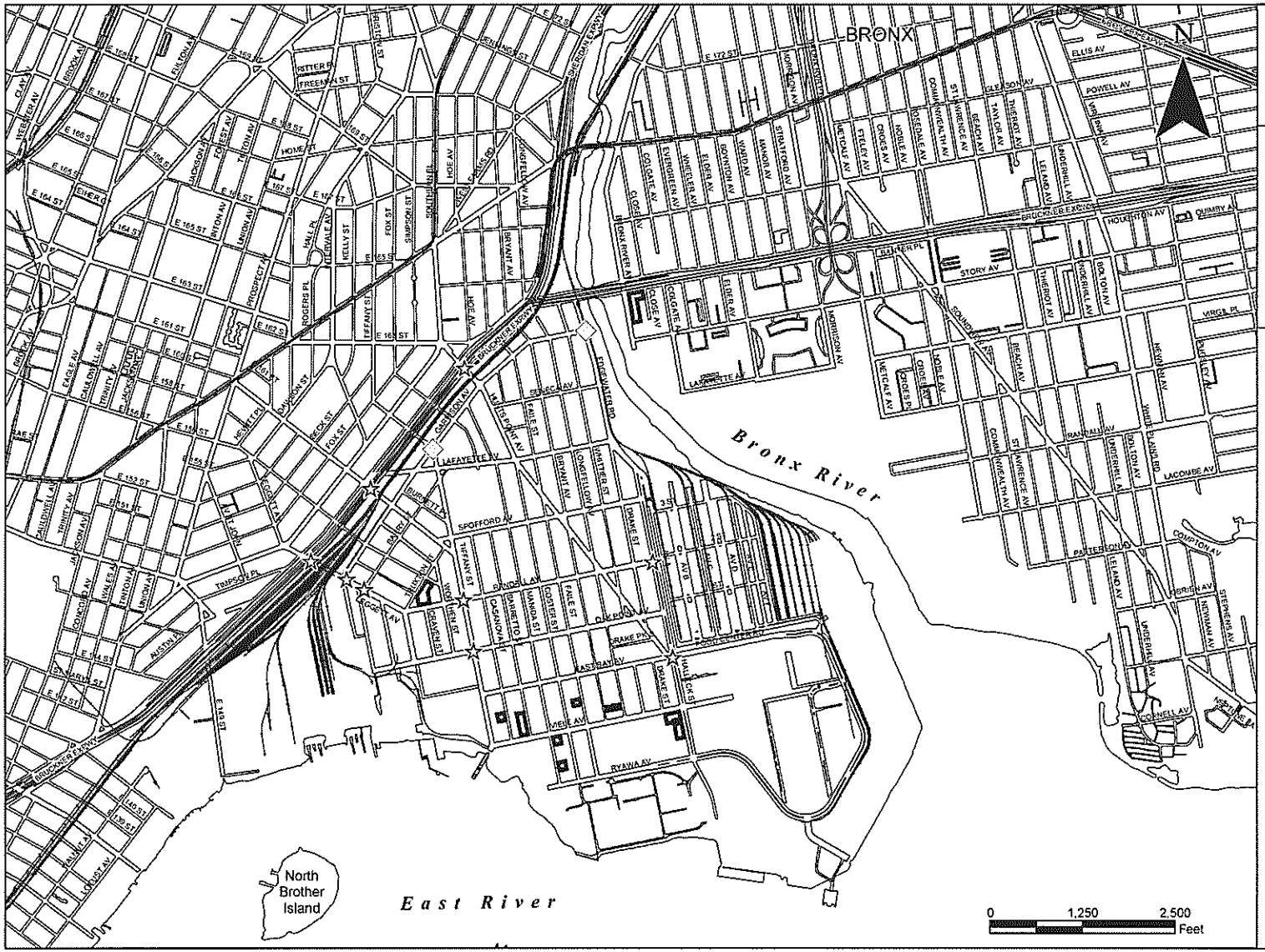


Figure 5.3.1-1
Traffic Intersections Studied
Hunts Point, Bronx CDs #2 and #9
Study Area

City of New York
Department of Sanitation

Legend

☆ Intersections Analyzed

◇ Additional Data Collected But Not Analyzed

Cambridge Environmental Inc URBITRAN PB

Site delineations are approximate
Base Map Sources: NYCDoitt and NYCDCP

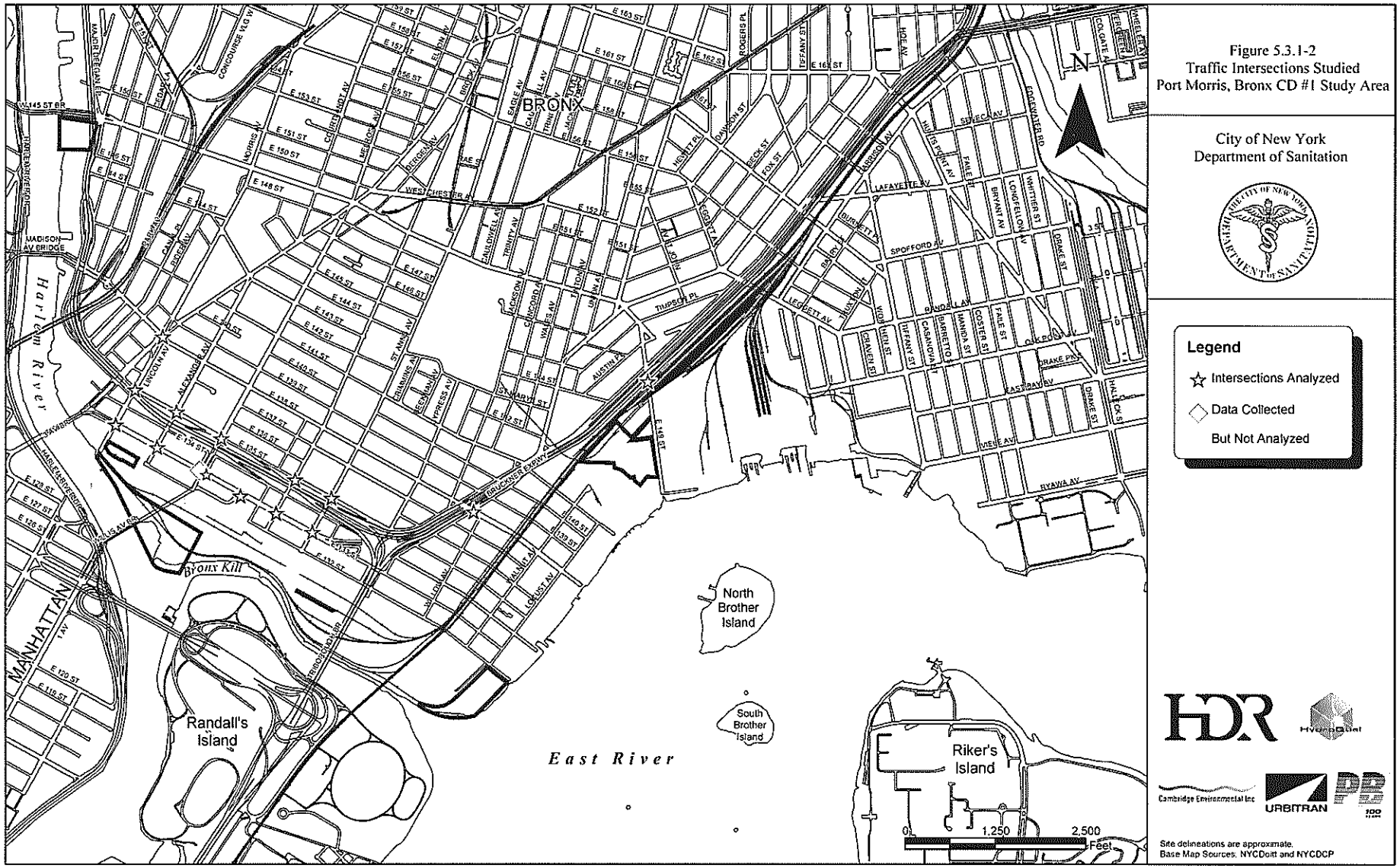


Figure 5.3.1-2
Traffic Intersections Studied
Port Morris, Bronx CD #1 Study Area

City of New York
Department of Sanitation

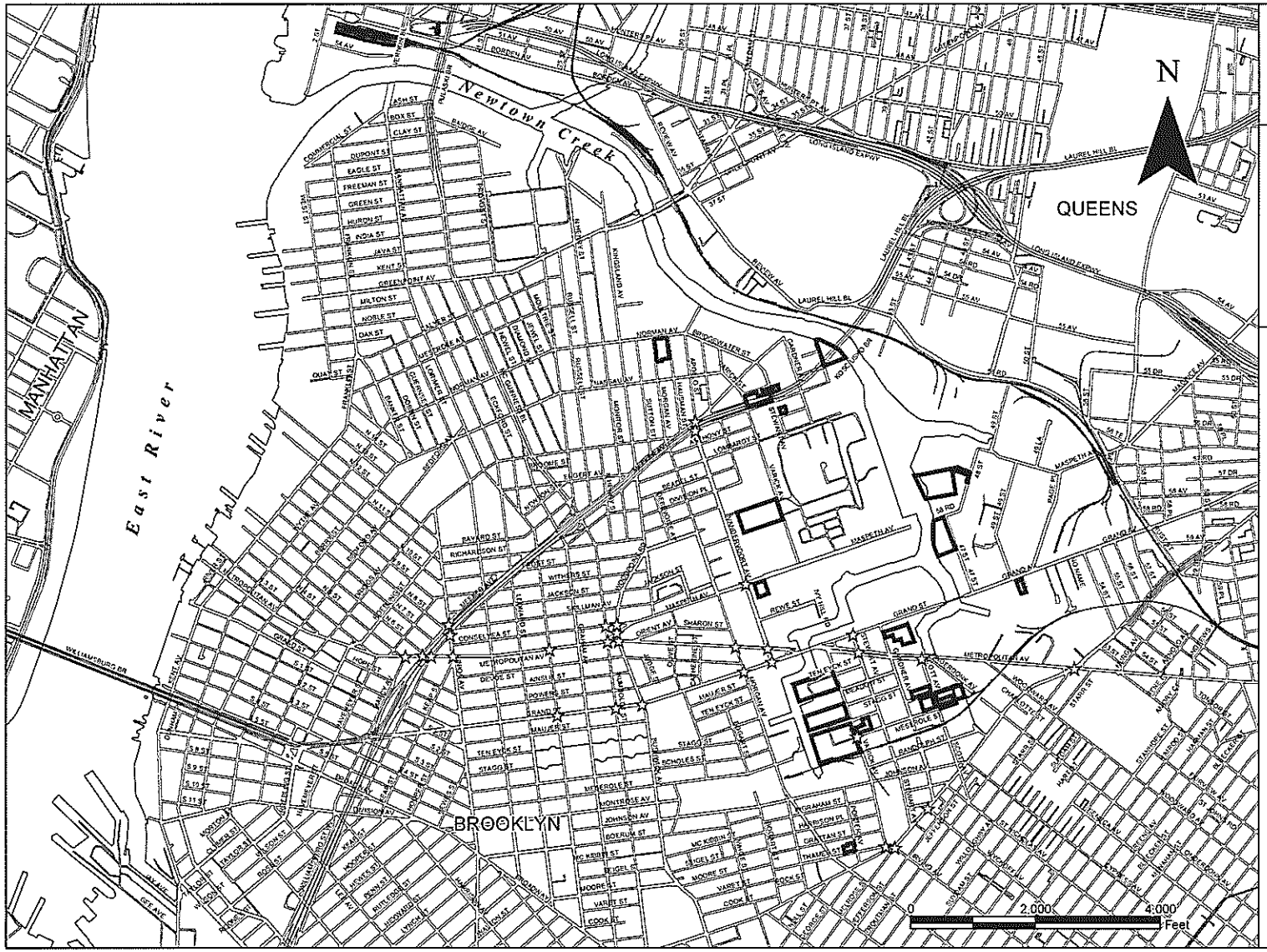


Figure 5.3.1-3
Traffic Intersections Studied
Brooklyn CD #1 Study Area

City of New York
Department of Sanitation

Legend

☆ Intersections Analyzed

HDR HydroQual

Cambridge Environmental Inc URBITRAN RPP

Site delineations are approximate.
Base Map Sources: NYCDoitt and NYCDCP

Figure 5.3.1-4
Traffic Intersections Studied
Jamaica, Queens CD #12 Study Area

City of New York
Department of Sanitation

Legend

☆ Intersections Analyzed

Site delineations are approximate.
Base Map Sources: NYCDoitt and NYCDCP

Table 5.3.1-1
Average Percent of
Total Waste Hauling Vehicles at Intersections Analyzed

Study Area	AM Peak Hour	Midday Peak Hour	PM Peak Hour
Brooklyn CD #1			
Existing Conditions[(1)]	1.54%	1.88%	0.96%
Replacement Industry Conditions[(2)]	11.45%	11.48%	11.62%
Jamaica, Queens CD #12			
Existing Conditions[(1)]	0.30%	0.74%	0.15%
Replacement Industry Conditions[(2)]	7.83%	7.89%	8.25%
Port Morris, Bronx CD #1			
Existing Conditions[(1)]	2.07%	1.68%	1.22%
Replacement Industry Conditions[(2)]	14.02%	13.56%	19.67%
Hunts Point, Bronx CDs #2 and #9			
Existing Conditions[(1)]	4.99%	1.90%	1.21%
Replacement Industry Conditions[(2)]	9.72%	8.63%	11.90%

Notes:

(1) Represents the average percentage of total vehicles that are Waste Hauling Vehicles at intersections in the Study Area.

(2) Represents the average percentage of total vehicles that are replacement industry vehicles at intersections in the Study Area.

A summary of the LOS for current conditions and current conditions without Waste Hauling Vehicles and the RTG scenario (if mid-level LOS D or worse by approach) for each of the Study Areas is presented in Table 7-2 in Volume I, Appendix H to this Study.

Results indicate that many of the intersections operate at an overall LOS C or better under current conditions (six in Port Morris, Bronx CD #1 Study Area; seven in Hunts Point, Bronx CDs #2 and #9 Study Area; 16 in Jamaica, Queens CD #12 Study Area; and 23 in Brooklyn CD #1 Study Area). The current conditions at six of the intersections in the Study Areas operate at an overall LOS D, E or F. These are:

- Brooklyn CD #1 Study Area: (1) Meeker Avenue and Union Avenue, and (2) Flushing Avenue/Melrose Street and Varick Avenue/Irving Avenue;
- Port Morris, Bronx CD #1 Study Area: (1) Bruckner Boulevard and Alexander Street; and
- Hunt's Point, Bronx CDs #2 and #9 Study Area: (1) Hunt's Point Avenue and Bruckner Boulevard, (2) Longwood Avenue and Bruckner Boulevard, and (3) Leggett Avenue and Bruckner Boulevard.

Subtracting the Waste Hauling Vehicles from the analysis did not significantly improve the overall LOS at any intersections analyzed, primarily because the number of Waste Hauling Vehicles compared to the background traffic is low – ranging between 0% and 7% of the total traffic. For all cases, the LOS with replacement industry trips (that is, traffic that would be generated by other light industrial uses for the Transfer Station site if the Transfer Stations were absent) remained the same or deteriorated compared to the LOS with Waste Hauling Vehicles.

5.3.2 Off-Site Air Quality

Current conditions were analyzed at two links each in the Port Morris, Bronx CD #1 and the Hunts Point, Bronx CDs #2 and #9 Study Areas and at four links each in Brooklyn CD #1 and Jamaica, Queens CD #12. The "worst case" links for each Study Area were identified by evaluating convergence points along truck routes to and from the Study Areas, and observing the

number of Waste Hauling Vehicles at these locations. As was the case with the traffic analysis, a lower number of links were analyzed in the Bronx Study Areas because of limited access conditions. The location of the links analyzed are presented in Figures 5.3.2-1 through 5.3.2-4.

Current conditions for CO were estimated using USEPA's MOBILE5b mobile emission factors algorithm and USEPA's CAL3QHC dispersion model. PM_{10} and $PM_{2.5}$ emission factors were estimated using the USEPA Publication AP-42 (AP-42), Section 13.2-1 and the USEPA's PART 5 model. The PM_{10} and $PM_{2.5}$ conditions were estimated using USEPA's CAL3QHCR Tier I dispersion model. Tables 5.3.2-1 through 5.3.2-4 provide a summary of current conditions for each of the links analyzed in each Study Area. For $PM_{2.5,}$ on-site contribution from the operations equipment and Waste Hauling Vehicles, at the link analyzed, were estimated and combined with the contribution from the on-street off-site sources.

5.3.3 Off-Site Noise

The number of locations initially screened to determine whether the Waste Hauling Vehicles under current conditions have the potential to double PCEs during each of the 24 hours is indicated below:

- Eight in the Port Morris, Bronx CD #1 Study Area;
- Four in the Hunts Point, Bronx CDs #2 and #9 Study Area;
- Six in the Brooklyn CD #1 Study Area; and
- Five in the Jamaica, Queens CD #12 Study Area.

These "worst case" locations were identified by evaluating convergence points along truck routes to and from the Study Areas, observing number of Waste Hauling Vehicles at these locations, and identifying sensitive receptors along these routes.

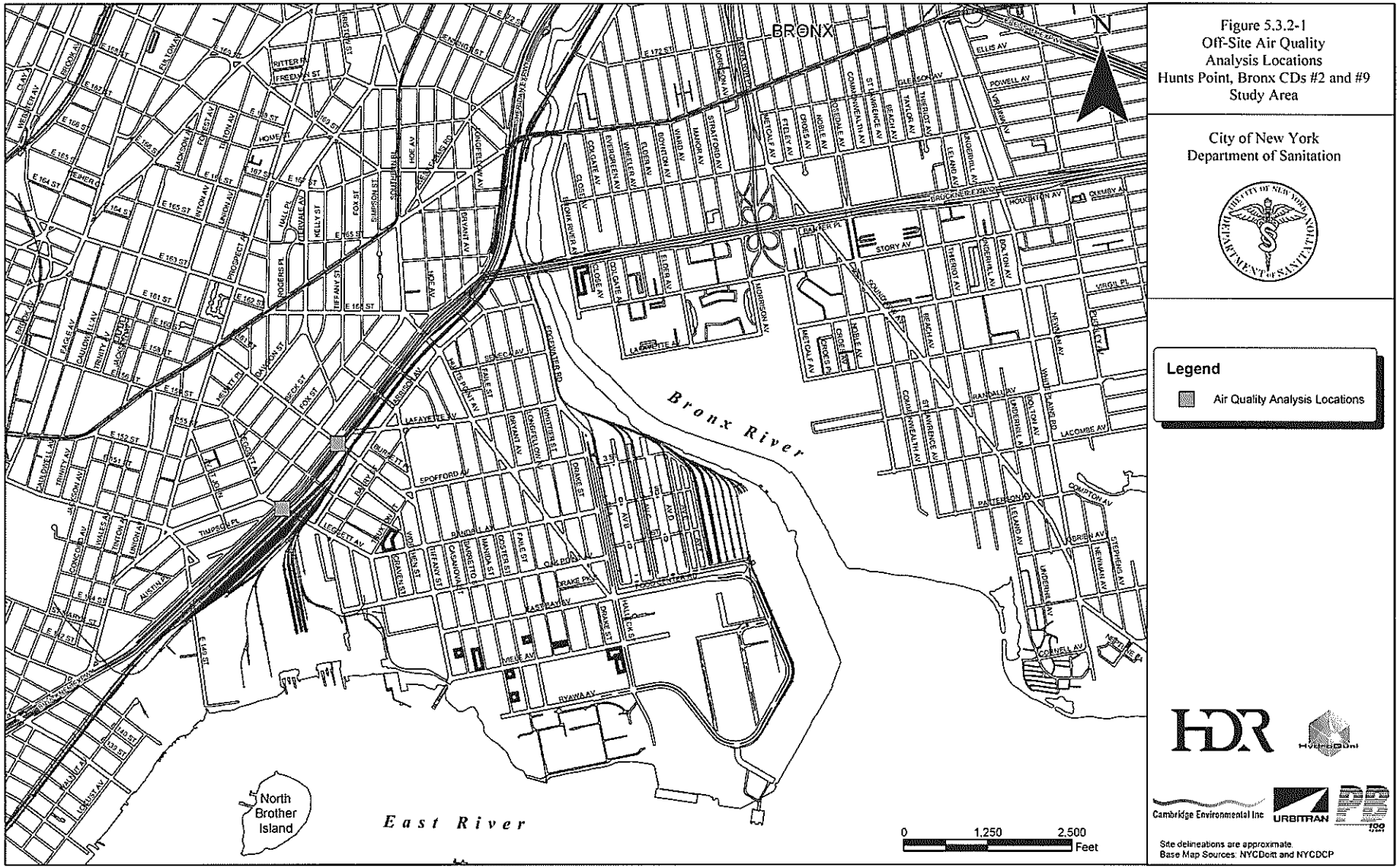


Figure 5.3.2-1
Off-Site Air Quality
Analysis Locations
Hunts Point, Bronx CDs #2 and #9
Study Area

City of New York
Department of Sanitation

Legend

Air Quality Analysis Locations

Cambridge Environmental Inc URBITRAN

Site delineations are approximate.
Base Map Sources: NYCDoitt and NYCDCP

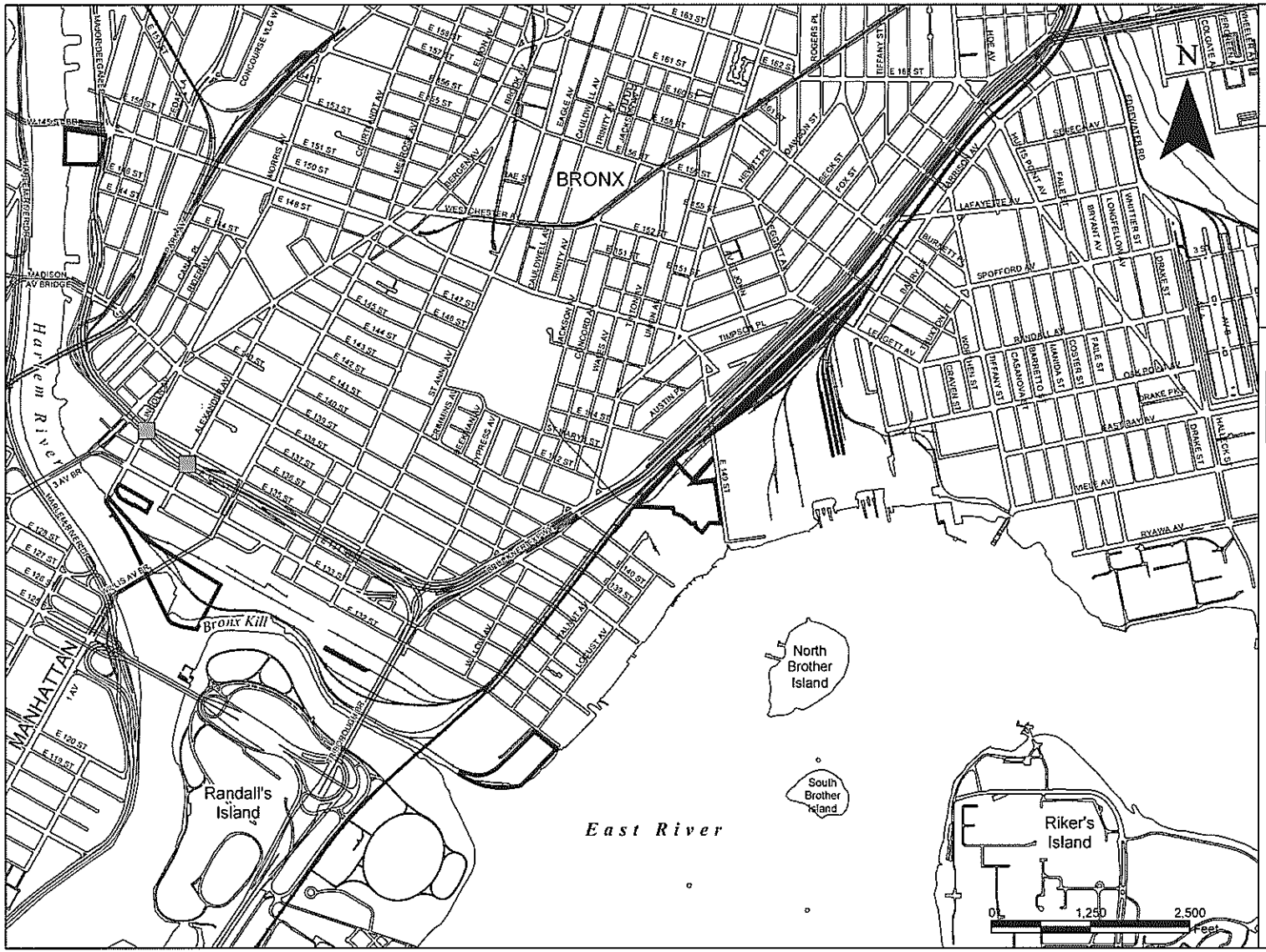


Figure 5.3.2-2
Off-Site Air Quality
Analysis Locations
Port Morris, Bronx CD #1 Study Area

City of New York
Department of Sanitation

Legend

Air Quality Analysis Locations

HDR HydroQual Cambridge Environmental Inc URBITRAN PB

Site delineations are approximate.
Base Map Sources: NYCDoitt and NYCDCP

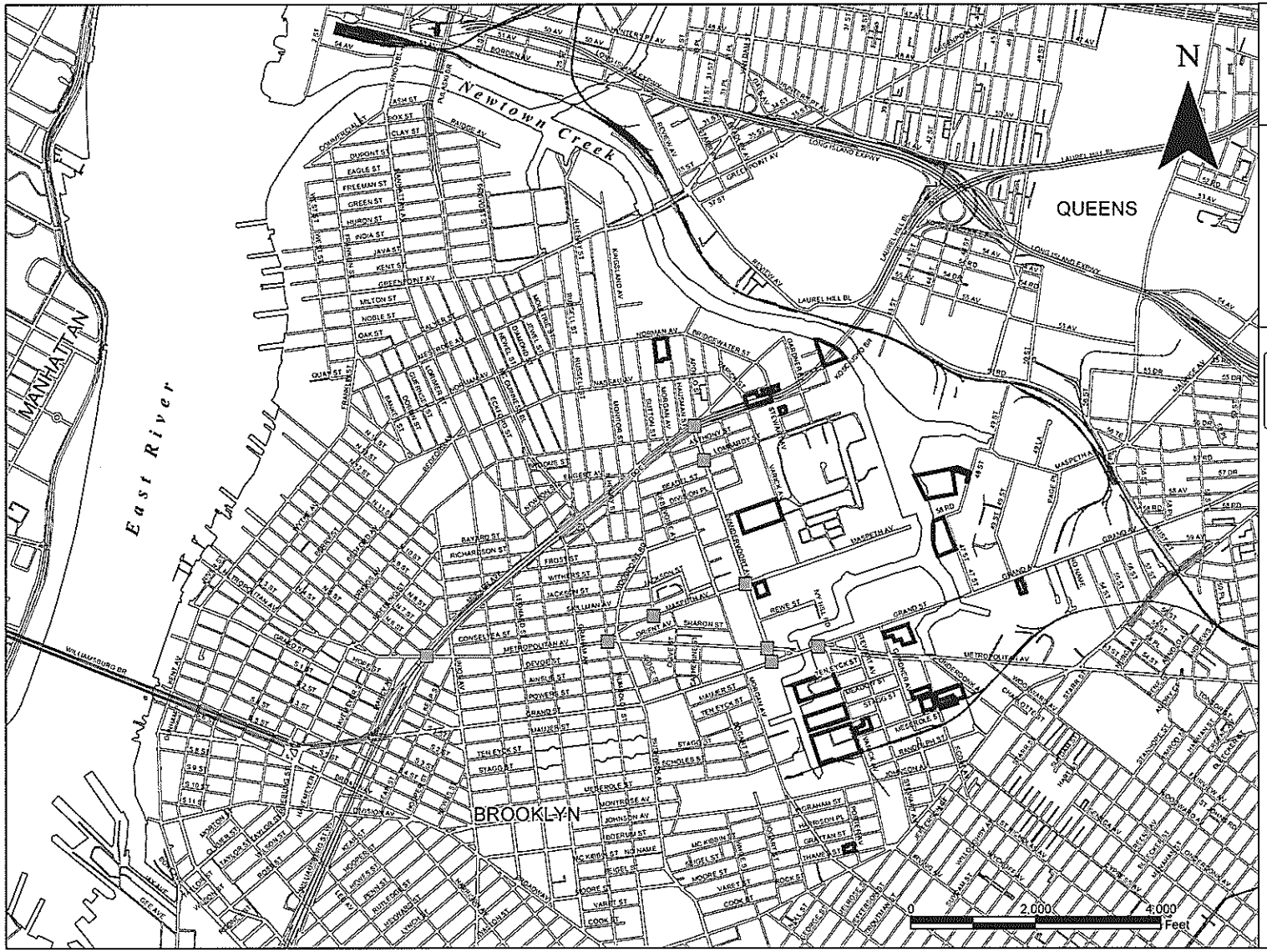


Figure 5.3.2-3
Off-Site Air Quality
Analysis Locations
Brooklyn CD #1 Study Area

City of New York
Department of Sanitation

Legend

Air Quality Analysis Locations

HDR HydroQual

Cambridge Environmental Inc URBITRAN PB

Site delineations are approximate.
Base Map Sources: NYCDoitt and NYCDCP

Figure 5.3.2-4
Off-Site Air Quality
Analysis Locations
Jamaica, Queens CD #12 Study Area

City of New York
Department of Sanitation

Legend

Air Quality Analysis Locations

Site delineations are approximate.
Base Map Sources. NYCDoitt and NYCDCP

Table 5.3.2-1
Summary of Air Quality Analysis at
Selected Intersections within the Brooklyn CD #1 Study Area

Air Quality Receptor Site	CO	PM_{10}		$PM_{2.5}$					
	8-hr CO Facility (NAAQS: 9 ppm) Conc.(1) (ppm)	24-hr PM_{10} Facility (NAAQS: 150 $\mu g/m^3$) Conc.(1) ($\mu g/m^3$)	Annual PM_{10} (NAAQS: Facility 50 $\mu g/m^3$) Conc.(1) ($\mu g/m^3$)	24-hr Max. Contributions from On-Site Emission Sources Conc. (2) ($\mu g/m^3$)	24-hr Max. Contributions from Off-Site Emission Sources Conc. (3) ($\mu g/m^3$)	24-hr Total Combined Contributions from On- and Off-Site Emission Sources Conc. (5) ($\mu g/m^3$)	Annual Neighborhood Max. Contributions from On-Site Emission Sources Conc. (2) ($\mu g/m^3$)	Annual Neighborhood Contributions from Off-Site Emission Sources Conc. (4) ($\mu g/m^3$)	Annual Total Combined Contributions from Neighborhood On- and Off-Site Emission Sources Conc. (5) ($\mu g/m^3$)
Vandervoort/Meeker/ Lombardy									
Existing Conditions	5.10	119	50						
Existing Incremental				7.3	0.4	7.7	0.41	0.08	0.49
Metropolitan/Vandervoort/ Grand									
Existing Conditions	6.5	111	44						
Existing Incremental				3.8	0.5	4.2	0.30	0.06	0.36
Maspeth/Metro/Kings/ Humboldt									
Existing Conditions	5	112	46						
Existing Incremental				1	0.3	1.3	0.1	0.03	0.1
Metro/Meeker/Union/Rodney/ North 6th									
Existing Conditions	5.8	122	50						
Existing Incremental				0.81	0.16	1	0.05	0.05	0.1

Notes:

(1) CO and PM_{10} concentrations are the neighborhood concentrations estimated using the AM, Facility AM, and PM peak traffic information plus background concentration (8-hr CO = 2.8 ppm; 24-hr PM_{10} = 57 $\mu g/m^3$; Annual PM_{10}=23 $\mu g/m^3$).

(2) The maximum incremental concentrations of the on-site emissions at the intersection considered.

(3) The maximum incremental concentrations between existing conditions and without Waste Hauling Vehicles at any receptor 3 meters from the edge of the roadways.

(4) The maximum incremental concentrations between existing conditions and without Waste Hauling Vehicles at any receptor 15 meters from the edge of the roadways.

(5) Numbers may not add due to rounding.

ppm = Parts per million.

$\mu g/m^3$ = Micrograms per cubic meter.

Table 5.3.2-2
Summary of Air Quality Analysis at
Selected Intersections within the Jamaica, Queens CD #12 Study Area

Air Quality Receptor Site	CO	PM_{10}		$PM_{2.5}$					
	8-hr CO Facility (NAAQS: 9 ppm) Conc.[1] (ppm)	24-hr PM_{10} Facility (NAAQS: 150 $\mu g/m^3$) Conc.[1] ($\mu g/m^3$)	Annual PM_{10} (NAAQS: Facility 50 $\mu g/m^3$) Conc.[1] ($\mu g/m^3$)	24-hr Neighborhood Contributions from On-Site Emission Sources Conc. [2] ($\mu g/m^3$)	24-hr Neighborhood Contributions from Off-Site Emission Sources Conc. [3] ($\mu g/m^3$)	24-hr Total Combined Contributions from On- and Off-Site Emission Sources Conc. [5] ($\mu g/m^3$)	Annual Neighborhood Max. Contributions from On-Site Emission Sources Conc. [2] ($\mu g/m^3$)	Annual Neighborhood Contributions from Off-Site Emission Sources Conc. [4] ($\mu g/m^3$)	Annual Total Combined Contributions from Neighborhood On- and Off-Site Emission Sources Conc. [5] ($\mu g/m^3$)
Hillside/Merrick 166th / 168th									
Existing Conditions	4.5	123	48						
Existing Incremental				0.95	0.06	1.01	0.03	0	0.03
Jamaica/Merrick / 168th									
Existing Conditions	5.6	109	45						
Existing Incremental				3.9	0.03	4	0.17	0.02	0.19
Liberty/Merrick 168th									
Existing Conditions	7.1	123	50						
Existing Incremental				6.7	0.32	7	0.7	0.01	0.72
Liberty Avenue 171st / 173rd									
Existing Conditions	4.1	107	44						
Existing Incremental				13.8	0.17	14.0	1.43	0.01	1.44

Notes:

(1) CO and PM_{10} concentrations are the neighborhood concentrations estimated using the AM, Facility AM, and PM peak traffic information plus background concentration (8-hr CO = 2.8 ppm; 24-hr PM_{10} = 57 $\mu g/m^3$; Annual PM_{10}=23 $\mu g/m^3$).

(2) The maximum incremental concentrations of the on-site emissions at the intersection considered.

(3) The maximum incremental concentrations between existing conditions and without Waste Hauling Vehicles at any receptor 3 meters from the edge of the roadways.

(4) The maximum incremental concentrations between existing conditions and without Waste Hauling Vehicles at any receptor 15 meters from the edge of the roadways.

(5) Numbers may not add due to rounding.

ppm = Parts per million.

$\mu g/m^3$ = Microgram per cubic meter.

Table 5.3.2-3
Summary of Air Quality Analysis at
Selected Intersections within the Hunts Point, Bronx CDs #2 and #9 Study Area

Air Quality Receptor Site	CO	PM_{10}		$PM_{2.5}$					
	8-hr CO Facility (NAAQS: 9 ppm) Conc.[1] (ppm)	24-hr PM_{10} Facility (NAAQS: 150 $\mu g/m^3$) Conc.[1] ($\mu g/m^3$)	Annual PM_{10} (NAAQS: Facility 50 $\mu g/m^3$) Conc.[1] ($\mu g/m^3$)	24-hr Neighborhood Contributions from On-Site Emission Sources Conc. [2] ($\mu g/m^3$)	24-hr Neighborhood Contributions from Off-Site Emission Sources Conc. [3] ($\mu g/m^3$)	24-hr Total Combined Contributions from On- and Off-Site Emission Sources Conc. [5] ($\mu g/m^3$)	Annual Neighborhood Max. Contributions from On-Site Emission Sources Conc. [2] ($\mu g/m^3$)	Annual Neighborhood Contributions from Off-Site Emission Sources Conc. [4] ($\mu g/m^3$)	Annual Total Combined Contributions from Neighborhood On- and Off-Site Emission Sources Conc. [5] ($\mu g/m^3$)
Bruckner/Leggett/Garrison									
Existing Conditions	6	123	42						
Existing Incremental				1	1	2	1	0.1	1
Bruckner & Longwood									
Existing Conditions	6	128	24						
Existing Incremental				2	0.3	2	1	0.1	1

Notes:

(1) CO and PM_{10} concentrations are the neighborhood concentrations estimated using the AM, Facility AM, and PM peak traffic information plus background concentration (8-hr CO = 2.8 ppm; 24-hr PM_{10} = 57 $\mu g/m^3$; Annual PM_{10}=23 $\mu g/m^3$).

(2) The maximum incremental concentrations of the on-site emissions at the intersection considered.

(3) The maximum incremental concentrations between existing conditions and without Waste Hauling Vehicles at any receptor 3 meters from the edge of the roadways.

(4) The maximum incremental concentrations between existing conditions and without Waste Hauling Vehicles at any receptor 15 meters from the edge of the roadways.

(5) Numbers may not add due to rounding.

ppm = Parts per million.

$\mu g/m^3$ = Microgram per cubic meter.

Table 5.3.2-4
Summary of Air Quality Analysis at
Selected Intersections within the Port Morris, Bronx CD #1 Study Area

Air Quality Receptor Site	CO	PM_{10}		$PM_{2.5}$					
	8-hr CO Facility (NAAQS: 9 ppm) Conc.[1] (ppm)	24-hr PM_{10} Facility (NAAQS: 150 µg/m3) Conc.[1] (µg/m3)	Annual PM_{10} (NAAQS: Facility 50 µg/m3) Conc.[1] (µg/m3)	24-hr Neighborhood Contributions from On-Site Emission Sources Conc. [2] (µg/m3)	24-hr Neighborhood Contributions from Off-Site Emission Sources Conc. [3] (µg/m3)	24-hr Total Combined Contributions from On- and Off-Site Emission Sources Conc. [5] (µg/m3)	Annual Neighborhood Max. Contributions from On-Site Emission Sources Conc. [2] (µg/m3)	Annual Neighborhood Contributions from Off-Site Emission Sources Conc. [4] (µg/m3)	Annual Total Combined Contributions from Neighborhood On- and Off-Site Emission Sources Conc. [5] (µg/m3)
Lincoln and Bruckner									
Existing Conditions	5	114	40						
Existing Incremental				6	0.9	7	0.2	0.17	0.4
Bruckner & Alexander									
Existing Conditions	5	115	40						
Existing Incremental				8	0.93	9	0.2	0.1	0.3

Notes:

(1) CO and PM_{10} concentrations are the Neighborhood concentrations estimated using the AM, Facility AM, and PM peak traffic information plus background concentration (8-hr CO = 2.8 ppm; 24-hr PM_{10} = 57 µg/m^3; Annual PM_{10}=23 µg/m^3).

(2) The maximum incremental concentrations of the on-site emissions at the intersection considered.

(3) The maximum incremental concentrations between existing conditions and without Waste Hauling Vehicles at any receptor 3 meters from the edge of the roadways.

(4) The maximum incremental concentrations between existing conditions and without Waste Hauling Vehicles at any receptor 15 meters from the edge of the roadways.

(5) Numbers may not add up due to rounding.

ppm = Parts per million.

µg/m^3 = Microgram per cubic meter.

The first level of screening used total traffic volumes and axle factors from the New York State Department of Transportation (NYSDOT) to conservatively estimate the existing traffic volumes, and whether the addition of Waste Hauling Vehicles would have the potential to double PCE noise levels, requiring a further evaluation of potential effects (first-level screening). Based on this first-level screening, 17 locations (five in Port Morris, Bronx CD #1; four in Hunts Point, Bronx CDs #2 and #9; three in Brooklyn CD #1; and five in Jamaica, Queens, CD #12) were identified for further screening (second-level screening) using actual field traffic classification counts at these locations to determine the potential for doubling PCEs. (To do this, Waste Hauling Vehicles were counted, removed from the analysis to determine "background" conditions, and then added back in). Based on this second-level screening, five locations (two locations in Brooklyn CD #1 and three locations in Jamaica, Queens, CD #12) were identified for modeling using Federal Highway Administration's (FHWA's) Traffic Noise Model (TNM) version 2.1. Background noise monitoring was conducted at the nearest sensitive receptor, and predicted results from TNM modeling at these five locations were compared to the Study noise threshold (an increase in 3dBA or greater attributable to the Waste Hauling Vehicles).

The locations of the analyzed intersections are presented in Figures 5.3.3-1 and 5.3.3-2.

TNM modeling simulated current conditions (with Waste Hauling Vehicles) to predict off-site noise effects. The TNM model is conservative, in that it only assumes background noise levels based on traffic volumes that are input into the model. It does not account for other ambient background noise levels that exist in the Study Areas, which were observed during background noise monitoring, such as an ambulance passing by or a noisy establishment near the receptor. Therefore, the modeled current conditions predicted at the sensitive receptor were compared to the measured results at that receptor and the model was calibrated to accurately reflect background noise levels under current conditions.

Once calibrated, the predicted results for current conditions were compared to CEQR thresholds. The incremental noise level of Waste Hauling Vehicles (when removed from the model) was compared to 3 dBA. A summary of predicted results in each of the Brooklyn CD #1 and Jamaica, Queens CD #12 Study Areas is presented in Tables 5.3.3-1 and 5.3.3-2.

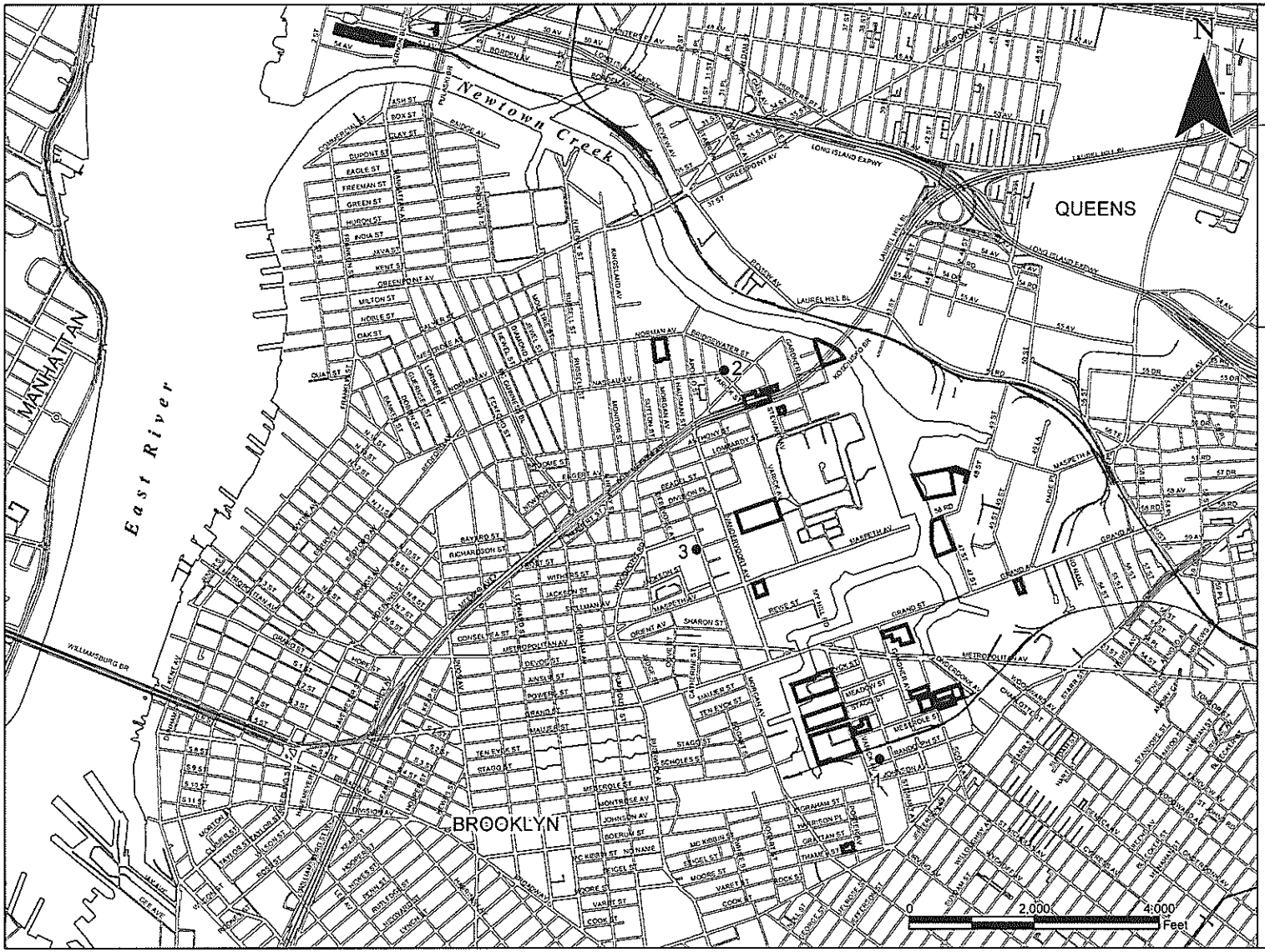


Figure 5.3.3-1
Noise
Intersections Analyzed
Brooklyn CD #1 Study Area

City of New York
Department of Sanitation

Legend

- Intersections Analyzed

HDR HydroQual

Cambridge Environmental Inc URBITRAN PB

Site delineations are approximate.
Base Map Sources: NYCDoitt and NYCDCP

Figure 5.3.3-2
Noise
Intersections Analyzed
Jamaica, Queens CD #12 Study Area

City of New York
Department of Sanitation

Legend

- Intersections Analyzed

HDR
HydroQual
Cambridge Environmental Inc
URBITRAN
PB

Site delineations are approxmate.
Base Map Sources: NYCDoitt and NYCDCP

Table 5.3.3-1
Summary of TNM Modeling Analysis
Brooklyn CD #1 Study Area

Location	Hour of Monitoring	Existing Number of Waste Hauling Vehicles	Existing Monitored Noise Level (dBA)	TNM Model Results with Waste Hauling Vehicles (dBA)	Calculated Background Noise Level without Waste Hauling Vehicles (dBA)	TNM Model Results without Waste Hauling Vehicles (dBA)	TNM Model without Waste Hauling Vehicles with Calculated Background Noise Levels (dBA)	Noise Level Increase due to Waste Hauling Vehicles [1] (dBA)	Effect (Yes or No) [2]
Metropolitan Avenue between Olive and Catherine	3:00 a.m. to 4:00 a.m.	43	69.2	64.9	67.2	59.9	67.9	1.3	NO
Vandervoort Avenue between Beadel and Lombardy	3:00 a.m. to 4:00 a.m.	51	70.6	65.3	69.1	60.3	69.6	1.0	NO

Notes:

[1] Value is calculated by subtracting the TNM Model Results without Waste Hauling Vehicles from the calculated background noise from the Existing Monitored Noise Level.

[2] Effect is identified if the noise level increase due to Waste Hauling Vehicles is greater than or equal to 3 dBA.

dBA = A-weighted decibel.

Table 5.3.3-2
Summary of TNM Modeling Analysis
Jamaica, Queens CD #12 Study Area

Location	Hour of Monitoring	Existing Number of Waste Hauling Vehicles	Existing Monitored Noise Level (dBA)	TNM Model Results with Waste Hauling Vehicles (dBA)	Calculated Background Noise Level without Waste Hauling Vehicles (dBA)	TNM Model Results without Waste Hauling Vehicles (dBA)	TNM Model without Waste Hauling Vehicles with Calculated Background Noise Levels (dBA)	Noise Level Increase due to Waste Hauling Vehicles [(1)] (dBA)	Effect (Yes or No) [(2)]
Liberty Avenue between Guy Brewers and 160th Street	2:00 a.m. to 3:00 a.m.	15	66.4	59.8	65.3	56.2	65.8	0.6	No
Liberty Avenue between 169th Street and 170th Street	2:00 a.m. to 3:00 a.m.	35	69.3	60.3	68.7	55.4	68.9	0.4	No
Liberty Avenue between 171st Street and 172nd Street2	2:00 a.m. to 3:00 a.m.	20	70.7	60.4	70.3	55	70.4	0.3	No

Notes:
(1) Value is calculated by subtracting the TNM Model Results without Waste Hauling Vehicles from the calculated background noise from the Existing Monitored Noise Level.
(2) Effect is identified if the noise level increase due to Waste Hauling Vehicles is greater than or equal to 3 dBA.
dBA = A-weighted decibel.

As shown in Tables 5.3.3-1 and 5.3.3-2, the modeled off-site noise from the Waste Hauling Vehicles at the intersections analyzed did not exceed the threshold. Therefore, there are no predicted noise effects from these Waste Hauling Vehicles.

5.4 Public Health Evaluation

In this Study, effects on public health due to odors and contributions to air quality were assessed. Using the conservative assumption that commercial waste Transfer Stations do not control odors at all, receptors in two Study Areas were found likely to experience potentially unacceptable odors. However, these effects were predicted to be infrequent, occurring less than 1% of the time for all receptors, and are not likely to generate sustained annoyance or symptoms. Nonetheless, additional odor control would be welcome. With regard to regulated pollutants, effects on air quality were predicted to be minimal. The Transfer Stations in aggregate do not appear to be important determinants of air quality with respect to any of the pollutants regulated by the USEPA on the basis of human health effects.

ATTACHMENT A

New York City Transfer Stations

Putrescible Transfer Station Permits[1]

Company	Address	Zone	Permitted Throughput (tons per day)[3]	Community Board
A & L Cesspool Service Corp.	38-40 Review Avenue, LIC, NY 11101	M-3	N/A	QN2
American Recycling Mgt. LLC	172-33 Douglas Avenue, Jamaica, NY 11433	M-1	400	QN12
BFI Waste Systems of NJ, Inc.	115 Thames Street, Brooklyn, NY 11237	M-1	560	BK1
BFI Waste Systems of NJ, Inc.	598-636 Scholes Street, Brooklyn, NY 11237	M-3	220	BK1
Cross County Recycling	122-52 Montauk Street, Springfield Gardens, NY 11413	M-1	500	QN12
Hi-Tech Resource Recovery	130 Varick Avenue, Brooklyn, NY 11237	M-3	500	BK1
IESI NY Corporation	325 Casanova Street, Bronx, NY 10474	M-3	225	BX2
IESI NY Corporation	110-120 50th Street, Brooklyn, NY 11232	M-3	1,000	BK7
IESI NY Corporation	577 Court Street, Brooklyn, NY 11231	M-3	745	BK6
Metropolitan Transfer Station	287 Halleck Street, Bronx, NY 10474	M-1	825	BX2
New Style Recycling	49-10 Grand Avenue, Maspeth, NY 11378	M-3	50	QN5
Paper Fibres Corporation	960 Bronx River Avenue, Bronx, NY 10454	M-3	74	BX9
Regal Recycling Co., Inc.	172-06 Douglas Avenue, Jamaica, NY 11433	M-1	178	QN12
Tully Environmental, Inc.	127-20 34th Avenue, Queens, NY 11368	M-3	900	QN7
USA Waste Services of NYC, Inc.[2]	132nd Street @ Saint Ann's Avenue, Bronx, NY 10454	M-3	N/A	BX1
USA Waste Services of NYC, Waste Management Inc.	98 Lincoln Avenue, Bronx, NY 10455	M-2	3,000	BX1
Waste Management of NY, LLC	215 Varick Avenue, Brooklyn, NY 11231	M-3	4,250	BK1
Waste Management of NY, LLC	38-50 Review Avenue, LIC, NY 11101	M-3	958	QN2
Waste Management of NY, LLC	485 Scott Avenue, Brooklyn, NY 11222	M-3	1,400	BK1
Waste Management of NY, LLC[2]	Oakpoint Avenue/Barry Street, Bronx, NY 10474	M-3	N/A	BX2
Waste Services of New York, Inc.	941 Stanley Avenue, Brooklyn, NY 11208	M-1	375	BK5
Waste Services of New York, Inc.	920 East 132nd Street, Bronx, NY 10454	M-3	2,999	BX1

Notes:

(1) Some facilities have dual permits (for example, putrescible/non-putrescible) and appear on both lists of permits.

(2) Source: DSNY Quarterly Transfer Station Report Summary (third quarter 2003). Throughput is NYDEC permitted throughput.

(3) Intermodal facility, no processing.

N/A = Not Applicable

Non-Putrescible Transfer Station Permits[1]

Company	Address	Zone	Permitted Throughput (tons per day)[2]	Community Board
A.J. Recycling, Inc.	325 Faile Street, Bronx, NY 10474	M 3	1,200	BX2
American Recycling, Mgt. LLC	172-33 Douglas Avenue, Queens, NY 11433	M 1	750	QN12
Astoria Carting Co., Inc.	538-545 Stewart Avenue, Brooklyn, NY 11222	M 3	300	BK1
Atlas Roll-Off Corp.	889 Essex Street, Brooklyn, NY 11208	M 1	1,125	BK5
BFI Waste Systems of New Jersey	575 Scholes Street, Brooklyn, NY 11211	M 3	544	BK1
BFI Waste Systems of New Jersey	594 Scholes Street, Brooklyn, NY 11211	M 3	544	BK1
City Recycling Corporation	151 Anthony Street, Brooklyn, NY 11222	M 3	1,500	BK1
Cooper Tank & Welding, Inc.	222 Maspeth Avenue, Brooklyn, NY 11211	M 3	1,875	BK1
Crown Container Company	126-46 34th Avenue, Flushing, NY 11368	M 3	281	QN7
Decostole Carting Co.	1481 Troy Avenue, Brooklyn, NY 11203	M 1	300	BK17
Flag Container Services, Inc.	11 Ferry Street, Staten Island, NY 10302	M 3	2,250	SI1
G.M. Transfer Inc.	216-222 Manida Street, Bronx, NY 10474	M 3	0	BX2
IESI NY Corporation	548 Varick Avenue, Brooklyn, NY 11222	M 3	1,350	BK1
John Danna and Sons, Inc.	318 Bryant Avenue, Bronx, NY 10474	M 3	405	BX2
Kid's Waterfront Corp.	1264 Viele Avenue, Bronx, NY 10474	M 3	750	BX2
New Style Recycling Corp.	49-10 Grand Avenue, Maspeth, NY 11378	M 3	225	QN5
Point Recycling, Ltd.	686 Morgan Avenue, Brooklyn, NY 11222	M 3	300	BK1
Regal Recycling, Ltd.	172-06 Douglas Avenue, Jamaica, NY 11433	M 1	266	QN12
Stokes Waste Paper Co., Inc.	17-25 Van Street, Staten Island, NY 10310	M 1	844	SI1
Thomas Novelli Contract. Corp.	94-20 Merrick Blvd., Jamaica, NY 11433	M 1	375	QN12
Waste Management of NY, LLC	123 Varick Avenue, Brooklyn, NY 11237	M 3	5,250	BK1
Waste Management of NY, LLC	232 Gardner Avenue, Brooklyn, NY 11237	M 3	6,480	BK1
Waste Management of NY, LLC	315 Barretto Street, Bronx, NY	M 3	1,037	BX2
Waste Management of NY, LLC	620 Truxton Street, Bronx, NY 10474	M 3	1,050	BX2
Waste Management of NY, LLC	75 Thomas Street, Brooklyn, NY 11222	M 3	1850	BK1

Notes:

(1) Some facilities have dual permits (for example, putrescible/non-putrescible) and appear on both lists of permits.

(2) Source: DSNY Quarterly Transfer Station Report Summary (third quarter 2003). Throughput is NYDEC permitted throughput.

Fill Material Transfer Station Permits[1]

Company	Address	Zone	Permitted Allowable Storage Volume (cubic yard)[2]	Community Board
Allocco	540 Kingsland Avenue, Brooklyn, NY 11222	M-3	10,666	BK 1
Bronx City Recycling, Inc	1390 Viele Avenue, Bronx, NY 10474	M-3	1,400	BX 2
Bronx County Recycling, LLC	475 Exterior Street, Bronx, NY 10451	M-2	6,000	BX 1
Consolidated Edison Co. of New York	276-290 Avenue C, NY, NY 10003	M3	250	MN 6
Durante Brothers	31-40 123rd Street, Flushing, NY 11354	M3	14,696	QN 7
Felix Equities	290 East 132nd Street, Bronx, NY 10454	M3	300	BX1
Evergreen Recycling of Corona	The Corona Meadows Yard, Corona, NY 11368	M3	50,000	QN 7
Grace Associates, Inc.	151-45 Sixth Road, Whitestone, NY 11357	M1	25,000	QN 7
Interstate Materials Corporation	211 Johnson Street, Staten Island, NY 10309	M-3	75,000	SI 3
J.A. Bruno	280 Meredith Avenue, Staten Island, NY 10314	M-3	40,000	SI 2
Justus Recycling	3300 Provost Avenue, Bronx, NY 10475	M1	11,000	BX 10
Keyspan Energy	287 Maspeth Avenue, Brooklyn, NY 11201	M3	10,000	BK 1
Maspeth Recycling	58-08 48th Street, Maspeth, NY 11378	M3	30,000	QN 5
N.Y. Paving	37-18 Railroad Avenue, LIC, NY 11101	M1	500	QN 2
Pebble Lane Associates, Inc.	57-00 47th Street, Maspeth, NY 11378	M3	7,500	QN 5
Red Hook Crushers	186 Third Street, Brooklyn, NY 11215	M2	5,000	BK 6
Russo Recycling	248-12 Brookville Blvd., Rosedale, NY 11422	M1	20,000	QN 13
T. Novelli	94-07 Merrick Blvd., Jamaica, NY 11433	M-1	1,500	QN 12
Tilcon New York, Inc.	980 East 149th Street, Bronx, NY 10455	M3	80,000	BX 1
T.M. Maintenance	451 Spencer Street, Staten Island, NY 10314	M3	25,000	SI 2
Vanbro	1900 South Avenue, Staten Island, NY 10314	M3	400,000	SI 2
Waste Management of NY, LLC	73 Place & South Railroad Ave., Woodside, NY 11377	M1	15,000	QN 2

Notes:

(1) Some facilities have dual permits (for example, putrescible/non-putrescible) and appear on both lists of permits.

(2) Source: DSNY Quarterly Transfer Station Report Summary (third quarter 2003). Throughput is NYDEC permitted throughput.

ATTACHMENT B

Bureau of Legal Affairs Memo: Supplemental Information to be Included with and Deemed a Part of the Completed Environmental Assessment Statement

sanitation

BUREAU OF LEGAL AFFAIRS
125 Worth Street, 7th Floor
New York, New York 10013
Fax (212) 442-9090, 791-3824

Tel. (212) _____

DATE: Revised February 9, 1999
July 5, 1994, original draft

TO: Solid Waste Transfer Station Permit Applicants

FROM: The New York City Department of Sanitation, Bureau of Legal Affairs

RE: SUPPLEMENTAL INFORMATION TO BE INCLUDED WITH AND DEEMED A PART OF THE COMPLETED ENVIRONMENTAL ASSESSMENT STATEMENT

Unless otherwise agreed to in advance by the Department of Sanitation, the following information and documentation is required to accompany a complete Environmental Assessment Statement ("EAS"). This Supplemental information, together with a copy of the New York State Department of Environmental Conservation Part 360 application and any other information the Department requires you to submit during the environmental review process is deemed to be a part of the EAS. The Department reserves its right to request additional information or clarification on an as needed basis.

I. General

A. Provide a detailed description of the current and proposed solid waste processing operations at the facility, including, but not limited to:

1. a list of the types and quantity of equipment used on the premises;

2. the types and quantity of fuel used for each type of equipment; and

3. the manufacturer's literature for each type of equipment;

B. a statement of whether crushers or conveyor belts are or will be used;

C. a statement of whether the site is, or will be paved or unpaved;

D. a statement identifying those parts of the transfer station operation that will take place in an **enclosed** facility and those parts of the transfer station operation that will take place in an **unenclosed** facility;

E. 1. a description of how and where each type of waste material is, or will be, stored;

2. the number of piles of debris;

3. heights of piles;

4. density of piles;

5. area of piles (in square footage); and

6. number of active/inactive piles depending on how long each type of waste remains on premises;

F. 1. the turnaround times of the material to be processed;

2. the quantity of material that is stored on the site;

3. the length of time the material will be stored;

4. the maximum length of time waste remains in the facility prior to transfer;

Applicants must specifically address each of the points listed above. Selectively addressing these points will not suffice and your application will be returned.

G. Provide a copy of the **current** extermination contract. The contract must be an executed contract. Simply providing a letter from an exterminator indicating that services will be rendered, or copies of past bills will not suffice. Applications that are submitted without a copy of an executed contract will be returned.

II. Solid Waste Composition

A. Provide a description of the types of solid waste materials currently, and proposed to be, handled at the facility and the maximum throughput amounts of each type of waste to be processed or handled at the facility.

1. calculated in volume measurements; and

2. calculated in absolute weight measurements;

III. Maps

A. Provide a map incorporating the following specifications in a **legible** format unless otherwise agreed to by the Department.

1. a four hundred foot (400 ft.) radius from the perimeter boundaries of the site using a scale of 1:50 or 1:60 and indicate north/south;

2. indicate the nearest residence(s) and odor sensitive receptors as such terms are defined in Section V. (D); and

3. indicate bulk and uses on all lots included within the radius;

B. Provide a map clearly showing the site and surrounding area within a half mile radius of the boundaries of the site. **You must clearly mark on the Zoning map a half mile radius from the boundaries of the entire site.**

IV. Site and Facility Background Information

A. Site/Facility Plan - Provide a map clearly showing the layout of the transfer station at a scale of 1/8 inch = 1 foot. The following items must be clearly indicated:

1. structures;

2. curb cuts;

3. location and dimensions of stacks;

4. location of fences, gates, entrances and exits;

5. location of solid waste processing areas;

6. location of sewer, drains and spigots;

7. employee parking areas;

8. internal traffic flow;

9. truck loading and unloading areas;

10. locations where vehicles will be stored on site and locations where trucks will queue while waiting to tip or load materials, and;

11. location of odor control equipment.
(This information is also required in Section V. (B.))

B. Fifty (50) Year Site History - You must provide a fifty year history land use review showing the uses of the site since 1947. Please briefly describe the property use for these years accordingly. Acceptable documentation includes Sanborn maps and New York City Department of Buildings Certificate of Occupancy tax maps, etc. In addition, if any above or underground storage tanks are located on the site, you must provide the following:

1. A copy of the New York City Fire Department inspection records;

2. A copy of all records on tank testing and leaks, including those maintained by the New York City Bureau of Fire Prevention, Buried Tank Unit and the New York State

Department of Environmental Conservation;

3. If available, a description of the tanks, including dimensions, volume, construction material, age and type of material contained in the tanks, and the fate of such tanks (i.e., plans for removal or filling and sealing).

C. If any aboveground storage tanks or underground storage tanks were removed from the site you must provide an affidavit and/or appropriate removal documentation stating that the tanks were removed.

The above information may be obtained by contacting:

1. **New York City Bureau of Fire Prevention**
9 Metrotech Center
Brooklyn, New York 11201

Contact: Daniel Flynn, Manager, File Records
(718) 999-2684

2. **DEC Hazardous Waste Division and Underground Tank Unit**
47-40 21st Street
Long Island City, New York

Contact: Koon Tang (for information concerning tanks holding 1,100 gallons or more)
(718) 482-4996

V. Odor Protocol

A. Provide a written Odor Control Plan detailing:

1. how the facility intends to control any odors;

B. Explain the type of odor controlling devices to be used at the facility;

1. provide factory literature and Material Safety Data Sheets (MSDS) for all chemicals used in the deodorizing process;

2. highlight on a map where each device is, or will, be located; (Please indicate this information on the Site Plan required in Section IV.)

C. List and describe all existing land uses immediately adjacent to, and directly or diagonally across the street from, the property lines of the project site.

1. estimate distances from the nearest project site boundary;*

D. Identify and describe in chart form and list on a map the odor sensitive receptors within 400 feet of property lines of the site:

1. estimate the distances of these odor sensitive receptors from the project site;

Odor sensitive receptors include: residential facilities, educational facilities, public water supply facilities, health care facilities, social services facilities, recreational facilities, parks, playgrounds and commercial facilities.*

E. Identify and describe in chart form and list on a map all existing facilities of any type within 400 feet of the property lines of the site with existing of potential odor impacts (e.g., putrescible or non-putrescible solid waste transfer stations, composting facilities, liquid storage, or surface impoundment facilities).

1. estimate the facilities' distance of these facilities from the project site;*

VI. Traffic Analysis

A. Provide a Truck Routes Map identifying the routes trucks accessing and departing the facility use, or will use, within a half-mile radius;

B. Provide two hourly charts indicating:

1. current and proposed arrivals and departures of vehicles by waste category and vehicle type over the course of a typical 24-hour period and for the facility operating at its maximum throughput capacity;

2. specify the peak hours of operation for the facility;

3. describe the methodology used to determine what constitutes a typical 24-hour period (e.g., a description of how you determined what a typical 24-hour period is). You may be asked in the future to povide written support to justify your traffic analysis in a "typical 24-hour period;"

4. include total hourly vehicle trip ends (i.e., truck trip ends for each waste type plus employee trip ends) and indicate peak hours; and

5. include trip ends to weigh stations. A "trip end" is a one-way. A round trip equals two "trip ends;"

If the facility has or will have its own weigh station, you must provide proof of its existence. If the facility receives, or will receive, trips from other transfer stations for the purpose of using the weigh station, the number of these trip ends on an hourly basis must be given.

C. Provide the number, type and capacity of trucks utilizing the facility;

1. include the weight of trucks and the number of wheels per truck;

(*The Land Use Map will be helpful and should be consulted to provide the information requested.)

D. Provide the number of current and proposed employees by shift and the hours of each shift;

1. identify the number of employee-related vehicle trips generated during each hour of operation and where they park;

E. Describe the proximity of truck routes to facilities that attract schoolchildren or the elderly;

F. Provide a map or a written description indicating on-street parking regulations adjacent to the facility;

G. If trucks need to queue on the streets adjacent to the facility before tipping and/or when waiting to load prior to departure:

1. provide information as to where, when, and for how long on the Site Plan or in a separate description; and

2. provide the amount of on-street parking, and queuing space available immediately adjacent to the facility;

H. Provide the hours of proposed operation for the facility;

I. Provide the number of width of curb-cuts and whether they are one-way or two-way;

J. Provide the direction of streets immediately adjacent to the facility;

K. Provide the number of parking spaces available for employees, trucks and visitors;

<u>Emissions and Drainage</u>

A. Provide a written plan describing how the facility intends to control Fugitive Dust Emissions. You must also provide the ventilation plans for any enclosed structures on the site;

B. Drainage Plan

1. Provide the quantity and quality of wastewater effluent generated by the facility per day;

2. Provide a copy of the potable plumbing riser diagram, detailing all backflow prevention devices;

3. Provide a copy of the wastewater plumbing riser diagram, detailing all backflow prevention devices;

4. Describe the storm water and hosing procedures drainage plan to be used at the facility which incorporates the necessary provision for preventing its wastewater run-off and solid wastes from entering city sewers untreated. The drainage plan must include:

a. the location and scale of on-site drain(s), pretreatment system and containment

system; and

b. the location of the connection points, if any, to the New York City sewer system.

5. Specifically, indicate whether pretreatment will be provided in accordance with Federal categorical pretreatment standards;

The plumbing diagrams and drainage information required above must be provided at the time the application is submitted. Promising to provide the diagrams or information at a later date will not suffice and your application will be returned.

VIII. Waterfront Revitalization Program

A. Identify whether or not the site is within the City's Local Waterfront Revitalization Program (LWRP) boundaries. If it is, you must include the following information:

1. a map showing the location of the site with respect to the boundaries of the LWRP;

2. identify whether or not the site is within the States's coastal Hazard Area boundaries or within FEME zones; and

3. complete every item and return the attached Waterfront Consistency Assessment Form.

If the facility is located within the City's Local Waterfront Revitalization Program boundaries, failure to return a completed Waterfront Consistency Assessment Form with the information required above will result in your application being returned.